REPORTS OF THE COUNCIL ON SCIENCE AND PUBLIC HEALTH

The following reports were presented by Padmini Ranasinghe, MD, MPH, Chair:

1. COUNCIL ON SCIENCE AND PUBLIC HEALTH SUNSET REVIEW OF 2016 HOUSE POLICIES

Reference committee hearing: see report of Reference Committee D.

HOUSE ACTION: RECOMMENDATIONS ADOPTED AS FOLLOWS
REMAINDER OF REPORT FILED

Policy G-600.110, "Sunset Mechanism for AMA Policy," calls for the decennial review of American Medical Association (AMA) policies to ensure that our AMA's policy database is current, coherent, and relevant. This policy reads as follows, laying out the parameters for review and specifying the needed procedures:

1. As the House of Delegates adopts policies, a maximum ten-year time horizon shall exist. A policy will typically sunset after ten years unless action is taken by the House of Delegates to retain it. Any action of our AMA House that reaffirms or amends an existing policy position shall reset the sunset "clock," making the reaffirmed or amended policy viable for another 10 years.

2. In the implementation and ongoing operation of our AMA policy sunset mechanism, the following procedures shall be followed: (a) Each year, the Speakers shall provide a list of policies that are subject to review under the policy sunset mechanism; (b) Such policies shall be assigned to the appropriate AMA councils for review; (c) Each AMA council that has been asked to review policies shall develop and submit a report to the House of Delegates identifying policies that are scheduled to sunset; (d) For each policy under review, the reviewing council can recommend one of the following actions: (i) retain the policy; (ii) sunset the policy; (iii) retain part of the policy; or (iv) reconcile the policy with more recent and like policy; (e) For each recommendation that it makes to retain a policy in any fashion, the reviewing council shall provide a succinct, but cogent justification (f) The Speakers shall determine the best way for the House of Delegates to handle the sunset reports.

3. Nothing in this policy shall prohibit a report to the HOD or resolution to sunset a policy earlier than its 10-year horizon if it is no longer relevant, has been superseded by a more current policy, or has been accomplished.

4. The AMA councils and the House of Delegates should conform to the following guidelines for sunset: (a) when a policy is no longer relevant or necessary; (b) when a policy or directive has been accomplished; or (c) when the policy or directive is part of an established AMA practice that is transparent to the House and codified elsewhere such as the AMA Bylaws or the AMA House of Delegates Reference Manual: Procedures, Policies and Practices.

5. The most recent policy shall be deemed to supersede contradictory past AMA policies.

6. Sunset policies will be retained in the AMA historical archives.

RECOMMENDATION

The Council on Science and Public Health recommends that the House of Delegates policies listed in the appendix to this report be acted upon in the manner indicated and the remainder of this report be filed. (Directive to Take Action)

Fiscal Note: Minimal

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APPENDIX: RECOMMENDED ACTIONS

Policy Number	Title	Text	Recommendation
D-120.936	Urine Drug Testing	Our AMA will, in conjunction with the AMA Opioid Task Force, develop practical guidance and educational materials to assist physicians with implementing urine drug testing as part of a risk mitigation strategy when opioid analgesics are prescribed for chronic use.	Rescind, accomplished. *The AMA hosted the Webinar "The Art of Urine Drug Testing: A Patient-Centered Approach." The AMA also promotes related education on the AMA Ed Hub™: Fundamentals of Urine Drug Testing and Crossing the Knowledge Gap in Drug Test Interpretation.*
D-120.937	Hormone Therapies: Off-Label Uses and Unapproved Formulations	Our AMA urges the United States Pharmacopeia to re-examine the validity of the current estriol monograph.	Retain, still relevant.
D-120.940	NPS Report Distribution to Practicing Physicians	Our AMA will distribute and promote the National Pain Strategy report to practicing physicians.	Rescind, accomplished.
D-120.969	Compounded Hormone Therapy Preparations	Our AMA: (1) recognizes the term "bioidentical hormone" as a marketing term not grounded in science; use of the term "compounded hormone therapy" is preferred; (2) will urge that renewed attention be devoted to the purity and potency of compounded hormone therapy formulations; (3) will urge continued attention to the reporting of adverse events related to the use of compounded hormone therapies; (4) recommends that physicians and other prescribers fully inform patients of the potential side effects and risks of the use of compounded hormone replacement therapy; (5) will request that when drug ingredients with black box warnings are used in compounded products, patients should be informed about the warnings and precautions associated with the use of such drug ingredients; and (6) supports that patients be informed that compounded products are not FDA-approved.	Retain, still relevant.
D-120.988	Inappropriate Actions by Pharmacies and Pharmacy Benefit Managers	Our AMA, in cooperation with pharmacy benefit managers, pharmacy companies, and other drug retailing organizations, shall develop model procedures that physicians may use when prescribing off-formulary pharmaceuticals that are medically indicated and that these procedures be in	Retain, still relevant.

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		compliance with the Health Insurance and Portability and Accountability Act of 1996.	
D-135.970	Coal-Tar Based Sealcoat Threat to Human Health and the Environment	Our AMA will advocate for legislation to ban the use of pavement sealcoats that contain polycyclic aromatic hydrocarbons (PAH) or require use of sealcoat products that contain minimal PAH.	Retain, still relevant.
D-135.986	Public Health Hazards Associated with Landscaping Services	Our AMA encourages the Occupational Safety and Health Administration to collaborate with the AMA, other appropriate medical societies, and other pertinent federal agencies to identify and recommend strategies to prevent and reduce the potential public health hazards created by various landscaping services (including lawn-mowing, fertilization, weed, insect & grub control, tree & bush care, debris removal, fence, driveway, rock garden & stone path construction requiring use of saws, and a full spectrum of motorized equipment).	Retain as amended to correct formatting errors. Our AMA encourages the Occupational Safety and Health Administration to collaborate with the AMA, other appropriate medical societies, and other pertinent federal agencies to identify and recommend strategies to prevent and reduce the potential public health hazards created by various landscaping services (including lawn-mowing, fertilization, weed, insect, and ~~&~~ grub control, tree ~~&~~ and bush care, debris removal, fence, driveway, rock garden and ~~&~~ stone path construction requiring use of saws, and a full spectrum of motorized equipment).
D-135.987	Modern Chemicals Policies	Our AMA: (1) will call upon the United States government to implement a national modern, comprehensive chemicals policy that is in line with current scientific knowledge on human and environmental health, and that requires a full evaluation of the health impacts of both newly developed and industrial chemicals now in use; and (2) encourages the training of medical students, physicians, and other health professionals about the human health effects of toxic chemical exposures.	Retain, still relevant.
D-135.993	Contamination of Drinking Water by Pharmaceuticals and Personal Care Products	Our AMA supports the EPA and other federal agencies in engaging relevant stakeholders, which may include, but is not limited to the AMA, pharmaceutical companies, pharmaceutical retailers, state and specialty societies, and public health organizations in the development of guidelines for physicians and the public for the proper disposal of pharmaceuticals and personal care products to prevent contamination of drinking water systems.	Retain as amended and convert to an H-policy. Our AMA supports ~~the EPA and other federal agencies in engaging relevant stakeholders, which may include, but is not limited to the AMA, pharmaceutical companies, pharmaceutical retailers, state and specialty societies, and public health organizations in the development of guidelines for physicians and the public for~~ the proper disposal of pharmaceuticals and personal care products to

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			prevent contamination of drinking water systems. *The EPA has developed resources and finalized a rule on managing pharmaceutical waste.*
D-30.994	Take Action to End Alcohol Ads on College Sports Telecasts	Our AMA will enhance its efforts to end alcohol advertising on sports broadcasts and particularly on college sports broadcasts; and to reach this goal, work with others to place special emphasis on college athletic conferences that are now or soon will be negotiating broadcast rights contracts, taking steps that include, but are not limited to: (1) Appealing directly to the NCAA, all college athletic conferences and member schools to end alcohol ads on their broadcasts; (2) Encouraging physicians, particularly those in or associated with college communities, to express their opposition to alcohol ads directly to top college administrators; (3) Urging state and local medical associations to contact colleges in their jurisdictions--particularly in the above conferences--and press them to end alcohol ads on their broadcasts; (4) Urging state and local medical associations to call on state legislatures to pass resolutions requesting colleges in their state to end alcohol ads on their broadcasts; and (5) Organizing a "sign-on" letter from medical societies to the NCAA President and Executive Committee urging an end to alcohol ads on NCAA broadcasts.	Retain, still relevant.
D-440.997	Support for Public Health	1. Our AMA House of Delegates request the Board of Trustees to include in their long range plans, goals, and strategic objectives to support the future of public health in order "to fulfill society's interest in assuring the conditions in which people can be healthy." This shall be accomplished by AMA representation of the needs of its	Retain as amended. 1. Our AMA House of Delegates request the Board of Trustees to include in their long range plans, goals, and strategic objectives to support the future of public health in order "to fulfill society's interest in assuring the conditions in which people can be healthy."

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		members? patients in public health-related areas, the promotion of the necessary funding and promulgation of appropriate legislation which will bring this to pass. 2. Our AMA: (A) will work with Congress and the Administration to prevent further cuts in the funds dedicated under the Patient Protection and Affordable Care Act to preserve state and local public health functions and activities to prevent disease; (B) recognizes a crisis of inadequate public health funding, most intense at the local and state health jurisdiction levels, and encourage all medical societies to work toward restoration of adequate local and state public health functions and resources; and (C) in concert with state and local medical societies, will continue to support the work of the Centers for Disease Control and Prevention, and the efforts of state and local health departments working to improve community health status, lower the risk of disease and protect the nation against epidemics and other catastrophes. 3. Our AMA recognizes the importance of timely research and open discourse in combatting public health crises and opposes efforts to restrict funding or suppress the findings of biomedical and public health research for political purposes.	This shall be accomplished by AMA representation of the needs of its members~~?~~ and patients in public health-related areas, and the promotion of the necessary funding and promulgation of appropriate legislation which will bring this to pass.
D-490.979	Banning Smoking in All Workplaces	Our AMA will (1) actively support national, state, and local legislation and actively pursue regulations banning smoking in all workplaces; and (2) work to ensure that federal legislation banning smoking in all workplaces does not prohibit or weaken more strict state or local regulations.	Retain, still relevant.
D-620.989	Promote Teen Health Week	1. Our AMA will actively promote Teen Health Week 2017 and encourage state medical associations and specialty medical associations across the nation to join the initial efforts as originated in Pennsylvania, and will encourage schools and other appropriate organizations to adopt, promote and participate in Teen Health Week.	Retain as amended and convert to an H-policy. 1. Our AMA will actively promote Teen Health Week ~~2017~~ and encourage state medical associations, ~~and~~ specialty medical associations, ~~across the nation to join the initial efforts as originated in Pennsylvania, and will encourage~~ schools and other

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		2. Our AMA will actively advocate, through direct communication with the appropriate agencies and organizations, for the development of an annually recognized Teen Health Week.	appropriate organizations to adopt, promote and participate in Teen Health Week. ~~2. Our AMA will actively advocate, through direct communication with the appropriate agencies and organizations, for the development of an annually recognized Teen Health Week~~ *The AMA promoted Teen Health Week via an article in 2017 and 2018. We also promoted the International Adolescent Health Week in 2021 (Facebook interview with founder of IAHW).*
H-10.961	Ocular Injuries from Air Guns	Our AMA: (1) encourages the use and provision of protective eyewear when using air guns; and (2) encourages education on the proper use of protective eyewear to avoid ocular injuries.	Retain, still relevant.
H-10.974	Assurance of the Public's Health Aboard Cruise Ships	The AMA, through federal legislation or international treaty as appropriate, urge the development of standards for the provision of medical care, including emergency medical care, for passengers aboard cruise ships entering or leaving United States ports.	Retain as amended. The AMA~~, through federal legislation or international treaty as appropriate, urge the development of~~ supports standards for the provision of medical care, including emergency medical care, for passengers aboard cruise ships entering or leaving United States ports. *The American College of Emergency Physicians published Cruise Ship Health Care Guidelines, which according to the CDC, most major cruise lines follow.*
H-115.985	Warning Labels on Over-The-Counter Iron Preparations and Dietary Supplements	The AMA (1) urges physicians to warn diagnosed patients with hereditary hemochromatosis against the use of over-the-counter iron preparations and dietary supplements containing iron; (2) believes that therapeutic doses of iron should be used only to treat iron-deficiency anemia; and (3) believes that the prophylactic use of iron preparations should be reserved for individuals at high risk of developing iron deficiency.	Retain, still relevant.

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H-120.932	Pharmacy Review of First Dose Medication	It is AMA policy that a pharmacist should be available in person or by other means for consultation when medication is administered in a hospital setting.	Retain, still relevant.
H-120.943	Adequate Prescription Medication Supply	1. Our AMA urges health plans to: (a) define a month's supply as a minimum of 31 days and three month's supply as a minimum of 93 days, so that patients are not shorted on their one-month or three-month supply of prescription drugs; and (b) allow prescription refills to provide the appropriate number of doses for the time period specified by the physician. 2. Our AMA will advocate and support advocacy at the state and federal levels against arbitrary prescription limits that restrict access to medically necessary treatment by limiting the dose, amount or days of the first or subsequent prescription for patients with pain related to a cancer or terminal diagnosis.	Retain, still relevant.
H-120.945	Pharmacy Compounding	Our AMA: (1) recognizes that traditional compounding pharmacies must be subject to state board of pharmacy oversight and comply with current United States Pharmacopeia and National Formulary (USP-NF) compounding monographs, when available, and recommends that they be required to conform with USP-NF General Chapters on pharmaceutical compounding to ensure the uniformity, quality, and safety of compounded medications; (2) encourages all state boards of pharmacy to reference sterile compounding quality standards, including but not limited to those contained in United States Pharmacopeia Chapter 797, as the standard for sterile compounding in their state, and to satisfy other relevant standards that have been promulgated by the state in its laws and regulations governing pharmacy practice; (3) supports the view that facilities (other than pharmacies within a health system that serve only other entities within that health system) that compound sterile drug products without receiving a prescription order prior to beginning compounding and introduce such compounded drugs into interstate	Retain, still relevant.

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		commerce be recognized as compounding manufacturers subject to FDA oversight and regulation; (4) supports the view that allowances must be made for the conduct of compounding practices that can realistically supply compounded products to meet anticipated clinical needs, including urgent and emergency care scenarios, in a safe manner; and (5) in the absence of new federal legislation affecting the oversight of compounding pharmacies, continues to encourage state boards of pharmacy and the National Association of Boards of Pharmacy to work with the United States Food and Drug Administration to identify and take appropriate enforcement action against entities that are illegally manufacturing medications under the guise of pharmacy compounding.	
H-120.963	Epidemiology of Drug Errors	The AMA will continue its collaborations with the Food and Drug Administration and the US Pharmacopoeial Convention, Inc., along with its own ongoing initiatives, to identify and eliminate causes of medication errors.	Retain as amended to update terminology and correct spelling. The AMA will continue its collaborations with the Food and Drug Administration and the US Pharmacop~~o~~eial Convention, ~~Inc.~~, along with its own ongoing initiatives, to identify and eliminate causes of medication errors.
H-125.985	Expanded Use of the AMA's Principles of a Sound Drug Formulary	Our AMA urges managed care organizations, pharmacy benefit managers, and others who design benefit packages and/or make pharmacy benefit decisions, to utilize the Principles of a Sound Drug Formulary System (as described in BOT Rep. 28, I-00) as they develop their pharmaceutical benefit plan(s) and that the Principles of a Sound Drug Formulary System be readily available on the AMA web site.	Retain as amended. Our AMA urges managed care organizations, pharmacy benefit managers, and others who design benefit packages and/or make pharmacy benefit decisions, to utilize the Principles of a Sound Drug Formulary System ~~(as described in BOT Rep. 28, I-00)~~ as they develop their pharmaceutical benefit plan(s) ~~and that the Principles of a Sound Drug Formulary System be readily available on the AMA web site.~~ *AMA does not have control over this resource and thus, would not showcase it on our website. The resource is readily available online.*
H-130.979	National Disaster Medical System	The AMA endorses the U.S. Department of Homeland Security's National Disaster Medical System, which was designed to fulfill three main objectives: (1) to provide medical assistance to a disaster area in the	Retain as amended. The AMA endorses the U.S. Administration for Strategic Preparedness and Response's ~~U.S. Department of Homeland Security's~~

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		form of medical teams, supplies and equipment; (2) to evacuate patients who cannot be cared for in the affected area to designated locations elsewhere in the nation; and (3) to provide hospitalization in a national network of hospitals that have agreed to accept patients in the event of a national emergency.	National Disaster Medical System which was designed to fulfill three main objectives: (1) to provide medical assistance to a disaster area in the form of medical teams, supplies and equipment; (2) to evacuate patients who cannot be cared for in the affected area to designated locations elsewhere in the nation; and (3) to provide hospitalization in a national network of hospitals that have agreed to accept patients in the event of a national emergency. *The National Disaster Medical System is no longer managed under the Department of Homeland Security; it's under HHS's Administration for Strategic Preparedness and Response.*
H-135.924	Assurance and Accountability for EPA's State Level Agencies	Our AMA supports requiring that the United States Environmental Protection Agency (EPA) conduct regular quality assurance reviews of state agencies that are delegated to enforce EPA regulations.	Retain, still relevant.
H-135.925	Medications Return Program	1. Our AMA supports access to safe, convenient, and environmentally sound medication return for unwanted prescription medications 2. Our AMA supports such a medication disposal program be fully funded by the pharmaceutical industry, including costs for collection, transport and disposal of these materials as hazardous waste. 3. Our AMA supports changes in federal law or regulation that would allow a program for medication recycling and disposal to occur.	Retain, still relevant.
H-135.927	Human and Environmental Effects of Light Emitting Diode (LED) Community Lighting	1. Our AMA supports the proper conversion to community-based Light Emitting Diode (LED) lighting, which reduces energy consumption and decreases the use of fossil fuels. 2. Our AMA encourages minimizing and controlling blue-rich environmental lighting by using the lowest emission of blue light possible to reduce glare. 3. Our AMA encourages the use of 3000K or lower lighting for outdoor installations	Retain, still relevant.

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		such as roadways. All LED lighting should be properly shielded to minimize glare and detrimental human and environmental effects, and consideration should be given to utilize the ability of LED lighting to be dimmed for off-peak time periods.	
H-135.936	Proper Disposal of Unused Prescription and Over-the-Counter (OTC) Drugs	1. Our AMA supports initiatives designed to promote and facilitate the safe and appropriate disposal of unused medications. 2. Our AMA will work with other national organizations and associations to inform, encourage, support and guide hospitals, clinics, retail pharmacies, and narcotic treatment programs in modifying their US Drug Enforcement Administration registrations to become authorized medication collectors and operate collection receptacles at their registered locations. 3. Our AMA will work with other appropriate organizations to develop a voluntary mechanism to accept non-controlled medication for appropriate disposal or recycling.	Retain as amended. 1. Our AMA supports initiatives designed to promote and facilitate the safe and appropriate disposal of unused medications. 2. Our AMA ~~will work with other~~ supports efforts by national organizations and associations to inform, encourage, ~~support~~ and guide hospitals, clinics, retail pharmacies, and narcotic treatment programs in modifying their US Drug Enforcement Administration registrations to become authorized medication collectors and operate collection receptacles at their registered locations. 3. Our AMA ~~will work with~~ supports other appropriate organizations ~~to~~ developing a voluntary mechanism to accept non-controlled medication for appropriate disposal or recycling. *Related AMA work includes the following: Keeping unused meds out of the wrong hands just got easier ; 2024 FDA Guidance ; 2025 FDA Guidance ; AMA 2019 Article – AMA urges participation in Prescription Drug Take Back Day*.
H-135.956	Human and Environmental Health Impacts of Chlorinated Chemicals	The AMA: (1) encourages the Environmental Protection Agency to base its evaluations of the potential public health and environmental risks posed by exposure to an individual chlorinated organic compound, other industrial compound, or manufacturing process on reliable data specific to that compound or process; (2) encourages the chemical industry to increase knowledge of the environmental behavior, bioaccumulation potential, and toxicology of their products and by-products; and (3) supports the implementation of risk reduction practices	Retain, still relevant.

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		by the chemical and manufacturing industries.	
H-145.973	Firearm Related Injury and Death: Adopt a Call to Action	Our AMA endorses the specific recommendations made by an interdisciplinary, inter-professional group of leaders from the American Academy of Family Physicians, American Academy of Pediatrics, American College of Emergency Physicians, American College of Obstetricians and Gynecologists, American College of Physicians, American College of Surgeons, American Psychiatric Association, American Public Health Association, and the American Bar Association in the publication "Firearm-Related Injury and Death in the United States: A Call to Action From 8 Health Professional Organizations and the American Bar Association," which is aimed at reducing the health and public health consequences of firearms and lobby for their adoption.	Retain, still relevant.
H-145.982	Prevention of Ocular Injuries from BB and Air Guns	The AMA encourages businesses that sell BB and air guns to make appropriate and safe protective eye wear available and encourages its use to their customers and to distribute educational materials on the safe use of non-powder guns.	Retain, still relevant.
H-15.978	Voluntary Highway Lights-On Campaign	The AMA advocates and encourages the institution of voluntary lights-on efforts during daylight hours for all motor vehicles not already automatically equipped with daytime running lights on American highways.	Retain, still relevant.
H-150.979	Fast Food	The AMA encourages fast food restaurants to reduce the saturated fat content of their foods, as well as to offer low fat alternatives to highly saturated fat foods.	Retain as amended to correct grammar. The AMA encourages fast food restaurants to reduce the saturated fat content of their foods, as well as to offer low fat alternatives to foods high~~ly~~ in saturated fat ~~foods~~.
H-170.995	Healthful Lifestyles	The AMA believes that consumers should be encouraged and assisted to learn healthful practices by: (1) educating and motivating the consumers to adopt more healthful lifestyles; (2) exploring methods of utilizing public communication more effectively in health education efforts	Retain as amended to correct grammar. The AMA believes that consumers should be encouraged and assisted to learn healthful practices by: (1) educating and motivating the consumers to adopt more healthful lifestyles; (2) exploring methods of utilizing public

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		directed towards motivating consumers to adopt healthful lifestyles; (3) encouraging consumers, in appropriate risk groups, to utilize professional preventive health care services which would permit the early detection and treatment, or the prevention, of illness; and physicians demonstrating these practices through personal examples of health lifestyles.	communication more effectively in health education efforts directed towards motivating consumers to adopt healthful lifestyles; (3) encouraging consumers, in appropriate risk groups, to utilize professional preventive health care services which would permit the early detection and treatment, or the prevention, of illness; and physicians demonstrating these practices through personal examples of healthy lifestyles.
H-20.904	HIV/AIDS Education and Training	(1) Public Information and Awareness Campaigns Our AMA: a) Supports development and implementation of HIV/AIDS health education programs in the United States by encouraging federal and state governments through policy statements and recommendations to take a stronger leadership role in ensuring interagency cooperation, private sector involvement, and the dispensing of funds based on real and measurable needs. This includes development and implementation of language- and culture-specific education programs and materials to inform minorities of risk behaviors associated with HIV infection. b) Our AMA urges the communications industry, government officials, and the health care communities together to design and direct efforts for more effective and better targeted public awareness and information programs about HIV disease prevention through various public media, especially for those persons at increased risk of HIV infection; c) Encourages education of patients and the public about the limited risks of iatrogenic HIV transmission. Such education should include information about the route of transmission, the effectiveness of universal precautions, and the efforts of organized medicine to ensure that patient risk remains immeasurably small. This program should include public and health care worker	Retain as amended to update terminology. …(3) Education and Training Initiatives for Practicing Physicians and Other Health Care ~~Workers~~ Personnel Our AMA supports continued efforts to work with other medical organizations, public health officials, universities, and others to foster the development and/or enhancement of programs to provide comprehensive information and training for primary care physicians, other front-line health ~~workers~~ personnel (specifically including those in addiction treatment and community health centers and correctional facilities), and auxiliaries focusing on basic knowledge of HIV infection, modes of transmission, and recommended risk reduction strategies.

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		education as appropriate and methods to manage patient concern about HIV transmission in medical settings. Statements on HIV disease, including efficacy of experimental therapies, should be based only on current scientific and medical studies; d) Encourages and will assist physicians in providing accurate and current information on the prevention and treatment of HIV infection for their patients and communities; e) Encourages religious organizations and social service organizations to implement HIV/AIDS education programs for those they serve. (2) HIV/AIDS Education in Schools Our AMA: a) Endorses the education of elementary, secondary, and college students regarding basic knowledge of HIV infection, modes of transmission, and recommended risk reduction strategies; b) Supports efforts to obtain adequate funding from local, state, and national sources for the development and implementation of HIV educational programs as part of comprehensive health education in the schools. (3) Education and Training Initiatives for Practicing Physicians and Other Health Care Workers Our AMA supports continued efforts to work with other medical organizations, public health officials, universities, and others to foster the development and/or enhancement of programs to provide comprehensive information and training for primary care physicians, other front-line health workers (specifically including those in addiction treatment and community health centers and correctional facilities), and auxiliaries focusing on basic knowledge of HIV infection, modes of transmission, and recommended risk reduction strategies.	

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H-215.961	Community Benefit Dollars for Diabetes Prevention	1. Our AMA supports allocating community benefit dollars to cover the cost of enrolling patients in an in-person or virtual diabetes prevention program that is part of the Center for Disease Control and Prevention's Diabetes Prevention Recognition Program. 2. Our AMA will work with the American Hospital Association and other stakeholders to develop and disseminate a position paper with guidance for covering the costs of the Center for Disease Control and Prevention's Diabetes Prevention Recognition Program with community benefit dollars. 3. Our AMA encourages each state medical society to work with their respective hospitals and local Diabetes Prevention Program providers to offer the Center for Disease Control and Prevention's Diabetes Prevention Recognition Program to patients. 4. Our AMA encourages that private and public payors offer the Centers for Disease Control and Prevention's Diabetes Prevention Recognition Program to patients as part of their suite of benefits.	Retain, still relevant.
H-245.967	Prevention of Newborn Falls in Hospitals	Our AMA supports implementation of newborn fall prevention plans and post-fall procedures through clinically proven, high-quality, and cost-effective approaches.	Retain, still relevant.
H-25.991	Alzheimer's Disease	Our AMA: (1) encourages physicians to make appropriate use of guidelines for clinical decision making in the diagnosis and treatment of Alzheimer's disease and other dementias; (2) encourages physicians to make available information about community resources to facilitate appropriate and timely referral to supportive caregiver services; (3) encourages studies to determine the comparative cost-effectiveness/cost-benefit of assisted in-home care versus nursing home care for patients with Alzheimer's disease and related disorders;	Retain, still relevant.

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		(4) encourages studies to determine how best to provide stable funding for the long-term care of patients with Alzheimer's disease and other dementing disorders; (5) supports the use of evidence-based cost-effective technologies with prior consent of patients or designated healthcare power of attorney, as a solution to prevent, identify, and rescue missing patients with Alzheimer's disease and other related dementias with the help of appropriate allied specialty organizations; (6) supports increased awareness of the sex and gender differences in incidence and etiology of Alzheimer's disease and related dementias; and (7) encourages increased enrollment in clinical trials of appropriate patients with Alzheimer's disease and related dementias, and their families, to better identify sex-differences in incidence and progression and to advance a treatment and cure of Alzheimer's disease and related dementias.	
H-280.946	Policies on Intimacy and Sexual Behavior in Residential Aged Care Facilities	Our AMA urges long-term care facilities and other appropriate organizations to: (1) adopt policies and procedures on intimacy a nd sexual behavior that preserve residents' rights to pursue sexual relationships, while protecting them from unsafe, unwanted, or abusive situations; and (2) provide staff with in-service training to develop a framework to address intimacy in their patient population.	Retain, still relevant.
H-30.935	Powdered Alcohol	Our AMA supports federal and state laws banning the manufacture, importation, distribution, and sale of powdered or crystalline alcohol intended for human consumption.	Retain, still relevant.
H-30.948	Improving Nutritional State of Persons with Alcohol Use Disorder	The AMA encourages appropriate local, state and federal agencies to increase their efforts to: (a) improve the overall nutritional and health status of individuals with alcohol dependency and (b) reduce alcohol dependency.	Retain as amended to align the policy language with the title. The AMA encourages appropriate local, state and federal agencies to increase their efforts to: (a) improve the overall nutritional and health status of individuals with alcohol use

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			disorder ~~dependency~~ and (b) reduce alcohol use disorder ~~dependency.~~
H-345.971	Faith and Mental Health	Our AMA supports: (1) mental health and faith community partnerships that foster improved education and understanding regarding culturally competent, medically accepted, and scientifically proven methods of care for psychiatric and substance use disorders; (2) better understanding on the part of mental health providers of the role of faith in mental health and addiction recovery for some individuals; and (3) efforts of mental health providers to create respectful, collaborative relationships with local religious leaders to improve access to scientifically sound mental health services.	Retain, still relevant.
H-345.974	Culturally, Linguistically Competent Mental Health Care and Outreach for At-Risk Communities	Our American Medical Association supports adequate attention and funds being directed towards culturally and linguistically competent mental health direct services for the diverse, multi-ethnic communities at greatest risk, and encourages greater cultural and linguistic-competent outreach to ethnic communities including partnerships with ethnic community organizations, health care advocates, and respected media outlets.	Retain, as amended to update language to be more inclusive. Our American Medical Association supports adequate attention and funds being directed towards culturally and linguistically competent mental health direct services for the diverse~~, multi-ethnic~~ communities at ~~greatest~~ risk, and encourages greater cultural and linguistic-competent outreach to ~~ethnic~~ communities including partnerships with ~~ethnic~~ community organizations
H-370.961	Umbilical Cord Blood Transplantation: The Current Scientific Understanding	Our AMA will: (1) encourage continued research into the scientific issues surrounding the use of umbilical cord blood-derived hematopoietic stem cells for transplantation, including the ex vivo expansion of umbilical cord blood-derived hematopoietic stem cells; the combination of multiple units of closely matched, unrelated umbilical cord blood cells for transplantation; and the improvement of umbilical cord blood cells collection techniques; and (2) support education for physicians and the public about the potential benefits of, and limitations to, umbilical cord blood transplantation as an alternative to bone marrow transplantation.	Retain, still relevant.
H-370.970	Umbilical Cord Blood	Our AMA: (1) urges physicians to recognize that umbilical cord blood transplantation is	Retain, still relevant.

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	Transplantation: The Current Scientific Understanding	a viable alternative to bone marrow transplantation in appropriately selected patients; (2) encourages the development of national standardized guidance to address the ethical, economic, and social issues surrounding umbilical cord blood transplantation; and (3) will continue to study cord blood banking in this country, and work with appropriate specialty societies and organizations, such as the National Marrow Donor Program, to develop and disseminate materials to educate physicians and the public about the issues of marketing cord blood banking services directly to patients, the informed consent process, and the existence of federally mandated regulatory oversight of these processes to ensure safety and compliance with specific uniform standards.	
H-420.982	Standard Terminology for Reporting of Reproductive Health Statistics in the United States	The AMA supports attempts to standardize terminology for reproductive health statistics and, thus, to provide a uniform basis from which the collection and analysis of statistical data may proceed.	Retain, still relevant.
H-425.984	Clinical Preventive Services	Implications for Adolescent, Adult, and Geriatric Medicine: (1) Prevention should be a philosophy that is espoused and practiced as early as possible in undergraduate medical schools, residency training, and continuing medical education, with heightened emphasis on the theory, value, and implementation of both clinical preventive services and population-based preventive medicine. (2) Practicing physicians should become familiar with authoritative clinical preventive services guidelines and routinely implement them as appropriate to the age, gender, and individual risk/environmental factors applicable to the patients in the practice at every opportunity, including episodic/acute care visits. (3) Where appropriate, clinical preventive services recommendations should be based on outcomes-based	Retain, still relevant.

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		research and effectiveness data. Federal and private funding should be increased for further investigations into outcomes, application, and public policy aspects of clinical preventive services.	
H-440.824	Educating Clinicians and the Public About Amebic Meningoencephalitis	Our AMA supports: (1) CDC training and education efforts relating to Primary Amebic Meningoencephalitis (PAM); and (2) clinical guidelines and standards of care that promote rapid diagnosis and effective treatment of PAM.	Retain, still relevant. *Diagnosis of PAM is almost exclusively through CDC, which provides 24/7 support. CDC has a page on treatment options. With only 5 survivors and a survival rate of only 5%, it's hard to know what works. Delayed diagnosis is still thought to be a common reason for bad outcomes with PAM.*
H-440.825	Fund for Public Health Emergency Response	Our AMA supports the reauthorization and appropriation of sufficient funds to a public health emergency fund within the Department of Health and Human Services to facilitate adequate responses to public health emergencies without redistributing funds from established public health accounts.	Retain, still relevant.
H-440.826	Opposition to Quarantine for Zika Patients	Our AMA opposes quarantine measures for Zika-infected patients.	Retain, still relevant.
H-440.841	Permitting Sunscreen in Schools	1. Our AMA supports the exemption of sunscreen from over-the-counter medication possession bans in schools and encourages all schools to allow students to bring and possess sunscreen at school without restriction and without requiring physician authorization. 2. Our AMA will work with state and specialty medical societies and patient advocacy groups to provide advocacy resources and model legislation for use in state advocacy campaigns seeking the removal of sunscreen-related bans at schools and summer camp programs.	Retain, still relevant.
H-440.864	Noise Pollution	Our AMA recognizes noise pollution as a public health hazard, with respect to hearing loss, and supports initiatives to increase awareness of the health risks of loud noise exposure.	Retain, still relevant.

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H-440.879	Expedited Partner Therapy (Patient-delivered Partner Therapy): An Update	Our AMA supports the Centers for Disease Control and Prevention's guidance on expedited partner therapy (EPT) that was published in its 2006 white paper, Expedited Partner Therapy in the Management of Sexually Transmitted Diseases.	Retain as amended. Our AMA supports the Centers for Disease Control and Prevention's guidance on expedited partner therapy (EPT) that was published in its ~~2006 white paper, Expedited Partner Therapy in the Management of Sexually Transmitted Diseases~~ Sexually Transmitted Infections (STI) Treatment Guidelines.
H-440.880	Definition of Health	The AMA officially adopts the following definition of health: "Health is a state of physical and mental well-being."	Retain, still relevant. *The Council notes that this definition should include social well-being, but the sunset report is not the appropriate mechanism for this change.*
H-440.897	Noise Induced Hearing Loss In Children And Adolescents	1. Our AMA: (a) encourages public education about the dangers of noise-induced hearing loss especially from toys and electronic devices; and (b) encourages the Consumer Product Safety Commission and other appropriate agencies to study the impact of toys and electronic devices on noise-induced hearing loss among children and adolescents. 2. Our AMA adopts pediatric noise exposure standards recommending that children avoid toys that produce greater than 85 dB of SPL, or greater than 90 dB SPL for more than one hour. 3. Our AMA will work with other stakeholders to ensure toy manufacturers' adherence to pediatric noise exposure standards that children avoid toys that produce 85 dB of SPL, or greater than 90 dB SPL. 4. Our AMA will work with other stakeholders to require that manufacturers label toys with the level of sound produced and/or a warning that sound production exceeds safety standards (85 dB of SPL) and may result in hearing loss.	Retain as amended. 1. Our AMA: (a) encourages public education about the dangers of noise-induced hearing loss especially from toys and electronic devices; and (b) encourages the Consumer Product Safety Commission and other appropriate agencies to study the impact of toys and electronic devices on noise-induced hearing loss among children and adolescents. 2. Our AMA adopts pediatric noise exposure standards recommending that children avoid toys that produce greater than 85 dB of SPL~~, or greater than 90 dB SPL for more than one hour~~. 3. Our AMA will work with other stakeholders to ensure toy manufacturers' adherence to pediatric noise exposure standards that children avoid toys that produce 85 dB of SPL~~, or greater than 90 dB SPL~~. 4. Our AMA will work with other stakeholders to require that manufacturers label toys with the level of sound produced and/or a warning that sound production exceeds safety standards (85 dB of SPL) and may result in hearing loss. *According to the National Institute on Deafness and Other Communication Disorder noises are more likely to damage your hearing if they are: 85 dBA and last a few hours; 100 dBA and last at least 14 minutes; or 110 dBA*

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			and last at least 2 minutes. 85 dB is the level set by the National Institute of Occupational Health and Safety (NIOSH) for mandatory hearing protection.
H-440.948	Health Care Workers Infected with Hepatitis B Virus	All health care workers (i.e., any person involved in patient care in a paid capacity or as a volunteer and as a student, resident, trainee, or trained worker) who are at risk of infection with HBV should be fully immunized with HBV vaccine.	Retain as amended to update language with a change in title. Health Care ~~Workers~~ Personnel Infected with Hepatitis B Virus All health care personnel ~~workers~~ (i.e., any person involved in patient care in a paid capacity or as a volunteer and as a student, resident, trainee, or trained worker) who are at risk of infection with HBV should be fully immunized with a HBV vaccine.
H-455.986	Radon in Residential Dwellings and other Buildings	Our AMA (1) supports assuming a leadership role in educating physicians, others of the health care community, and the public concerning the significance of radon levels in residential dwellings and other buildings and the possible health effects of those levels; and (2) encourages the real estate community to increase transparency and disclosure of prior radon testing, and the most recent results of such testing.	Retain as amended. Our AMA (1) supports ~~assuming a leadership role in~~ educating physicians, others ~~of~~ in the health care community, and the public concerning the significance of radon levels in residential dwellings and other buildings and the possible health effects of those levels; and (2) encourages the real estate community to increase transparency and disclosure of prior radon testing, and the most recent results of such testing.
H-455.989	Involvement of Physician Expertise in Non-Military Radiation Emergencies	The AMA encourages physicians to provide expertise on the health aspects of radiation incidents, emergencies and accidents to the public, the media and responsible government agencies.	Retain, still relevant.
H-460.897	Tobacco Use or Exposure as a Variable in Clinical Research	Our AMA urges clinical investigators to carefully consider the need to include an assessment of smoking status, smoking history, and exposure to secondhand smoke in the design of clinical trial protocols and analysis of patient outcomes.	Retain, still relevant.
H-460.929	Expanded Public Education Program in Support of Animal Research	The AMA opposes legislative limits placed on the appropriate and humane use of animals in research.	Retain, still relevant.
H-470.965	Ultimate and Extreme Fighting	Our AMA: (1) opposes ultimate fighting and extreme fighting events; and (2)	Retain, still relevant.

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		encourages states which have not banned these events to pass a law doing so.	
H-480.944	Improving Genetic Testing and Counseling Services	Our AMA supports: (1) appropriate utilization of genetic testing, pre- and post-test counseling for patients undergoing genetic testing, and physician preparedness in counseling patients or referring them to qualified genetics specialists; (2) the development and dissemination of guidelines for best practice standards concerning pre- and post-test genetic counseling; and (3) research and open discourse concerning issues in medical genetics, including genetic specialist workforce levels, physician preparedness in the provision of genetic testing and counseling services, and impact of genetic testing and counseling on patient care and outcomes.	Retain, still relevant.
H-480.945	Genome Editing and its Potential Clinical Use	Our AMA (1) encourages continued research into the therapeutic use of genome editing; and (2) urges continued development of consensus international principles, grounded in science and ethics, to determine permissible therapeutic applications of germline genome editing.	Retain, still relevant.
H-485.992	Support for Increased Educational Children's Television Programming	The AMA encourages independent television stations and network affiliates throughout the United States to broadcast at least one hour per day, during regular viewing hours, of educational programming for children.	Retain, still relevant.
H-495.977	Banning the Sale of Tobacco Products in Pharmacies and Health Care Facilities	Our AMA supports efforts to ban the sale of tobacco products meeting the definition of "tobacco product" under the Family Smoking Prevention and Tobacco Control Act, with the exception of medicinal nicotine products approved by the FDA, where health care is delivered or where prescriptions are filled, including retail outlets housing store-based health clinics.	Retain, still relevant.
H-50.972	Blood Donor Deferral Criteria Revisions	Our AMA will advocate for the elimination of current deferral policy and ask the Food and Drug Administration to develop recommendations for individual risk	Rescind. *Current AMA policy "Blood and Tissue Donor Deferral Criteria H-50.973" is more comprehensive.*

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		assessment during the public commentary period.	
H-505.961	Challenging the Pro-Tobacco Actions of the U.S. Chamber of Commerce	1. Our AMA strongly objects to any pro-tobacco efforts by the U.S. Chamber of Commerce and encourages the U.S. Chamber of Commerce to be transparent in all advocacy activity on behalf of tobacco companies. 2. Our AMA urges conscientious companies that are members of the U.S. Chamber of Commerce to call for an end to all pro-tobacco efforts within the organization.	Retain, still relevant. *The original policy was prompted by a multipart NYT investigation into how the U.S. Chamber of Commerce (U.S. Chamber) has helped the tobacco industry fight life-saving policies in more than a dozen countries.*
H-510.988	Supporting Awareness of Stress Disorders in Military Members and Their Families	Our AMA supports efforts to educate physicians and supports treatment and diagnosis of stress disorders in military members, veterans and affected families and continue to focus attention and raise awareness of this condition in partnership with the Department of Defense and the Department of Veterans Affairs.	Retain, still relevant.
H-525.975	Heart Disease in Women	1. Our AMA supports increased awareness and education on preventive measures for heart disease in women and encourages comprehensive care of heart disease in women. 2. Our AMA urges research to address the gaps in knowledge related to coronary pathophysiology and diagnostic, treatment, and interventional strategies for heart disease in women; and to better understand the role of demographic, socioeconomic, and psychological factors in the onset of heart disease in women.	Retain, still relevant.
H-525.976	An Expanded Definition of Women's Health	Our AMA recognizes the term "women's health" as inclusive of all health conditions for which there is evidence that women's risks, presentations, and/or responses to treatments are different from those of men, and encourages that evidence-based information regarding the impact of sex and gender be incorporated into medical practice, research, and training.	Retain as amended to address formatting error. Our AMA recognizes the term "women's health" ~~—~~as inclusive of all health conditions for which there is evidence that women's risks, presentations, and/or responses to treatments are different from those of men, and encourages that evidence-based information regarding the impact of sex and gender be incorporated into medical practice, research, and training.

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H-525.991	Inclusion of Women in Clinical Trials	Our AMA: (1) encourages the inclusion of women, including pregnant women when appropriate, in all research on human subjects, except in those cases for which it would be scientifically irrational, in numbers sufficient to ensure that results of such research will benefit both men and women alike; (2) supports the National Institutes of Health policy requiring investigators to account for the possible role of sex as a biological variable in vertebrate animal and human studies; and (3) encourages translation of important research results into practice.	Retain, still relevant.
H-60.916	Youth Incarceration in Adult Facilities	1. Our AMA supports, with respect to juveniles (under 18 years of age) detained or incarcerated in any criminal justice facility: (a) early intervention and rehabilitation services, (b) appropriate guidelines for parole, and (c) fairness in the expungement and sealing of records. 2. Our AMA opposes the detention and incarceration of juveniles (under 18 years of age) in adult criminal justice facilities.	Retain as amended. 1. Our AMA supports, with respect to juveniles (under 18 years of age) detained or incarcerated in any ~~criminal justice~~ correctional facility: (a) early intervention and rehabilitation services, (b) appropriate guidelines for parole, and (c) fairness in the expungement and sealing of records. 2. Our AMA opposes the detention and incarceration of juveniles (under 18 years of age) in adult ~~criminal justice~~ correctional facilities. *The term "criminal justice facility" is not commonly used, especially by NCCHC. The appropriate term is "correctional facility." Amendments reflect that change.*
H-60.922	Solitary Confinement of Juveniles in Legal Custody	Our AMA: (1) opposes the use of solitary confinement in juvenile correction facilities except for extraordinary circumstances when a juvenile is at acute risk of harm to self or others; (2) opposes the use of solitary confinement of juveniles for disciplinary purposes in correctional facilities; and (3) supports that isolation of juveniles for clinical or therapeutic purposes must be conducted under the supervision of a physician.	Retain as amended to update language and change in title. Title Change: Solitary Confinement of Juveniles in ~~Legal Custody~~ Correctional Facilities Our AMA: (1) opposes the use of solitary confinement in juvenile correctional facilities except for extraordinary circumstances when a juvenile is at acute risk of harm to self or others; (2) opposes the use of solitary confinement of juveniles for disciplinary purposes in correctional facilities; and (3) supports that isolation of juveniles for clinical or therapeutic purposes must be conducted under the supervision of a physician.

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H-60.930	Insufficient Sleep in Adolescents	1. Our AMA identifies adolescent insufficient sleep and sleepiness as a public health issue and supports education about sleep health as a standard component of care for adolescent patients. 2. Our AMA: (a) encourages school districts to aim for the start of middle schools and high schools to be no earlier than 8:30 a.m., in order to allow adolescents time for adequate sleep; (b) encourages physicians, especially those who work closely with school districts, to become actively involved in the education of parents, school administrators, teachers, and other members of the community to stress the importance of sleep and consequences of sleep deprivation among adolescents, and to encourage school districts to structure school start times to accommodate the biologic sleep needs of adolescents; and (c) encourages continued research on the impact of sleep on adolescent health and academic performance.	Retain, still relevant.
H-60.986	Health Status of Detained and Incarcerated Youth	Our AMA (1) encourages state and county medical societies to become involved in the provision of adolescent health care within detention and correctional facilities and to work to ensure that these facilities meet minimum national accreditation standards for health care as established by the National Commission on Correctional Health Care; (2) encourages state and county medical societies to work with the administrators of juvenile correctional facilities and with the public officials responsible for these facilities to discourage the following inappropriate practices: (a) the detention and incarceration of youth for reasons related to mental illness; (b) the detention and incarceration of children and youth in adult jails; and (c) the use of experimental therapies, not supported by scientific evidence, to alter behavior. (3) encourages state medical and psychiatric societies and other mental health professionals to work with the state chapters	Retain as amended to update language. (2) encourages state and county medical societies to work with the administrators of juvenile correctional facilities and with the public officials responsible for these facilities to discourage the following inappropriate practices: (a) the detention and incarceration of youth for reasons related to mental <u>health conditions</u> ~~illness~~; (b) the detention and incarceration of children and youth in adult jails; and (c) the use of experimental therapies, not supported by scientific evidence, to alter behavior.

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		of the American Academy of Pediatrics and other interested groups to survey the juvenile correctional facilities within their state in order to determine the availability and quality of medical services provided. (4) advocates for increased availability of educational programs by the National Commission on Correctional Health Care and other community organizations to educate adolescents about sexually transmitted diseases, including juveniles in the justice system.	
H-65.974	Gender-Based Violence	Our AMA: (1) opposes inhumane treatment of people of both genders; and (2) encourages the development of programs to educate and alert all cultures to remaining practices of inhumane treatment based on gender and promote recognition of abusive practices and adequate health care for victims thereof.	Retain as amended to update language. Our AMA: (1) opposes inhumane treatment of people of ~~both~~ all genders; and (2) encourages the development of programs to educate and alert all cultures to remaining practices of inhumane treatment based on gender and promote recognition of abusive practices and adequate health care for ~~victims~~ survivors thereof.
H-75.987	Reducing Unintended Pregnancy	Our AMA: (1) urges health care professionals to provide care for women of reproductive age, to assist them in planning for pregnancy and support age-appropriate education in esteem building, decision-making and family life in an effort to introduce the concept of planning for childbearing in the educational process; (2) supports reducing unintended pregnancies as a national goal; and (3) supports the training of all primary care physicians and relevant allied health professionals in the area of preconception counseling, including the recognition of long-acting reversible contraceptives as efficacious and economical forms of contraception.	Retain as amended to update language. Our AMA: (1) urges health care professionals to provide care for ~~women~~ patients of reproductive age, to assist them in planning for pregnancy and support age-appropriate education in esteem building, decision-making and family life in an effort to introduce the concept of planning for childbearing in the educational process;
H-75.996	Media Advertising and Public Service Announcements Regarding Contraception and Safe Sexual Practices	The AMA urges the print and broadcast media to permit advertising and public service announcements regarding contraception and safe sexual practices as a matter of public health awareness.	Retain, still relevant.

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H-90.967	Support for Persons with Intellectual Disabilities	Our American Medical Association encourages appropriate government agencies, non-profit organizations, and specialty societies to develop and implement policy guidelines to provide adequate psychosocial resources for persons with intellectual disabilities, with the goal of independent function when possible.	Retain, still relevant.
H-95.933	Action to Address Illegal Methamphetamine Production	Our AMA supports: (1) the widespread and proper use of the National Precursor Log Exchange (NPLEx) for pseudoephedrine-containing OTC products; (2) the replacement of current pseudoephedrine-containing OTC products with formulations that are resistant to methamphetamine production; and (3) initiatives that focus on prevention and treatment of methamphetamine abuse.	Retain as amended to update language. Our AMA supports: (1) the widespread and proper use of the National Precursor Log Exchange (NPLEx) for pseudoephedrine-containing OTC products; (2) the replacement of current pseudoephedrine-containing OTC products with formulations that are resistant to methamphetamine production; and (3) initiatives that focus on prevention and treatment of methamphetamine misuse and use disorder. ~~abuse~~
H-95.935	Increasing Awareness of Nootropic Use	1. Our AMA: (a) opposes the prescription of controlled substances, including stimulants and wakefulness-promoting agents, for the purpose of cognitive enhancement in otherwise normal, healthy individuals; and (b) discourages the nonmedical use of prescription drugs, including stimulants and wakefulness-promoting agents for cognitive enhancement at all levels of education and in the workplace. 2. Our AMA encourages continued research into the risks and benefits of drugs and other substances for improving function in patients undergoing cognitive decline or who are experiencing cognitive impairment. 3. Our AMA encourages more research into the patterns of use, as well as risks and benefits, of dietary supplements (including herbal remedies) being promoted for cognitive enhancement. 4. Our AMA urges the Federal Trade Commission to examine advertisements for dietary supplements and herbal remedies that claim cognitive enhancement to ensure that they are truthful and not misleading, and are substantiated.	Retain, still relevant.

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H-95.942	Safe Disposal of Used Syringes, Needles and Other Sharps in the Community	1. Our AMA recognizes that used sharps in the community pose a public health hazard in diverse ways to workers and to the public. 2. The AMA requests manufacturers of disposable hypodermic needles and syringes to adopt designs to prevent reuse, and to include in the packaging clear directions for their correct disposal. 3. Our AMA continues to support the mission of the Coalition for Safe Community Needle Disposal.	Retain as amended. 1. Our AMA recognizes that used sharps in the community pose a public health hazard in diverse ways to workers and to the public. 2. The AMA requests manufacturers of disposable hypodermic needles and syringes to adopt designs to prevent reuse, and to include in the packaging clear directions for their correct disposal. 3. Our AMA continues to support the mission of SafeNeedleDisposal.org ~~the Coalition for Safe Community Needle Disposal~~. *The Coalition was renamed in 2014 in accordance with new ownership.*
H-95.958	Syringe and Needle Exchange Programs	Our AMA: (1) encourages all communities to establish needle exchange programs and physicians to refer their patients to such programs; (2) will initiate and support legislation providing funding for needle exchange programs for injecting drug users; and (3) strongly encourages state medical associations to initiate state legislation modifying drug paraphernalia laws so that injection drug users can purchase and possess needles and syringes without a prescription and needle exchange program employees are protected from prosecution for disseminating syringes.	Retain as amended to update language. Our AMA: (1) encourages all communities to establish ~~needle~~ syringe exchange programs and physicians to refer their patients to such programs; (2) will initiate and support legislation providing funding for ~~needle~~ syringe exchange programs for injecting drug users; and (3) strongly encourages state medical associations to initiate state legislation modifying drug paraphernalia laws so that people who inject drugs ~~injection drug users~~ can purchase and possess needles and syringes without a prescription and ~~needle~~ syringe exchange program employees are protected from prosecution for disseminating syringes.

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2. SETTING STANDARDS FOR FORENSIC TOXICOLOGY LABORATORIES USED IN LITIGATION

Reference committee hearing: see report of Reference Committee D.

HOUSE ACTION: RECOMMENDATIONS ADOPTED AS FOLLOWS
REMAINDER OF REPORT FILED
See Policy H-260.959

Resolution 212-A-25, "Setting Standards for Forensic Toxicology Laboratories Used in Litigation," was referred by the House of Delegates (HOD), and asked the following:

That our American Medical Association pursue legislative or regulatory changes to require:
1. Forensic toxicology laboratories that analyze drugs in bodily fluids to follow the same protocols and obtain equivalent certifications as their clinical chemistry counterparts based in hospitals; and
2. CLIA – exempt forensic toxicology laboratories to obtain relevant accreditations and certifications such as CAP Forensic Drug Testing accreditation program (CAP FDT, formerly FUDT or Forensic Urine Drug

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Testing Accreditation Program]) the American Board of Forensic Toxicology Laboratory Accreditation Program (ABFT LAP), the American Society of Crime Laboratory Directors Laboratory Accreditation Board (ASCLD/LAB) or other related certification program (as their clinical chemistry counterparts in hospitals are required) which are publicly displayed; and

3. forensic toxicology laboratories to follow relevant state codes and regulations addressing testing of breath, blood, and urine for alcohol, other drugs, and intoxicating compounds; and
4. a Laboratory Director and/or Certifying Scientist who reviews all protocols and laboratory manuals and signs off on each result electronically to be a licensed physician (with proper and current board certification) or a scientist with an appropriate advanced graduate degree and certification; and
5. that results of laboratory proficiency testing and Quality Control Programs be available to the court and its litigants for review to assist in verifying forensic laboratory results.

BACKGROUND

In the United States (U.S.), the type of laboratory accreditation required by a toxicology laboratory depends on the purpose of the laboratory's testing menu: clinical versus forensic. Like all clinical laboratories, clinical toxicology laboratories are subject to direct federal regulatory requirements for Clinical Laboratory Improvement Amendments of 1988 (CLIA) certification, classified as waived, moderate, or high-complexity testing operations.[1] CLIA requirements include on-site inspections and acceptable participation in proficiency testing, which may be met by achieving accreditation from an agency with CLIA-deemed status.[2,3] Forensic toxicology laboratories are CLIA-exempt under federal regulations but nonetheless subject to all applicable state and local regulatory requirements, which typically mandate independent laboratory accreditation.[4] Forensic science performed in toxicology labs has faced increasing scrutiny regarding these labs' methods and reliability.[5,6]

A multi-year, Congressionally-mandated study released in 2009 by the National Research Council (NRC) was critical of weaknesses in the scientific underpinnings of the forensic disciplines routinely used in the criminal justice system.[6] The NRC outlined a comprehensive series of recommended reforms (see Table 2).[6] Reports have also highlighted concerns regarding the lack of standardization and oversight, the absence of independence of forensic laboratories from law enforcement, bias affecting the results and their interpretation, and the lack of reporting on measurement uncertainty.[6,7] In addition to calls for improvements in forensic science methods, there have been prominent cases of fraud by forensic scientists.[5,8] While toxicology is often perceived as one of the more objective forensic disciplines due to its reliance on analytical chemistry and quantitative measurements, it is not immune to bias, fraud, and error.[5,8,9] However, it is important to note that forensic toxicology laboratories face mounting pressures—including rising case volumes, staffing shortages, limited funding, and expanding testing demands—that contribute to persistent backlogs and hinder their capacity to maintain rigorous scientific practices.[6] These strains are intensified by the need to triage urgent requests, outdated equipment in some jurisdictions, and limited federal investment in toxicology research, leaving many labs without the resources needed for method validation, quality assurance, or modernization.[6]

METHODS

English language articles were selected from searches of PubMed and Google Scholar using the search terms "CLIA-exempt toxicology labs", "forensic labs", "toxicology labs" AND "litigation", and "forensic labs AND crime". Additional articles were identified by manual review of the reference lists of pertinent publications. Web sites managed by government agencies and other applicable organizations were also reviewed for relevant information.

DISCUSSION

For the purposes of this report, forensic science refers to the application of scientific or technical practices to the recognition, collection, analysis, and interpretation of evidence for criminal, civil, or regulatory matters.[9] It encompasses a wide range of disciplines with distinct technologies and practices.[9] The National Institute of Justice (NIJ) categorizes these into multiple areas, including toxicology, firearms and toolmarks, questioned documents, trace evidence, controlled substances, DNA and serology screening, fire debris analysis, post-mortem analysis, impression and blood-pattern evidence, crime-scene investigation, medicolegal death investigation, and digital evidence.[10]

Because these disciplines vary widely in methods, error rates, research foundations, and levels of scientific acceptance, forensic science is not a uniform field.[6,7] Some areas rely on laboratory-based analytical techniques (i.e., DNA analysis, toxicology, drug chemistry), while others depend heavily on expert interpretation of observed patterns (i.e.,

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fingerprints, handwriting, toolmarks, bite marks).[7,11] Forensic work is performed by individuals with diverse training backgrounds—from scientists such as chemists and biologists to law-enforcement personnel, crime-scene specialists, forensic pathologists, and laboratory technologists.[12] Importantly, Many forensic techniques are based on practical experience rather than fully validated scientific methods, and therefore may not fully account for the limitations inherent in their underlying methodologies.[6,7]

Forensic science has transformed litigation by introducing objective, empirically grounded evidence that helps courts resolve complex questions with far greater accuracy and confidence.[9] Advances such as DNA analysis have exonerated the innocent and identified perpetrators with unprecedented precision, fundamentally improving fairness and reliability in the justice system.[9] Across disciplines—including toxicology, digital forensics, and pattern evidence—scientific methods now provide critical insights that strengthen fact-finding, support informed judicial decision-making, and enhance public trust in legal outcomes.[6,9]

What is the difference between clinical and forensic toxicology laboratories?

Both clinical and forensic toxicology laboratories aim to deliver accurate and timely analytical results, but they differ in purpose, end-users, and operational requirements.[13] Clinical laboratories perform rapid physiological testing to guide patient care, while forensic laboratories conduct one-time analyses intended for medicolegal proceedings.[6,14] Consequently, the two types of laboratories differ in how samples are collected and processed, the staffing and funding structures they rely on, and the technologies they employ.[6,14]

All U.S. clinical laboratories are regulated under CLIA, which applies to any facility performing tests on human specimens for diagnosis, treatment, prevention, or health assessment.[1,6,15] CLIA requires certification, biennial inspections, proficiency testing, quality control and quality assurance procedures.[6,15] Enforcement mechanisms include sanctions, certificate suspension or revocation, civil injunctions, fines, and publication of laboratory sanctions. Clinical labs must meet these standards to receive Medicare or Medicaid reimbursement.[1,6,15]

In contrast, toxicology laboratories performing only forensic testing are CLIA-exempt, because they test human specimens for purposes other than medical diagnosis or treatment—such as criminal, civil, workplace, or other medicolegal uses.[6,14] This category includes Substance Abuse and Mental Health Services Administration (SAMHSA)-certified workplace drug-testing laboratories.[16] Since CLIA does not apply, federal accreditation requirements do not govern these forensic laboratories.[16]

Clinical laboratory toxicology testing may still generate evidence with legal consequences, for example, in cases involving pregnant patients, newborns, children, or individuals involved in injury-producing incidents.[17] Unless requested by law enforcement or a court, such testing is treated as medical rather than forensic. Some clinical laboratories also conduct forensic drug testing, and in these circumstances, they are advised to maintain clear policies that separate clinical and forensic workflows, including specimen handling, processing, and documentation, to ensure appropriate regulatory compliance and evidentiary integrity.[17]

OVERSIGHT OF FORENSIC TOXICOLOGY LABS

Federal and State Oversight

Currently, there is no comprehensive federal regulatory system that oversees or governs forensic toxicology laboratories in the U.S.[18] Oversight is fragmented, largely voluntary, and dominated by private accreditation bodies, not federal regulation.[6,18] The only significant federal accreditation requirement applies to DNA labs participating in the Combined DNA Index System , via the DNA Identification Act.[19] Some federal entities operate forensic toxicology laboratories, but these labs follow internal standards and do not regulate state or local forensic toxicology labs.[20] As a result, voluntary accreditation is the closest thing to oversight of forensic toxicology labs.[21]

Given the lack of federal oversight, some states have established oversight bodies, including state forensic science commissions, task forces, oversight and advisory boards, or investigative councils with the goal of improving the field of forensic sciences through oversight and coordination of forensic science resources.[22] Twenty-one states and Washington, D.C. currently have statutorily created or created by another means, such as through state legislation, forensic science state commissions or oversight bodies; however, all vary considerably with respect to which functions they fulfill (See Figure 1).[22]

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Accreditation

Accreditation of toxicology laboratories relies on a multilayered system built around internationally recognized technical standards—primarily International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC) 17025—supported by national accrediting bodies and supplemented by state requirements that add discipline-specific controls.[23] These mechanisms aim to ensure that laboratories produce scientifically valid, reliable, and defensible results for criminal justice, medicolegal death investigation, and public safety.[23] Accreditation involves external experts who review documentation, perform on-site assessments, evaluate corrective actions, and verify ongoing compliance through surveillance audits.[23]

Two major accrediting bodies— ANSI National Accreditation Board (ANAB) and American Association for Laboratory Accreditation (A2LA)—currently accredit most forensic laboratories.[24,25] ANAB, which absorbed the former American Society of Crime Laboratory Directors (ASCLD/LAB), accredits labs to ISO/IEC 17025 and is the sole accreditor approved by several state forensic commissions.[26] It also evaluates laboratories using the American Board of Forensic Toxicology (ABFT) toxicology checklist, providing dual recognition for ISO/IEC 17025 with toxicology-specific criteria.[24,27] A2LA accredits laboratories under ISO/IEC 17025 for testing and calibration and ISO/IEC 17020 for inspection functions.[25] The College of American Pathologists (CAP), while best known for clinical laboratory accreditation, accredits clinical-toxicology laboratories and those operating in hybrid forensic-clinical environments.[28] It should be noted that there are various players involved in forensic toxicology laboratory practice that include laboratory accrediting bodies, standards-setting groups, professional societies, and oversight organizations (see Table 1).

However, accreditation is not guaranteed of error-free performance. Recent events continue to illustrate that accreditation alone does not consistently prevent fraud, deter misconduct, or ensure reliable scientific practices.[6–8] For example, an Injustice Watch investigation found that the accredited University of Illinois Chicago Analytical Forensic Testing Laboratory produced flawed and misleading THC test results used in cannabis DUI prosecutions across the state, with evidence that methodological problems were concealed for years despite accreditation audits.[6–8] This suggests that confidence in accredited labs may at times be misplaced. Because accreditation is not universally required, many unaccredited forensic laboratories continue operating without any substantial external oversight.

BRIEF SUMMARY OF ISSUES IN FORENSIC SCIENCE IN COURT PROCEEDINGS

Courts act as gatekeepers to ensure expert testimony is based on reliable science.[29,30] In practice, however, many courts admitted forensic toxicology and other forensic results with minimal scrutiny for decades.[5–7,31,32] Appellate analyses have found that judges are often more exacting with expert evidence in civil cases than in criminal cases.[6,33–37] Reports observed this disparity as well, noting appellate courts were "more willing to second-guess…scientific evidence in civil cases than in criminal cases."[6,33–38]

Relatedly, courts historically allowed certain forensic techniques to be presented by experts despite a lack of robust scientific validation.[6,39–41] Prior to the reforms of the last decade, it was not uncommon for a forensic toxicologist to testify about novel or less standard analyses (for instance, using a new lab-derived method to identify a toxin) without the judge requiring proof of validation.[5–7,42] The consequence, as reports have reiterated, is that some evidence may not have met modern scientific standards of reliability.[6,41,43]

Validation and Research. Multiple studies have repeatedly found that many forensic disciplines rely on tradition and professional judgment rather than rigorous scientific testing.[5–7,40] Two concepts are central to evaluating reliability: foundational validity (whether a method has been empirically shown to work) and validity as applied (whether it was correctly used in a specific case).[7,44,45] Even scientifically sound methods can produce unreliable results without proper validation, consistent application, and clear documentation.[7,40,45,46] Forensic toxicology often uses instruments designed for clinical or research settings, but forensic samples may involve low drug concentrations, degraded materials, or complex mixtures.[7,40,45] Studies emphasize the need for validation that demonstrates repeatability, interlaboratory reproducibility, and known error rates.[6,7,40,45]

Practice Protocols and Standards. The lack of uniform standards across laboratories leads to differing protocols and inconsistent results.[6,31,32] A 2024 National Institute of Standards and Technology (NIST) analysis found that procedures "vary both within and across disciplines," producing variable outcomes that directly affect litigation.[31] For example, one lab may report a substance as present while another—using different thresholds or extraction methods—

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reports it as negative.[6,7,31] Such inconsistencies can result in different legal outcomes across jurisdictions and contribute to conflicting expert testimony.[6,7,31]

Substances and Technological Gaps. Toxicology laboratories struggle to keep pace with rapidly evolving drug markets, including synthetic opioids, novel psychoactive substances, and adulterants like xylazine.[7,31,47] These trends create significant measurement challenges and often outstrip laboratory method development.[31,47,48] As a result, some substances may go undetected or be mis-quantified, weakening evidentiary reliability in both criminal and civil cases.[7,47,48] Courts require toxicology findings to be valid, reliable, and consistent—standards difficult to achieve without ongoing scientific investment.[7,31,47,49]

Quality Assurance (QA) Programs. Strong quality assurance systems are essential, yet multiple investigations have found serious QA failures in forensic labs.[6,7,50] For example, an audit of the Houston Police Department Crime Lab revealed missing QA programs, insufficient training, poor documentation, analytical errors, and even falsified results.[51–53] Weak QA increases the risk of false positives, false negatives, and contamination, contributing to wrongful convictions; nearly one-quarter of DNA exonerations have involved misapplied forensic science.[6,52–54]

Exculpatory or Contradictory Result Disclosures. Some laboratories have withheld results inconsistent with prosecution theories. For example, a review of the North Carolina State Bureau of Investigation lab found analysts repeatedly omitted confirmatory tests that negated preliminary findings, violating discovery obligations.[7,55] Such nondisclosure can lead to wrongful convictions and undermines the expectation that forensic scientists serve as neutral, objective experts. [7,55–57]

Access to Underlying Data. Even without misconduct, defense teams may struggle to obtain raw data, quality control (QC) logs, or validation records due to proprietary software or restrictive policies.[6,7,58,59] Limited transparency hinders meaningful review of forensic evidence and can mask systemic issues until discovered through litigation or external audits—often years later.[6,7,60]

Cognitive and Contextual Bias. Toxicologists, like other experts, are vulnerable to biases influenced by case context or institutional pressures.[6,61,62] Bias can affect interpretation of marginal results or QC anomalies.[63,64] Reports have warned of insufficient safeguards against cognitive bias, and few toxicology processes undergo black-box studies to measure examiner error and reliability.[6,7,65,66] These vulnerabilities risk introducing subjectivity into evidence presented as objective.

Overstatement and Over-Interpretation. Experts have historically overstated certainty, implying zero error or drawing unsupported conclusions.[7,67,68] Multiple reports have criticized such overstatement and emphasized that testimony must reflect actual scientific limitations.[6,7,67–69] In toxicology, this includes overstating impairment based on drug levels or failing to provide error rates and probabilities when reporting results.[6,7,67–69] Over-interpretation can mislead courts and juries, compromising fair outcomes.

SYSTEMIC PRESSURES IMPACTING FORENSIC TOXICOLOGY LABS

Forensic toxicology laboratories operate in a system burdened by compounding pressures and economic challenges including persistent backlogs driven by rising case submissions, limited staffing, inadequate funding, and expanding statutory testing requirements.[6,70,71] Studies show that forensic toxicology laboratories routinely process thousands of cases annually, with roughly 20 percent remaining backlogged delays that can prolong incarceration. [6,70,71] As a result, even highly skilled laboratories struggle to keep pace with scientific, operational, and legal expectations, despite their commitment to producing accurate and reliable results.

Law enforcement and prosecutors increasingly demand rapid laboratory results, often before charges are filed and again before trial.[70] At the same time, agencies continue expanding testing requests (i.e., DNA from guns or property crimes), forcing laboratories to triage between urgent new cases and older cold cases, exacerbating workflow bottlenecks.[6,70] DNA analysis—supported by extensive research, strong quality control, and validated statistical models—has become a benchmark for forensic reliability.[6,70,72] Its success highlights the comparative scientific gaps in other disciplines, including toxicology, which receive far less federal investment despite representing the majority of forensic casework.[6,70]

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As a result, most forensic disciplines operate with limited research infrastructure, few funding sources, and foundational studies conducted largely within crime laboratories rather than independent academic institutions.[6,7,31,73] This shortage of high-quality research hinders method validation, new tool development, and evidence-based improvements, intensifying pressures on laboratories already operating under substantial resource constraints.[6,7,31,74] Further, accreditation, proficiency testing, and quality assurance programs—while essential to reliability—also impose meaningful financial burdens.[6,74] It should be noted that forensic toxicology labs are not fully supported by a single stable funding system. Instead, they rely on a patchwork of funding sources through a combination of state, county, and municipal appropriations, supplemented by federal grants and fee-for-service revenue for testing performed for law enforcement, courts, medical examiners, and other agencies.[74]

KEY FEDERAL ACTIONS TAKEN TO IMPROVE FORENSIC SCIENCE

Multiple reports have identified systemic deficiencies across forensic science, including fragmented laboratory systems, inconsistent training, limited research funding, and a lack of scientific validation for many commonly used methods.[6,7,31] Recommendations from those reports called for sustained national reform to improve scientific foundations, oversight, and practitioner standards (see Table 2-4).[6,7,31] In response, many national reforms were initiated.[7] These reforms are summarized in Table 4. Collectively, these efforts—national coordination initiatives, standards development, expanded research funding, and accreditation and certification reforms—represent the most significant progress in the last decade.[75–82] Nonetheless, substantial work remains, particularly in establishing the scientific validity and reliability of many forensic methods still used in courts today.[81]

EXISTING AMA POLICY

The AMA has limited policy on the use of forensic toxicology tests in litigation. AMA Policy H-80.994, "Use of all Appropriate Medical Forensic Techniques in the Criminal Justice System" states that the AMA supports the availability and use of all appropriate medical forensic techniques in the criminal justice system. However, AMA does have policy regarding CLIA-certified labs. For example, AMA Policy H-480.933, "Regulation and Control of Self-Service Labs" states that the AMA will advocate for direct access testing, in which patients may order a diagnostic laboratory test on demand, should only be provided by teams which are physician-led, and performed in facilities that are CLIA-certified. Finally, the Code of Medical Ethics 4.1.4 "Forensic Genetics" states that physicians from whom genetic information is sought for purposes of criminal justice: may ethically carry out DNA analysis on stored tissue samples or release genetic information without the consent of a living or deceased patient (or the patient's authorized surrogate) in response to a warrant or court order; should release only the minimum information necessary for the specific purpose; and should decline to participate in the use of information from a genetic database created exclusively for criminal justice for any purpose other than identification.

CONCLUSION

Forensic toxicology laboratories play a critical role in both civil and criminal litigation, yet the U.S. lacks a unified regulatory framework to ensure their scientific reliability, transparency, and independence.[6,7,79,83] The current system functions largely on voluntary accreditation, variable state oversight, inconsistent methodological standards, and divergent admissibility practices. Although clinical laboratories operate within a comprehensive federal regulatory structure under CLIA, forensic toxicology laboratories remain largely exempt from these requirements.[1,6] This regulatory gap persists despite the scientific complexity and high-stakes consequences associated with toxicology findings in medicolegal settings.[1]

National reviews of forensic science over the past two decades consistently identify the same systemic deficiencies: lack of foundational validation, inadequate quality control systems, limited research infrastructure, vulnerability to cognitive and contextual bias, and insufficient transparency regarding laboratory practices and error rates.[6,7,31,79] Toxicology, though often perceived as an objective, instrument-driven discipline, is not exempt from these shortcomings—particularly when analytical limitations and interpretive errors intersect with the demands of litigation.[5,8] However, forensic toxicology laboratories face mounting pressures—including rising case volumes, staffing shortages, limited funding, and expanding testing demands—that contribute to persistent backlogs and hinder their capacity to maintain rigorous scientific practices.[6] As a result, even highly skilled laboratories struggle to keep pace with scientific, operational, and legal expectations, despite their commitment to producing accurate and reliable results.[6]

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This report also highlights the ongoing consequences of fragmentation in forensic laboratory oversight. Inconsistent standards across jurisdictions, gaps in accreditation, and limited access to underlying laboratory data hinder courts' ability to evaluate evidence under modern scientific admissibility standards.[6,7,84] High-profile laboratory fraud cases further underscore the dangers of inadequate auditing, insufficient documentation practices, and the absence of independent oversight.[8,51,52] At the same time, toxicology laboratories face increasing workloads, rapid proliferation of synthetic and emerging drugs, outdated instrumentation in some jurisdictions, and pressure to produce rapid results—all of which strain their capacity to maintain rigorous scientific practices.[6,70,71] Reports note that the pathway forward must therefore prioritize the core principles of scientific validity, transparency, and accountability.[6,7,31,81] They conclude that by embracing validated methods, standardized practices, and transparent quality systems, forensic toxicology laboratories can better fulfill their essential role in promoting justice, safeguarding due process, and upholding public confidence in the medicolegal system.[6,7,31,81]

RECOMMENDATIONS

The Council on Science and Public Health recommends that the following be adopted in lieu of Resolution 212-A-25, and the remainder of the report be filed.

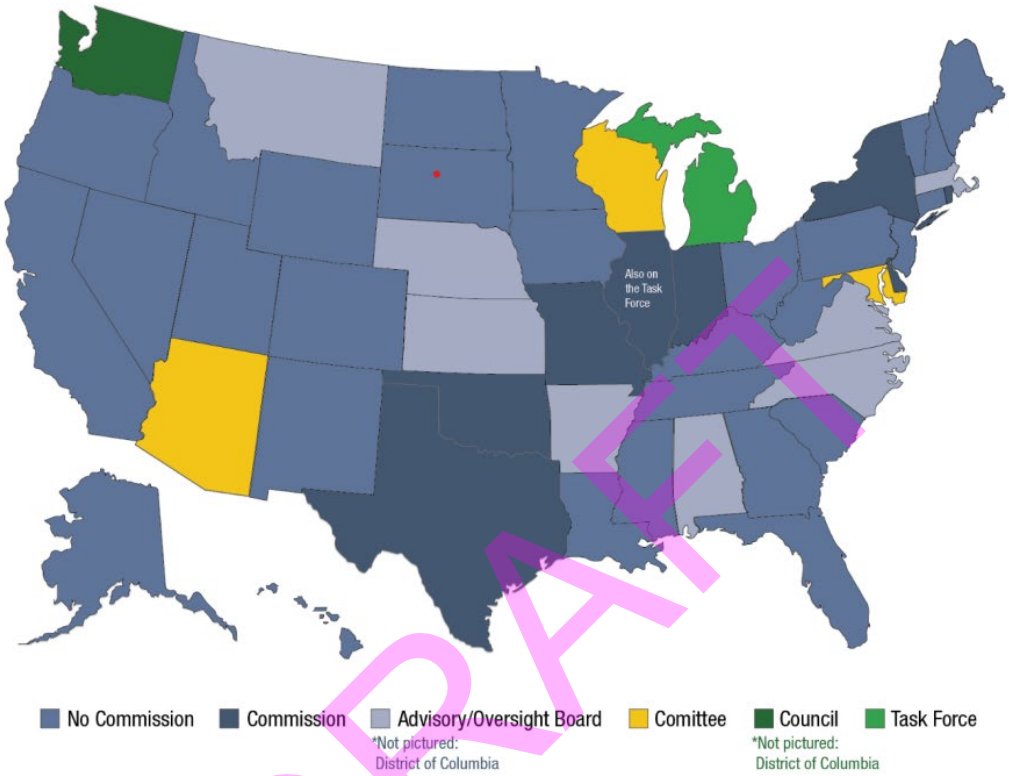
1. Our American Medical Association supports national efforts to establish a unified, science-based oversight framework for CLIA-exempt toxicology laboratories, including the development of consistent baseline standards, a coordinated national accreditation structure, enhanced transparency requirements, and complementary oversight expectations for individual CLIA-exempt toxicology laboratories to address the absence of mandatory accreditation and the current fragmentation of quality systems; and
2. Our American Medical Association encourages greater transparency in CLIA-exempt toxicology laboratory operations, including publicly accessible information on personnel qualifications, accreditation status and scope, quality assurance practices, method validation documentation, and scientific oversight processes, and the key evidentiary materials needed for judicial evaluation such as raw data, validation records, quality-control logs, and proficiency testing results, to strengthen the reliability, interpretability, and accountability of medicolegal testing.

Fiscal Note: Modest

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Figure 1: Map of Forensic Science State Commissions or Oversight Bodies.[22]
States with a Commission include Texas, Oklahoma, Missouri, Illinois (also on the Task Force), Indiana, New York, Rhode Island, and Delaware. States with an Advisory/Oversight Board include Montana, Nebraska, Kansas, Arkansas, Alabama, North Carolina, South Carolina, and Massachusetts. States with a committee include Maryland, Wisconsin, and Arizona. States with a Council include Washington State and Washington, DC. States with a Task Force include Michigan. All other states have no commission.



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Table 1: Overview of Organizations Involved in Forensic Toxicology Practice and Oversight

ORGANIZATION	TYPE	PRIMARY ROLE IN FORENSIC TOXICOLOGY LABS
ANSI NATIONAL ACCREDITATION BOARD (ANAB)[26]	Accrediting Body	Accredits forensic laboratories (including toxicology) to ISO/IEC 17025; often integrates ABFT toxicology criteria into scopes.
AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION (A2LA)[25]	Accrediting Body	Accredits labs to ISO/IEC 17025 (testing/calibration) and, where applicable, ISO/IEC 17020 (inspection functions).
AMERICAN BOARD OF FORENSIC TOXICOLOGY (ABFT)[27]	Accrediting Body (Toxicology-Specific) & Individual Certifier	offers laboratory accreditation specifically for forensic toxicology and certification for individual forensic toxicologists.
COLLEGE OF AMERICAN PATHOLOGISTS – FORENSIC DRUG TESTING	Accrediting Body (Clinical/Forensic Workplace)	Accredits laboratories performing forensic drug testing (often workplace/model programs) and hospital/hybrid settings.

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(CAP-FDT)[28]		
SAMHSA – NATIONAL LABORATORY CERTIFICATION PROGRAM (NLCP)[16]	Federal Certification Program (Workplace Testing)	Certifies laboratories for federal workplace drug testing (urine/oral fluid) under NLCP.
ORGANIZATION OF SCIENTIFIC AREA COMMITTEES FOR FORENSIC SCIENCE (OSAC, NIST)[78]	Standards Development	Develops and promotes science-based forensic standards and posts them to the OSAC registry; informs what accrediting bodies/labs can adopt.
AMERICAN SOCIETY OF CRIME LABORATORY DIRECTORS (ASCLD)[26]	Professional Association	Supports lab leadership, quality improvement, and policy; networking/training for lab directors.
AMERICAN ACADEMY OF FORENSIC SCIENCES (AAFS)[85]	Professional Society	Multidisciplinary professional home; advances ethics, education, and scientific exchange across forensic disciplines.
SOCIETY OF FORENSIC TOXICOLOGISTS (SOFT)[86]	Professional Society	Discipline-specific community for forensic toxicology; issues practice guidelines, supports training and research.
CONSORTIUM OF FORENSIC SCIENCE ORGANIZATIONS (CFSO)[87]	Advocacy/Coordination	Represents multiple forensic organizations; advocates for funding, research, and policy reforms.
NATIONAL ASSOCIATION OF MEDICAL EXAMINERS (NAME)[88]	Office Accreditation (Medical Examiner/Coroner)	Accredits medicolegal death investigation offices and sets practice guidelines for me/coroner systems.
INTERNATIONAL ASSOCIATION OF CORONERS AND MEDICAL EXAMINERS (IACME)[89]	Office Accreditation (Medical Examiner/Coroner)	Accredits coroner/medical examiners' offices; promotes standards for medicolegal death investigation operations.

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Table 2: Summary of 13 recommendations made in the 2009 National Research Council report "Strengthening Forensic Science in the United States: A Path Forward.[6]

#	NRC RECOMMENDATION	SUMMARY
1	**Create a National Institute of Forensic Science (NIFS)**	Establish an independent federal entity to lead standardization, research, accreditation, and policy.

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2	**Standardize terminology and reporting**	Require consistent language, limits statements of certainty, and prevent overstated claims.
3	**Fund research to establish scientific foundations**	Support foundational and applied research in all forensic disciplines, particularly those lacking empirical validation.
4	**Develop and enforce standards for forensic practice**	Create mandatory, science-based standards for methods, training, reporting, and testimony.
5	**Require mandatory accreditation of laboratories**	All forensic laboratories must be accredited and demonstrate adherence to national quality standards.
6	**Require certification of forensic practitioners**	Practitioners should meet competency standards and undergo regular proficiency testing.
7	**Support independence of forensic laboratories**	Remove forensic labs from law-enforcement control to prevent bias and ensure neutrality.
8	**Strengthen quality assurance and quality control**	Implement rigorous QA/QC measures, including blind proficiency testing, to detect errors and misconduct.
9	**Improve forensic science education**	Develop standardized, science-based curricula for universities and training programs.
10	**Create national code of ethics**	Require ethical standards, reporting obligations, and consequences for misconduct or nondisclosure.
11	**Improve medicolegal death investigation systems**	Modernize and professionalize coroner/medical examiner systems nationwide.
12	**Strengthen interoperability and information sharing**	Coordinate forensic data standards and technology across agencies for improved nationwide use.
13	**Increase federal support for forensic science**	Substantially increase sustained funding for research, standards development, and laboratory improvement.

Table 3: Summary of 8 recommendations made in the 2016 Report to the President "Forensic Science in Criminal Courts: Ensuring Scientific Validity."[7]

#	PCAST RECOMMENDATION	SUMMARY
1	**Establish clear scientific criteria for "foundational validity"**	Define standards requiring empirical testing, reproducible results, known error rates, and peer-reviewed studies before a forensic method is deemed scientifically valid.

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2	**Require empirical "black-box" studies for subjective methods**	Subjective feature-comparison disciplines (e.g., firearms, footwear, bite marks, hair microscopy) must demonstrate accuracy and reliability through properly designed, large-scale black-box studies.
3	**Require empirical testing of "validity as applied"**	Examiners must demonstrate they can reliably apply validated methods in casework through proficiency testing that simulates real forensic conditions.
4	**DOJ/NIST should ensure foundational validity before admitting forensic methods in court**	Federal agencies should evaluate forensic disciplines and clearly identify which methods meet scientific standards for validity. Methods lacking foundational validity should not be presented as reliable evidence.
5	**Develop and fund large-scale independent research programs**	Calls for substantial federal funding (NIJ, NIST, NSF) for foundational and applied research, especially for subjective pattern-comparison methods.
6	**Create national scientific oversight for forensic methods**	Establish bodies (independent of law enforcement) responsible for scientific review, research priorities, and setting validity standards for forensic techniques.
7	**Ensure forensic testimony is scientifically accurate and limited in scope**	Examiners must not overstate conclusions. Testimony should reflect actual empirical support, known error rates, and limitations, avoiding claims of individualization unless scientifically justified.
8	**Strengthen proficiency testing, certification, and accreditation**	Improve examiner certification and lab accreditation by requiring rigorous, scientifically meaningful proficiency tests and transparent reporting of results.

Table 4: Summary of 4 recommendations made in the 2024 National Institute of Standards and Technology report "Strategic Opportunities to Advance Forensic Science in the United States A Path Forward Through Research and Standards."[31]

#	NIST RECOMMENDATION	SUMMARY
1	**Accuracy & Reliability of Forensic Methods**	Quantify and establish statistically rigorous measures of accuracy, repeatability, reproducibility, and uncertainty for complex forensic methods
2	**New Methods & Technology Development**	Develop new and improved methods for rapid, robust, and scientifically validated analysis of complex forensic evidence
3	**Science Based Standards & Guidelines**	Develop rigorous, consensus-based documentary standards, conformity assessment schemes, and guidelines across forensic disciplines
4	**Adoption & Implementation of Advances**	Promote widespread adoption of improved methods, standards, technologies, and training across the forensic ecosystem

Table 5: Brief timeline of recent U.S. efforts to strengthen forensic science.[6,7,31,32,78,90]

DATE	EVENT
NOVEMBER 2005	Congress authorizes the NAS to conduct a national study of forensic science.
FEBRUARY 2009	NAS issues *Strengthening Forensic Science in the United States: A Path Forward*, a landmark report proposing 13 major reforms.

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FEBRUARY 2013	DOJ and NIST announce formation of NCFS and NIST-administered scientific guidance groups.
SEPT 2013 – APR 2014	OSTP establishes a research strategy working group (DOJ–NIST–NSF).
FEBRUARY 2014	NIST announces creation of OSAC (Organization of Scientific Area Committees) at first NCFS meeting.
FEBRUARY 2014	OSTP issues *Strengthening Forensic Science: A Progress Report*.
SEPTEMBER 2016	PCAST releases *Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods*, calling for empirical validation, black-box studies, and federal action.
APRIL 2017	DOJ discontinues NCFS as federal advisory body, ending formal DOJ–NIST joint forensic policy leadership.
2021–2022	Several states (e.g., Texas, New York) incorporate OSAC standards by reference or require labs to consider OSAC Registry standards in accreditation.
2022–2026	NIJ releases and implements its *Forensic Science Strategic Research Plan 2022–2026*, outlining national priorities: foundational research, applied methods, workforce development, and coordinated community practice.
SEPTEMBER 2024	NIST issues *Strategic Opportunities to Advance Forensic Science in the United States: A Path Forward Through Research and Standards* (NIST SP-1319).
2025	NIJ publishes *Forensic Science Strategic Research Plan 2022–2026*, reaffirming federal investment priorities and partnerships.
2026 (ONGOING)	NIST continues scientific foundation reviews; NIJ continues research funding aligned with the 2022–2026 plan.

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3. PUBLIC HEALTH IMPLICATIONS OF FOOD SUBSIDIES

Reference committee hearing: see report of Reference Committee D.

HOUSE ACTION: RECOMMENDATIONS ADOPTED
REMAINDER OF REPORT FILED
See Policy H-150.932

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AMA Policy H-150.915, "Public Health Implications of US Food Subsidies," was adopted at the 2025 Annual Meeting of the American Medical Association (AMA) House of the Delegates (HOD) and states the following:

Our AMA will study the public health implications of United States food subsidies, focusing on:
1. How these subsidies influence the affordability, availability, and consumption of various food types across different demographics.
2. Potential for restructuring food subsidies to support the production and consumption of more healthful foods, thereby contributing to better health outcomes and reduced healthcare costs related to diet-related diseases.
3. Avenues to advocate for policies that align food subsidies with the nutritional needs and health of the American public, ensuring that all segments of the population benefit from equitable access to healthful, affordable food.

METHODS

English language reports were selected from searches of the PubMed and Google Scholar databases using the search terms: "food/farm/agricultural subsidies" AND "public health", "food/farm/agricultural subsidies" AND "diet," and "food/farm/agricultural subsidies" AND "nutrition." Additional articles were identified by manual review of the reference lists of pertinent publications. Web sites managed by federal agencies, such as the United States (U.S.) Department of Agriculture and applicable professional and advocacy organizations were also reviewed for relevant information.

BACKGROUND

Poor diet is a leading cause of morbidity and mortality, both in the U.S. and globally.[1] In the U.S., it has been estimated that about one million people die annually from diet-related chronic diseases, such as type 2 diabetes, cardiovascular disease, obesity, and some cancers.[2] Globally, noncommunicable diseases account for more than 70 percent of deaths and an estimated 40 percent are attributed to dietary factors.[3] Poor dietary habits include low intake of fruits, vegetables, and whole grains as well as excessive consumption of added sugars, saturated fats, and sodium, often via ultra-processed foods.[3] For example, the average adult in the U.S. only consumes two of the five recommended daily servings of fruits and vegetables while consumption of ultra-processed foods has steadily increased.[4,5] Additionally, according to the Centers for Disease Control and Prevention (CDC), Americans consume too many added sugars as part of their diet, which contributes to a number of health concerns, including excessive weight gain, type 2 diabetes, and heart disease.[6] High-fructose corn syrup is particularly concerning, as overall consumption increased by more than 1000 percent between 1970 and 1990 and it has little to no nutritional value as an additive.[7]

The health consequences of poor diet are inequitably distributed, with individuals from marginalized, communities of color and indigenous populations experiencing the worst diet-associated health outcomes.[8–10] Additionally, people with lower incomes generally have lower dietary quality and consume fewer fruits, vegetables and whole grains, but consume more refined grains, added sugars, and saturated fats compared to those with higher incomes.[11] Access to healthy, nutritious, and affordable foods is an important social determinant of health that is influenced by several upstream environmental, community and policy factors.[11] Agricultural policies, and specifically the U.S. Farm Bill and its associated food and farm subsidies, represent a critical component of the federal policy landscape impacting the U.S. food system. In the broadest sense, food subsidies are financial aid provided by the government to producers or consumers to make food more affordable or to support agricultural industries. On the consumer side, food subsidies in the U.S. most notably include the Supplemental Nutrition Assistance Program (SNAP), child nutrition programs, and emergency food assistance.[12] On the producer side, agricultural or farm subsidies (used interchangeably here) are monetary payments and other types of direct financial support provided by the federal government to farmers or agribusinesses.[13] Based on the whereas clauses included in the original resolution (Res 428-A-25) which prompted this report, the primary focus of this report will be on farm subsidies but will also briefly touch on consumer subsidies.

DISCUSSION

Farm subsidies were first institutionalized in the 1930s during the Great Depression and U.S. dust bowl, a time where crop prices had fallen considerably, rural areas were experiencing extreme poverty, and nearly a fifth of the U.S. population was still employed in the farm sector.[14] Food and farm subsidies are generally controlled by the U.S. Farm Bill, an omnibus piece of legislation that is normally reauthorized every five to six years and forms the basis of all or most of the agricultural policy in the U.S. A visual breakdown of how money is distributed under the U.S. Farm Bill

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as of 2018 can be seen in Figure 1. As of 2018, about three-quarters of the $428 billion allocated to the farm bill was intended for nutrition programs – namely SNAP.[15] Nine percent of funds were earmarked for crop insurance programs, seven percent for commodities, seven percent for conservation programs, and about one percent for miscellaneous programs.[15]

Farm subsidies, in particular the crop insurance program and commodity payments, are intended to help farmers deal with natural disasters and risk management while also incentivizing the development of specific farming practices and conservation efforts.[16] There are five general categories of agricultural subsidies, which include:

1. Direct payments, which are paid at a set rate every year regardless of sales or weather conditions.
2. Counter-cyclical payments are triggered when commodity market prices fall below certain thresholds.
3. A revenue assurance program provides for overall profitability for a given crop.
4. Marketing loans, which offer favorable terms whereby farmers can realize gains through loan deficiency payments and commodity certificates.
5. Disaster payments and crop insurance subsidies; disaster payments allow farmers to recoup large losses due to natural disasters or other ecological factors, and the government also subsidizes crop insurance to further insulate farmers from risk.[17,18]

Agricultural subsidies, historically and currently, primarily support the production of just a few commodity crops, namely corn, soybeans, cotton, and wheat. These crops are used heavily in ultra-processed foods, biofuels such as ethanol, and food for livestock.[19] For example, the U.S is the largest producer of corn in the world but a majority of corn produced is not used for direct human consumption. Corn is a major component of livestock feed, which accounts for nearly 40 percent of total domestic corn use, and another 35 to 40 percent of corn is used for biofuel production (see Figure 2).[20] Corn farms alone received approximately 30.5 percent of all federal farm subsidies, equaling $3.2 billion in 2024.[16] A very small percentage of U.S. farm subsidies are used to produce other fresh fruits and vegetables.

Additionally, a majority of agricultural subsidies go to large agribusinesses and wealthy individuals/corporations, while many smaller and independent, family-run farms receive comparatively little government assistance.[21] For example, one report found that between 2012 to 2020, the top 10 percent of farms (in terms of size), which also tend to be owned and operated by wealthier individuals, received 56.4 percent of all crop insurance subsidies, with the top 5 percent receiving 36.4 percent.[22] A Government Accountability Office report found that a recipient of agricultural subsidies in the form of insurance premium subsidies, whose annual gross income exceeded $900,000, received an average of $1.2 million annually in premium subsidies during the years 2009 to 2013, while participants whose annual gross incomes were less than $900,000 received an average of about $7,480 annually in premium subsidies during the same period.[23] Thus, current agricultural subsidies policy accumulates more benefits to wealthier farmers and does much less to support middle- and lower-income farms.[24] There are also important racial and ethnic disparities in the distribution of farm subsidies. U.S. farm subsidies have historically favored large, white-owned farms and have systematically marginalized African American and Indigenous farmers. These groups have and continue to face barriers in accessing government subsidies, such as United States Department of Agriculture (USDA) denying or delaying loans to African American and Indigenous farmers, resulting in substantial land loss and a widening racial wealth gap in agriculture.[19,25–27]

The downstream impacts of U.S. farm subsidies result from a complex system that is largely driven by the financial incentives provided for large-scale production of commodity crops, which both fuels the widespread availability of unhealthy foods while simultaneously promoting farming practices that contribute to environmental degradation. Figure 3 depicts a high-level conceptual causal pathway diagram that traces how U.S. farm subsidies impact agricultural production decisions which then influence both the consumer food environment and several environmental outcomes, all of which have public health impacts. The following two sections summarize the health and environmental impacts of farm subsidies.

Health Impacts of Farm and Food Subsidies

Public health proponents of reforms to farm subsidies have argued that subsidization of commodity crops, such as corn, fosters increased consumption of ultra-processed foods, sugar-sweetened beverages, and more meat and dairy products than were historically recommended by the U.S. Dietary Guidelines, as unhealthy foods are more widely available and cheaper than healthy alternatives as a result of farm subsidies.[7,28,29] Food groups recommended as part of a healthy diet, such as fresh fruits and vegetables, tend to be more expensive per unit of energy compared to many

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highly processed goods that rely on cheap commodity crops such as corn, soybeans, and wheat. For example, one study found the purchase price of ultra-processed foods was $0.55 versus $1.45 for unprocessed foods per 100 kcal.[30] This trend is not limited to the U.S. A report by the United Nation's Food and Agriculture Organization found that vegetables were on average nine times more expensive than starchy food staples worldwide.[31] See Figure 4 for a helpful visual comparing the global prices of different food categories per kilocalorie. Additionally, the availability of vegetables for consumption in the U.S. has been steadily declining for the last two decades while the domestic availability of meat has increased.[32,33]

The 2017 AMA Council on Science and Public Health report on sugar-sweetened beverages referenced a 2016 study that found individuals consuming the highest amounts of foods made from subsidized commodities have a 14 to 41 percent higher probability of cardiometabolic risk as measured by BMI, abdominal adiposity, C-reactive protein, and lipid levels.[34] An updated version of this study published in 2020 using more recently available data found consistent results. Namely, those in the highest quartile of subsidized food consumption had higher probabilities of obesity, abdominal adiposity, and dysglycemia compared to the lowest quartile of consumption, although some associations were significantly weakened from the previous years of study.[35] However, the authors note that U.S. consumption of foods created with subsidized crops has declined since the previously published study, from 56 percent to 51 percent.[35] This finding aligns with steady a decline of corn being used to create high fructose corn syrup in recent years, from around five percent in 2016 to three percent in 2024, which can be attributed to several factors, including changes to consumer preferences and the increasing proportion of corn being used as biofuel.[29,36,37]

Beyond sugar-sweetened beverages, another pathway through which agricultural subsidies impact the American diet is the consumption of meat. In general, grain-fed animals gain weight faster and become fatter than pasture-fed animals with diets lower in grains. Thus, the lower cost of feed makes it faster and cheaper to raise poultry, hogs, and cattle, which translates to relatively low costs for meat products.[7] As of 2025, the USDA estimates that the average American will consume about 60 pounds of beef and about 100 pounds of poultry per capita each year.[33] Americans are among the top per capita meat consumers in the world and are estimated to eat more than 1.5 times the average daily protein requirement due to high meat consumption.[38] Diets with higher meat consumption, particularly of red and processed meat, are correlated with the occurrence of several chronic diseases and acute health conditions, including high cholesterol, heart disease, stroke, obesity, certain cancers, type 2 diabetes, and premature death.[7,38,39] Additionally, there is some evidence that pasture-raised animals are better for consumers' health than heavily grain-fed animals since pasture-raised animals tend to have lower calories and total fat, higher levels of vitamins and good fatty acids, and a healthier balance of omega-3 and omega-6 fats.[40,41]

There are limited studies, beyond the ones referenced above, that quantify the impact of agricultural subsidies in their current form on dietary shifts and their resulting health outcomes. However, several studies have used modeling approaches to estimate impacts from taxes on certain food (e.g., sugar sweetened beverage taxes) and subsidizing the *purchase* of fresh fruit and vegetables. There is an important distinction between subsidies for consumers to purchase fruit and vegetables versus subsidies for farmers to grow produce beyond the few commodity crops mentioned above. The following studies address subsidized purchases, not subsidized production.

A modeling study published in 2020 compared the effects in New Zealand of a 20 percent fruit and vegetable subsidy, taxes on foods high in saturated fat, sugar, and salt, and an 8 percent junk food tax.[42] Models estimated a positive impact on health-adjusted life years per 1000 people for all the policies, ranging from 127 for the junk food tax, 212 for the fruit and vegetable subsidy, to 581 for the sugar tax. The study also reported significant health expenditure savings across the remaining lifespan per capita ranging from nearly $500 to over $2100 depending on the policy.[42] A similar study was done to simulate the effects of these types of food policies in the Australian population. In this study, taxes on sugar, salt, saturated fat, and sugar-sweetened beverages were estimated to have strong net positive health gains. The authors note that while fruit and vegetable purchasing subsidies are a cost-effective addition to taxes, they do not lead to significant health benefits when modeled as a standalone intervention.[43]

SNAP is the largest food subsidy and nutrition assistance program in the U.S. which provides roughly 40 million low-income Americans with monthly benefits to purchase groceries.[12] SNAP has been demonstrated to reduce health care costs, improve health outcomes, and has been referred to as the nation’s most important anti-hunger program.[44] SNAP functions as a prevention strategy against food insecurity, which is associated with several negative health outcomes across the lifespan. SNAP health benefits include better self-reported health, lower risk of heart disease and obesity among adults who had access to SNAP earlier in life, higher likelihood of periodic medical check-ups for infants and children in participating families, and greater medication adherence among older participants.[44]

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Environmental Impacts of Farm Subsidies

Agricultural practices have direct and indirect impacts on the environment through a myriad of pathways, which in turn impact public health. Due to the nature of our current agricultural subsidy system and its incentives, the production of just a few commodity crops by large companies represent an overwhelming amount of agricultural production, and these therefore play a large role in the environmental impact of agriculture.[45] There are a few broad categories of environmental impact tied to the food system; these primarily include environmental contaminants/pollutants, climate change, and depletion of natural resources and areas.[45]

Environmental contaminants and pollutants. Agricultural production, at nearly every stage of the process, is associated with the release of environmental contaminants and pollutants, which include nutrients, such as nitrogen and phosphorous; pesticides; pharmaceuticals; pathogens; and air pollutants/gases (e.g., ammonia, methane, and fine particulate matter).[45] What follows is a high level summary of these issues and their impacts to the environment and public health.

Nutrients such as nitrogen, phosphorous, and potassium are essential for plant growth. Fertilizers, both organic and synthetic, are commonly applied during agriculture to provide these nutrients and promote higher crop yields. Organic fertilizers are derived from natural resources, such as decomposed plant matter or animal waste, while synthetic fertilizers are manufactured with blends of chemical compounds, with generally higher concentrations of nutrients.[46] Global agricultural use of synthetic fertilizers has increased fivefold since the 1960s, which increases the amount of nitrogen entering the environment. Synthetic fertilizers greatly increase the nutrient load in soil within a short amount of time, which impacts water quality through runoff. This includes nitrates entering groundwater systems as well as rivers and coastal areas. Nitrogen oxides and nitrous oxide are also released as an air pollutant into the atmosphere.[47] Nitrogen oxides contribute to air pollution, irritate the respiratory system, and can react with other chemicals and water in the atmosphere to create acid rain.[48] Acute, low levels of exposure to nitrous oxides can irritate the eyes, nose, throat, and lungs and cause coughing, shortness of breath, tiredness, and nausea.[49] Nitrogen, phosphorus, and other plant nutrients in surface water contribute to algae blooms that can foul drinking and recreational water systems and sometimes poison pets or wild animals.[50]

Another well-studied environmental concern from agriculture is pesticides. Pesticides are commonly and extensively used in agriculture to increase crop yields and to protect crops from pests that could reduce yield production. Types of pesticides include herbicides, insecticides, fungicides, and rodenticides. An estimated two million tons of pesticides are used globally each year.[51] The move towards large scale monoculture agriculture is associated with an increase in the use of pesticides in order to compensate for each crop's susceptibility to disease from specific pathogens.[52] The level of toxicity for any pesticide depends on the type of pesticide and its chemical structure, its mode of entry, the dose, and the exposure period.[53]

Due to the relatively low cost of subsidized grains, another outcome from the current industrial agricultural system supported is the growth in Concentrated Animal Feeding Operations (CAFOs). CAFOs are a specific type of large-scale industrial agricultural facility that raises animals, usually at high density, for the consumption of meat, eggs, or milk. CAFOs are reflective of a major shift that has occurred within the U.S. agricultural system in the past 60 years, from one previously characterized by small and medium-sized farms to one that is now dominated by much larger operations that concentrate large numbers of animals in relatively small geographic areas. The primary environmental and public health concern from CAFOs is the large volume of manure produced by animals, which contain potential contaminants and can negatively impact local air quality and water systems.[45] Local communities around CAFOs suffer from lower quality of life due to the intensity of odors, gaseous emissions, insect vectors, and diseases spreading from the farms. There is an important environmental justice aspect to these exposures, as swine CAFOs have been found to be disproportionately located near rural, low-income African American communities in some parts of the country.[54]

As noted above, one major concern with CAFOs is the large amount of animal waste that is produced which then needs proper disposal. This creates another agricultural pollutant: pathogens. Pathogens from animal waste can infect other animals, can infiltrate local water supplies, and can be spread onto other agricultural products through the application of fertilizer in the form of animal waste. Despite vast improvements in food safety over the last century, there are still millions of human foodborne illnesses that occur every year.[55,56] There are also distinct risks from cross-species pathogens from the raising of livestock, particularly with CAFOs, and the potential risk of disease in other

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animals and humans. One recent example came from the highly pathogenic avian influenza A (H5N1), which spread quickly among poultry farms and then to dairy cows and subsequently infected a small number of farm workers, who were primarily Latino migrant workers.[57,58] One study found that agricultural intensification over the past several decades is associated with an increased risk of zoonotic disease emergence and that the future of zoonotic diseases will be closely linked to the evolution of our agricultural systems.[59]

As a protective measure, many farms will proactively give animals antibiotics to mitigate the risk of infection and quick spread of pathogens in CAFOs. As a result, CAFOs have also been implicated in concerns over growing antibiotic resistance and the contamination of natural systems with pharmaceutical byproducts, as the animals being held in CAFOs often must consume large amounts of antibiotics to survive within the cramped and compact conditions. The growing evidence of the environmental and public health harm caused by CAFOs has resulted in major public health and medical organizations adopting policies on them. Farm workers and nearby communities are exposed to numerous air pollutants from CAFOs, including particulate matter, ammonia, hydrogen sulfide, volatile organic compounds, noxious fumes, microorganisms, and endotoxins.[60–62] In 2019, the American Public Health Association approved the policy, "Precautionary Moratorium on New and Expanding Concentrated Animal Feeding Operations," and in 2023, the AMA adopted policy H-135.908, "Public health implications of industrialized farms," which recognizes CAFOs as a public health hazard.[63,64]

Climate Change. Agriculture is a major contributor to U.S. greenhouse gas (GHG) emissions and accounts for almost 11 percent of U.S. GHG emissions.[19] GHG emissions associated with agriculture are heavily concentrated in a few commodities, namely those having to do with cattle (e.g., beef and dairy), as cows produce substantial methane emissions with their ruminant digestive process, and from nitrous oxide emissions from activities like fertilizer application and storage of manure.[65,66] In fact, nitrous oxide generated by agriculture is estimated to be responsible for about eight percent of total global anthropogenic GHG warming as of 2021.[47] Subsidies can play an important role in impacting GHG emissions associated with agriculture, as they influence how much is produced, what is produced, where it is produced, and how goods are produced.[67] One modeling study analyzing data from countries that participate in the Organisation for Economic Co-operation and Development (OECD) found that agricultural subsidies had the effect of increasing production of crops and GHG emissions, but results were variable across countries and were highly dependent on the commodities grown and technology used.[65]

While current agricultural practices exacerbate climate change, climate change itself impacts agricultural production through a variety of pathways. For example, climate change threatens food supplies by increasing the risk of flooding and extreme rain events, which can lead to contamination of food and water and destroy crops. At the same time, climate change can lead to increased drought and hotter temperatures in other parts of the country that could damage crops and harm livestock.[19,47] This current dynamic and negatively reinforcing relationship between agriculture and climate change is one that could be used as a powerful lever for positive change and climate change mitigation if subsidies were redesigned to promote more sustainable practices across the industry

Depletion of natural resources and areas. Our current agricultural system contributes to the depletion of natural resources, most importantly, healthy soil, freshwater, and natural areas, which is also tied to biodiversity. The critical importance of soil health for the future of agriculture cannot be understated. While soil erosion is a natural process, it has been identified as one of the most important land degradation processes that occurs with agriculture. Soil creation is a long-term geological process and one that is unable to keep up with current rates of erosion from agriculture. Erosion processes deplete organic matter within the soil and reduce its overall fertility and water holding capacity.[45] This last point creates a positive feedback loop – as soil continues to erode, it has less water holding capacity and therefore is more likely to have increased runoff, which furthers the process of erosion.[45] Agricultural runoff is a leading cause of pollution to rivers and streams, lakes, and impairments to wetlands.[68] While crop yields have generally increased over the past century, this has largely been from technological advances, including more intensive use of fertilizers, which for the time being has been able to mask potential effects of continuous soil degradation.[45] While monoculture farming increases productivity of single crops, it contributes to faster degradation of soil and its fertility, and requires a higher use of fertilizers.[52]

Fresh water is crucial for agriculture. In the U.S., agriculture is a major user of ground and surface water. Irrigation accounts for 47 percent of our nation's total freshwater withdrawals from both sources between 2010 and 2020.[69] Irrigation for cropland is highly geographically dependent, with a large majority of the irrigated land concentrated in western states where the production of many crops requires irrigation due to a more arid climate.[69] Irrigation for agriculture is a primary culprit for groundwater depletion – defined as long-term water-level declines caused by

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sustained groundwater pumping – which is a major sustainability issue and being felt acutely in the High Plains region of the U.S. (including the Ogallala aquifer) and other aquifers in the Mountain West and Southwest.[70,71] Corn and soybeans, which are also the most subsidized commodity crops in the U.S., are a few of the crops with the highest water consumption demands.[71,72] Reduced groundwater levels are not just a threat to the sustainability of our current food production system, but also have other adverse impacts, including land subsidence, increased costs for users as it becomes increasingly difficult to pump water from underground aquifers, and reduced water quality primarily due to saltwater intrusion.[71]

The intensification of agricultural production over the last 50 years has led to the expansion of agricultural lands into previously natural areas, which has put pressure on existing wild habitats and species and negatively impacted biodiversity.[47] According to the U.S. Environmental Protection Agency, nearly 1.2 billion acres of the nation's 2.3 billion acres are devoted to agriculture.[68] Due to changes in the U.S. Farm Bill in 1990, annual acres planted for both corn and soybeans crops, the two biggest U.S. crops in terms of total production, have increased by 14 and 26 million, respectively, over the last 35 years.[73] Ironically, declines in biodiversity caused by the expansion of agriculture and the increased use of fertilizers and pesticides, has resulted in a reduction in the number and variety of pollinators as well as natural predators for common agricultural pests, which has an overall net negative impact on current agriculture and creates a positive feedback loop in terms of necessitating increased use of synthetic inputs in the future.[74] The loss of biodiversity has also been found to increase the risk of human exposure to both new and established zoonotic pathogens.[75] Agricultural ecosystems have also become less diverse as monoculture farming has expanded, which has the effect of reducing national food security and stability.[76]

Agricultural Sustainability. While sustainability has many facets, agricultural sustainability aims to meet current food and resource needs without compromising the ability of future generations to do the same.[77] Pillars of sustainable agriculture include building healthy soil and preventing erosion, effective water management, minimizing air and water pollution, reducing climate warming emissions, increasing climate resilience, and promoting biodiversity.[77,78] There are many types of sustainable agricultural practices, and they tend to be most effective when used in combination. A few examples include:

- Rotating crops on a regular basis and planting a variety of crops, which creates healthier soil and improves pest control.
- To help reduce soil erosion, planting cover crops during the off-season and perennial plants to maintain living roots in the soil year-round.
- Creating nutrient management and targeted irrigation strategies to help reduce the application of excessive nutrients and water runoff.
- Integrated pest management approaches to help reduce the use of chemical pesticides.
- Agroforestry, a practice in which trees and shrubs are incorporated into fields, which provide shade and shelter for plants and animals that may be beneficial in controlling pests.
- Developing a systems approach to farmland management that treats uncultivated or less intensively cultivated areas as integral to the farm ecosystem.[78]

Improving the Farm Bill for Health

Multiple health and medical organizations agree that a diet aimed at achieving optimal human and planetary health should prioritize a wide variety of whole and minimally processed plant foods including vegetables, fruits, whole grains, and legumes, with moderate inclusion of animal-sources foods, while minimizing red and processed meats, foods high in saturated fat, and ultra-processed foods.[79–81] Aligned with this dietary guidance, several health-related associations have developed recommendations for future reauthorizations of the U.S Farm Bill to improve health and sustainability. Recommendations include increased subsidies for fruit and vegetable production, creating incentives for sustainable agricultural practices, conservation efforts, and more equitable distribution of subsidies that help diversify crops and improve equity within rural farming communities that have been historically excluded from federal agricultural assistance programs.[19,82] For example, the Society for Behavioral Medicine has recommended the inclusion of fruits and vegetables in commodity programs, providing additional insurance subsidies for producing fruits and vegetables, and developing new insurance programs geared towards fruit and vegetable production.[82] Another recommendation is to establish financial incentives that increase funding for organic agriculture practices and prioritize sustainable agricultural practices in government-funded farm-to-table institution programs.[83] Other important focus areas for increased research and funding would be restorative agriculture, precision farming

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techniques, improving resilience in the face of climate change, and agricultural practices that take a broader ecological approach that considers its role within the larger environmental context.[19,45]

Many of the other recommendations for the U.S. Farm Bill focus on nutritional assistance and improving accessibility of healthy foods for consumers. A common theme in these recommendations is that the U.S. Farm Bill should incorporate a 'food is medicine' framework.[83] The 'food is medicine' framework is defined as the provision of healthy food resources or interventions in coordination with the healthcare sector to prevent, manage, or treat specific clinical conditions.[84] Specific interventions within a food is medicine approach includes medically tailored meals, produce prescriptions, medically tailored groceries, and nutrition counseling. So, for example, the Society for Behavioral Medicine has recommended that a reauthorization of the Farm Bill should increase the amount of funding available for produce prescription programs through the Gus Schumacher Nutrition Incentive Program.[83]

The other major theme of recommendations from medical professionals and associations includes continued and increased federal spending to support nutritional assistance programs, namely the Women, Infants and Children (WIC) program and SNAP. Continued and increased federal funding to support the WIC program and SNAP benefits is crucial for improving accessibility to healthful and nutritious food and reducing insecurity among low-income individuals and families in the U.S.[19,83,85] Other initiatives aimed at consumers to assist in purchasing healthy foods funded by the U.S. Farm Bill include the Food Insecurity Nutrition Incentive program and the Healthy Food Financing Initiative. The Food Insecurity Nutrition Incentive program is a grant-based program which provides financial incentives for families to purchase healthy foods while the Healthy Food Financing Initiative is designed to stimulate economic development and job creation by supporting farmers and healthy food retailers in low-income communities, underserved communities, and communities of color.[85] There is strong evidence that incentive programs like these can have positive impacts on health. The Community Preventive Services Task Force has recommended fruit and vegetable incentive programs as an important community-based program based on strong evidence of effectiveness in reducing household food insecurity and increasing household fruit and vegetable consumption.[86]

Other recommendations to update the Farm Bill to improve health include increased consumer education and increased nutritional research funding. Specifically, the Academy of Nutrition and Dietetics recommended increased funding for nutrition education programs that empower communities to develop skills to choose healthful diets and reduce the risks of developing chronic disease that are done in conjunction with nutrition assistance or delivery programs.[85] Research funding should also be increased to improve our understanding of the connections between nutrition, our food system, and accessibility by supporting existing initiatives and centers, for example the Agricultural and Food Research Initiative and the Agricultural Research Service's Human Nutrition Research Centers.[85]

Current Regulatory Landscape

The last time the U.S. Farm Bill was officially reauthorized was in 2018. However, there were important components normally considered in the Farm Bill that were included in H.R.1, dubbed by its proponents as the "One Big Beautiful Bill Act." Passed in July 2025 through budget reconciliation, H.R. 1 covers several major farm bill provisions and funds them through 2031. However, the funds allocated for SNAP in H.R. 1 represent one of the largest cuts to SNAP funding in its history, equaling approximately $187 billion in cuts through 2030. Additionally the bill created new cost-sharing requirements for states and stricter work requirements for recipients.[87] These funding cuts and changes are estimated to reduce or eliminate SNAP benefits for nearly four million Americans.[87]

H.R. 1 also included provisions related to agriculture subsidies for commodities and crop insurance. The bill increased reference prices for covered commodities like wheat, corn, and soybeans and payment limits were increased for commodity programs. Funding for important crop insurance programs were extended and expanded. Affordability issues were partially addressed through expansion of premium assistance for beginning farmers and ranchers and a new pilot program for poultry insurance was created. The bill also made permanent certain 2017 tax provisions beneficial to family farms and ranches, including increased estate tax exemptions and enhanced business expensing options.[88–90]

H.R. 1 also restructured funding that had been obligated for climate-specific conservation funds under the Inflation Reduction Act into a permanent farm bill baseline funding pool.[89] The high level summary from one organization, the National Sustainable Agriculture Coalition, notes that the agricultural provisions in H.R. 1 increased subsidies for large commodity growers (even though they already primarily benefit from that program), included little to no support for smaller farmers and those that grow diversified crops, made drastic cuts to nutrition assistance programs, preserved

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some conservation efforts, and ultimately delayed the passage of a comprehensive farm bill that is overdue.[88] However, in November 2025, Congress passed an omnibus appropriations package that extended the remaining 2018 Farm Bill provisions until September 30, 2026, including the Conservation Reserve Program, that were left out of H.R. 1.[92]

EXISTING AMA POLICY

AMA has several existing policies that recognize the unhealthy contribution of excessive sugars in the American diet and encourages healthier food option availability.[34,93–95] Additionally, AMA Policy H-150.932, "Reform the U.S. Farm Bill to Improve U.S. Public Health and Food Sustainability," supports the creation of a new advisory board to review and recommend U.S. Farm Bill budget allocations to ensure any government subsidies are only used to help produce healthy food choices and sustainable foods, and that advisory committee members include physicians, public health officials and other public health stakeholders.[96] Policy D-150.978, "Sustainable Foods," supports practices and policies in medical schools, hospitals, and other health care facilities that model a healthy and ecologically sustainable food system… [and] evidence-based policies and programs to eliminate disparities in healthy food access…such as tax incentive programs, community-level initiatives and federal legislation.[97] Policy D-150.944, "Combating Obesity and Health Disparities," supports the provision of vegetables, fruits, legumes, grains, vegetarian foods, and healthful dairy and nondairy beverages in school lunches and food assistance programs as well as federal subsidies that encourage the consumption of foods and beverages low in fat, added sugars, and cholesterol.[98] Policy H-135.908, "Public health implications of industrialized farms," recognizes CAFOs as a public health hazard.[64] In a related report, CSAPH published a 2017 report on sugar sweetened beverages that included a section on the role of U.S. farm subsidies in the American diet and related health impacts.[34] AMA also has several policies on SNAP that support continued and increased funding for the program to improve diet and nutrition for all Americans.[99,100] Lastly, in March 2024, AMA joined the Medical Society Consortium on Climate and Health and 78 other health care organizations in sending a letter to the House of Representatives Agriculture Committee on the U.S. Farm Bill reauthorization, emphasizing the importance of supporting a farm bill that prioritizes affordable and nutritious food as well as clean air and water.[101]

CONCLUSION

While U.S. farm subsidies were historically intended to stabilize the agricultural sector and produce enough food for Americans during challenging times, the nature of the U.S. food and agricultural system has changed drastically over the past 100 years. Currently, farm subsidies disproportionately benefit large, corporate farm operations and support an agricultural system focused on commodity crops, such as corn. This system fosters increased or excessive consumption of less healthy foods, such as unhealthy ultraprocessed foods, which are often more widely available and cheaper than healthy alternatives partly because of farm subsidies. Despite improvements in production efficiencies, agricultural practices have direct and indirect impacts on the environment through a myriad of pathways, which in turn impact public health. These include environmental contaminants and pollutants, climate change, and depletion of natural resources and areas. Strategies to improve the current food subsidy system should include increased subsidies for fruit and vegetable production, incentives for sustainable agricultural practices and conservation efforts, and more equitable distribution of subsidies that help diversify crops and improve equity for small producers that have been historically excluded from federal agricultural assistance programs.

RECOMMENDATIONS

The Council on Science and Public Health recommends that AMA Policy H-150.932, "Reform the US Farm Bill to Improve US Public Health and Food Sustainability," be amended by addition and deletion to read as follows and the remainder of the report be filed.

~~Reform the US Farm Bill to Improve US Public Health and~~ ~~Food Sustainability:~~ Our American Medical Association will advocate for ~~supports~~:

- Increased subsidies for the production of a diversity of health-promoting, whole foods, including fruits and vegetables;

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- Reallocation of existing subsidies to improve equity for farmers that have been historically excluded from or underfunded by federal agricultural assistance programs;
- Increased funding for financial incentives, programs, and research initiatives to support sustainable agricultural practices, restorative agriculture, conservation efforts, and other projects that improve ecological diversity and resilience to climate change;
- Strengthen funding for U.S. Farm Bill initiatives which incorporate a 'food is medicine' approach and support interventions such as medically tailored meals, produce prescriptions, medically tailored groceries, nutrition counseling, and evidence-based education on preparation of healthy food; and
- the creation of a new advisory board to review and recommend US Farm Bill budget allocations to ensure any government subsidies are only used to help produce healthy food choices and sustainable foods, and that advisory committee members include physicians, public health officials and other public health stakeholders.

Fiscal Note: Minimal

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APPENDIX

Figure 1: Breakdown of U.S. Farm Bill allocations as of 2018[15]

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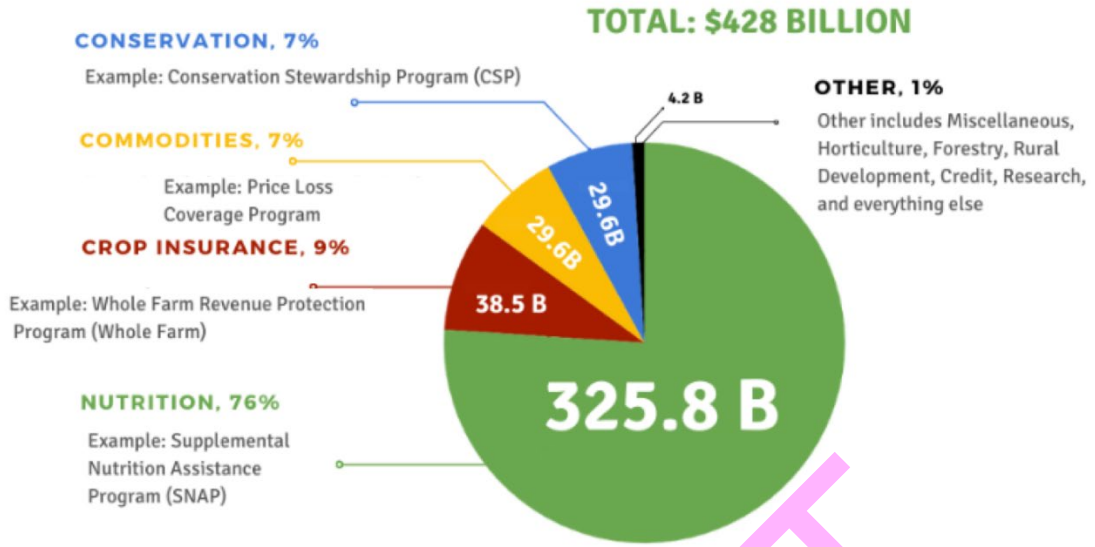
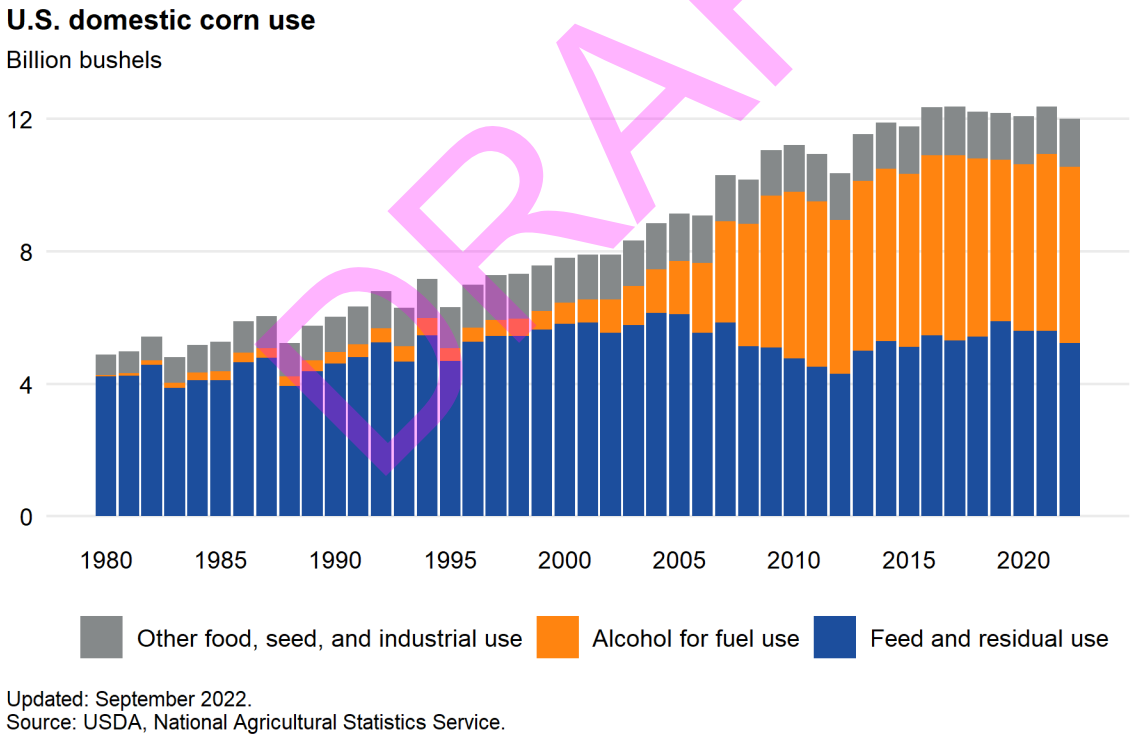


Figure 2: Historial data on U.S. Domestic Corn Use[20]



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Figure 3: Conceptual pathway diagram illustrating the relationship between U.S. Farm Subsidies and downstream public health impacts

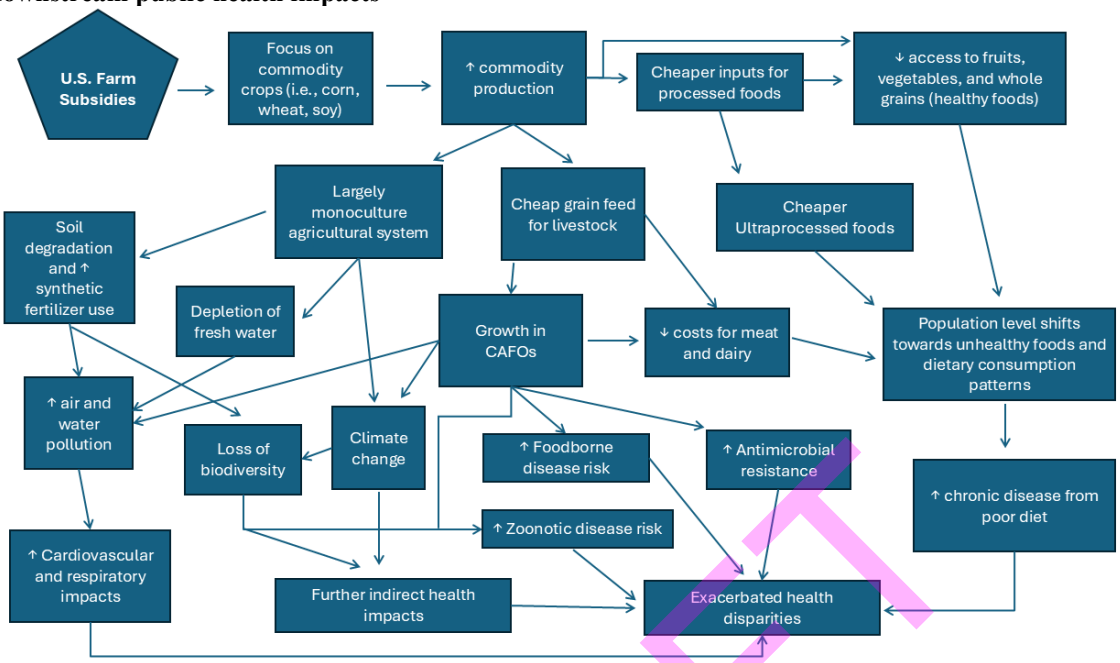
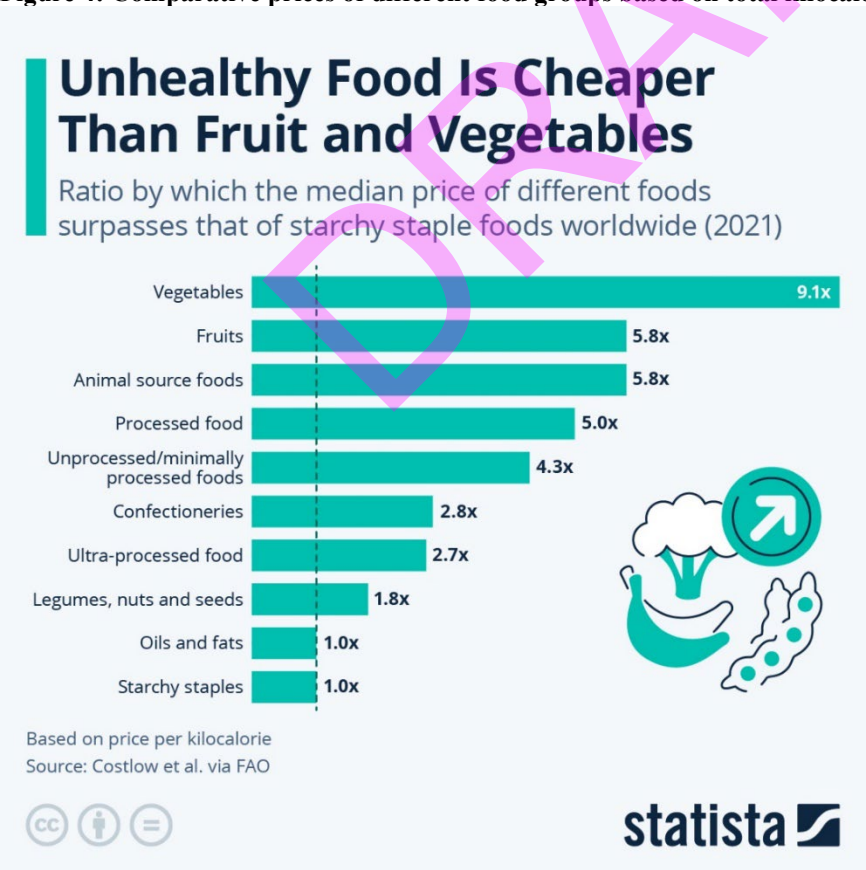


Figure 4: Comparative prices of different food groups based on total kilocalories[31]



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4. IMPROVING PUBLIC AWARENESS OF LUNG CANCER SCREENING AND CAD IN CHRONIC SMOKERS

Reference committee hearing: see report of Reference Committee D.

HOUSE ACTION: RECOMMENDATIONS ADOPTED
REMAINDER OF REPORT FILED
See Policy H-185.936

Resolution 404-A-25, "Improving Public Awareness of Lung Cancer Screening and CAD in Chronic Smokers," was referred for study and asked the following:

> That our American Medical Association will partner with other professional and public health organizations as well as key stakeholders in cardiology, pulmonology, oncology, and imaging specialties to increase awareness

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amongst chronic smokers (who would benefit from appropriate lung cancer screening) regarding their risk for both lung cancer and coronary artery disease and encourage their participation in screening programs through a joint public campaign effort; and be it further

That our AMA promote physician education and awareness regarding the value of chest CT in detecting both lung cancer and calcified atherosclerotic plaque and encourage reporting the extent of coronary artery calcification in non-contrast chest CT studies performed as a part of lung cancer screening program.

METHODS

English language reports were selected from searches of the PubMed and Google Scholar databases using the search terms: "lung cancer screening" AND "low dose CT." Additional articles were identified by manual review of the reference lists of pertinent publications. Web sites managed by federal agencies and applicable professional and advocacy organizations were also reviewed for relevant information.

BACKGROUND

Lung cancer is the second most commonly diagnosed cancer in the United States (U.S.), is generally detected at late stages, and consequently comes with a poor prognosis.[1–3] Early-stage lung cancer is more amenable to treatment and has a better prognosis; however, it requires early detection. Fortunately, there is evidence that low-dose computed tomography (LDCT) has a high sensitivity and specificity for detecting lung cancer.[4–12] Moreover, targeted screening can reduce lung cancer-specific mortality.[5,8–16] Despite the benefits of LDCT for lung cancer screening (LCS), rates of screening remain low.[17–22] This report outlines the current state of LDCT for LCS including: (1) the evidence of effectiveness, (2) disease prevalence, screening rates and high-risk populations, (3) barriers to and disparities in screening, and (4) current efforts to promote awareness among physicians and the public.

DISCUSSION

The Lung Cancer Landscape: Prevalence, Mortality, Risk Factors, and Disparities

The 2026 Cancer Statistics report estimates 229,410 new cases of lung cancer will be diagnosed in the U.S. this year.[23] Although lung cancer incidence is falling, it remains the leading cause of cancer deaths in U.S. men and women (19 percent and 21 percent respectively).[23,24] Most patients diagnosed with lung cancer present with distant or metastatic disease which is harder to treat and associated with higher mortality.[25,26] Notably the five-year relative survival for lung cancer has improved steadily, rising from 12 percent in 1975–1977, to 15 percent in 1995–1997, and reaching 28 percent in 2015–2021.[23] In addition to loss of life, lung cancer caused approximately $13 billion in lost earnings in the U.S. in 2019, not to mention the $1.35 billion in patient out-of-pocket costs associated with lung cancer treatment and caregiving.[27–29] Furthermore, there is evidence that cancer costs increased by stage with statistically significant and economically meaningful differences between the lower cost of early-stage cancer compared to higher cost late-stage cancer.[30,31] The risk of developing lung cancer is primarily driven by smoking status, with 80 to 90 percent of lung cancer deaths linked to smoking.[3,32,33] Although, smoking prevalence dropped from 42 percent in 1964 to 11 percent in 2023, it continues to be the leading cause of preventable death in the U.S.[23,34] Other risk factors for lung cancer include environmental exposures (e.g., radon, heavy metals, asbestos, arsenic), radiation therapy, other noncancer lung diseases, race/ethnicity, and family history.[3,25]

Factors that impact smoking behaviors have a significant impact on lung cancer rates. Historically, men had higher rates of smoking and a higher incidence of lung cancer. However, recently men have shown steeper reductions in lung cancer incidence compared with women, who took up cigarette smoking later and were slower to quit.[23,27,35] Age also increases lung cancer risk as more than half of diagnoses occur at age 70 years or older, and 83 percent occur at age 65 years or older.[36]

Notably, tobacco marketing efforts have historically targeted members of marginalized and underserved communities, who often have the highest incidence and mortality from the disease.[27,37–41] Native American people have the highest lung cancer mortality at 38.7 per 100,000 compared with 34.5 per 100,000 in White people, who rank second, and 33.1 per 100,000 in Black people, who rank third.[23] There is also evidence that Black males have the highest rates of age-adjusted lung cancer incidence and lung cancer mortality of all U.S. racial/ethnic groups.[39,41] Generally, Black individuals tend to develop lung cancer at an earlier age and are diagnosed at a later stage than white individuals.[39,42,43]

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Trends are also less favorable for Asian American, Native Hawaiian, and Pacific Islander women, among whom lung cancer incidence is increasing.[27] Evidence also shows that American Indian/Alaskan Natives have the highest overall prevalence of cigarette smoking and the slowest decline in lung cancer incidence of any group.[27,34,39,41,44] Incidence rates declined fastest in Black individuals in the last 10 years.[27] There is also evidence that lung cancer disproportionately affects people of low socioeconomic status, who experience more environmental exposures, higher lung cancer mortality, and have fewer resources and are less able to manage the economic burden of screening and treatment.[27,39,45–47]

Geography also impacts lung cancer rates and mortality. Rural populations experience particularly stark disparities in lung cancer outcomes including higher rates of smoking, a higher incidence of lung cancer, greater late-stage diagnosis, and have higher lung cancer mortality.[48–51] This is particularly true for Black individuals in rural areas when compared than those in urban areas.[39,52] State to state differences are notable and often tied to historical smoking trends.[27]

Recommendations for Lung Cancer Screening with LDCT

LDCT converts a series of x-ray images to create 3-D views of tissues and organs, but uses significantly less radiation than regular CT, thereby decreasing the radiation exposure risk.[53] Lung cancer screening guidelines recommend annual screening with LDCT as it has a moderate net benefit in persons at high risk of lung cancer based on age, total cumulative exposure to tobacco smoke, and years since quitting smoking.[54] However, there is slight variability in the screening guidelines regarding age and pack year cutoffs. (See Table 1).

Benefits of LDCT: screening efficacy, lung cancer mortality, incidental findings, and future applications

There is strong evidence from multiple systematic reviews, meta-analyses, and other studies that LDCT has high sensitivity and specificity to detect lung cancer.[4–12] There is also a well-defined high-risk population that may benefit from LCS with LDCT as LDCT is associated with increased diagnosis of early-stage non-small cell lung cancer (NSCLC), increased rates of resection, and a significant reduction in lung cancer-related mortality.[5,8–15,38,55–62]

Furthermore, some researchers and clinicians suggest that LDCT for LCS may be a useful tool to diagnose other cardiovascular and pulmonary conditions (e.g., ischemic heart disease, COPD, coronary artery disease) in otherwise asymptomatic patients.[63–71] LDCT for LCS provides images of the entire chest and upper abdomen and using a single scan to evaluate multiple conditions could reduce radiation exposure, save time, and decrease costs.[63,64] Cardiovascular conditions like coronary artery calcification (CAC), increase with age, are more common in smokers, and are frequently noted on LCS LDCT scans.[55,65,72,73] Additionally, although the clinical standard for evaluating CVD risk via CAC requires a dedicated ECG-synchronized cardiac CT, it can also be measured on any standard protocol CT image that includes complete imaging of the heart such as routine noncontrast-enhanced, non-ECG gated chest CT (NCT) scans.[63,64]

Current evidence suggests that CAC, particularly general grading of CAC volume, can be feasibly and reliably assessed using visual or software quantitative analysis methods on LDCT for LCS, which is reinforced by the fact that CAC is one of the most common incidental findings on LDCT for LCS.[63,66,69,74–79] Simultaneously, some evidence suggests that using LDCT from LCS to assess CAC and specifically for the assessment of Agatston calcium scoring may be less accurate.[63] There is also substantial variability in CAC detection on LDCT scans for LCS.[55,67,68,80] Therefore, while using LDCT for LCS to evaluate CAD and CAC is possible, there is no consensus regarding specific approaches or guidelines for using LDCT images for CVD risk assessment.[63,64] Technological innovation utilizing machine learning and artificial intelligence has been proposed as a tool to help diagnose CAC on LDCT for LCS; however, more research is needed to determine the evidence of effectiveness and ensure that the tools are both ethical and equitable.[6,64,71,81–83]

While there is potential benefit in using LDCT for LCS to diagnose CAD and CAC and facilitate earlier clinical intervention, it is important to avoid unnecessary workup – particularly when diagnosis does not necessarily engender clinical action or intervention.[66,69,74] For instance, the Nederlands-Leuvens Longkanker Screenings Onderzoek (NELSON) study found that only 1 percent of incidental findings had significant clinical implications and current data is unclear regarding whether knowledge of the presence of CAC on LDCT for LCS translates to intervention or decreased CV mortality.[70,80] Ultimately, further studies are needed to determine whether CAC could enhance uptake and adherence to primary prevention strategies.[67,70]

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Finally, it is important to note that most studies of LDCT for LCS lack diversity, thereby limiting generalizability of the findings to marginalized groups who face higher incidence of lung cancer, lower rates of screening and treatment, more advanced lung cancer disease at diagnosis, and higher lung cancer mortality.[38,84–91] Much of the evidence for LDCT comes primarily from two large clinical trials: The National Lung Screening Trial (NLST) and NELSON; however, 89.6 percent of participants in the NLST were White and of higher socioeconomic status than the general population, while the NELSON study did not report these demographic factors.[38,92–95]

Risks of LDCT: overdiagnosis, false positives, psychological harm, etc.

Although there is strong evidence supporting the use of LDCT for LCS in high-risk groups, it is important to acknowledge that potential psychological harms, overdiagnosis, false positives, and consequent unnecessary treatments and health care costs remain challenges.[11,25,96–99]

Overdiagnosis occurs when malignancies that would have remained asymptomatic or progressed too slowly to impact a patient's health are discovered, whereas false positives occur when the LDCT picks up an abnormal finding (e.g., cyst, calcification), but follow-up scans or inquiry are unconcerning.[98–101] Both overdiagnosis and false positives are risks associated with LDCT for LCS that can have negative psychological impacts (e.g., increased anxiety and stress), result in unnecessary diagnostic procedures (e.g., follow-up imaging, biopsies), overtreatment (e.g., surgery, radiation, chemotherapy), and extended patient monitoring.[97,100,102] There is some evidence that false-positives and misdiagnosis are more common among people who are screened using LDCT than x-ray.[12,97] However, there is also evidence that false positive and misdiagnosis rates may be reduced by factors like extending the length of post-screening follow-up, assessing the volume doubling time of detected nodules, and implementing Lung Imaging Reporting and Data System (Lung-RADS) criteria.[9,13,100,103,104] Lung-RADS is a classification system to aid interpretation of findings in LDCT for LCS and standardize follow-up and management decisions. There is no consensus on the optimal cut-off size for nodules classified as positive.[9,10]

Psychological harms like anxiety and distress are commonly associated with cancer screening and LDCT for LCS is no different.[105] False-positive results, overdiagnosis and detection of incidental findings in asymptomatic people are risks that can reduce screening participation.[106] Short-term adverse psychological burden has been reported, particularly after a false-positive result, but this was found to diminish over time.[107–109] Multiple reviews have shown that are no long-term psychological harms from screening.[12,104] Also, there are interventions which have been regularly shown to reduce psychosocial burden in cancer screening including patient-centered communication, psychological preparation for different types of outcome, the use of decision aids in shared decision making (SDM), and multi-faceted interventions incorporating emotional support and patient education can reduce negative experiences.[80,105,110,111] Finally, evidence suggests rates of false positives and overdiagnosis of lung cancer using LDCT are not very different from the overdiagnosis rate of breast cancer, and therefore might be reasonable.[62]

General Lung Cancer Screening Rates

Despite the strong evidence that LDCT is effective for LCS, support from professional organizations and advocacy groups, and increased prevalence of LCS programs (e.g., in community, cancer centers, academic health systems, and Veterans Health Care Administration (VHA)), actual rates of screening remain very low.[20,21] A 2024 study found that roughly 12.7 million adults were eligible for lung cancer screening with LDCT, but only 18.3 percent were screened.[22] This mirrors studies from 2017, 2020, and 2022 that found similarly low screening rates at 14.4 percent, 6.5 percent, and 18.1 percent respectively.[17–19] Importantly, there is significant state to state variability in screening rates -- Florida has a 18.1 percent screening rate, whereas Nevada is much lower at 6.5 percent.[20,27,39,112] In contrast, one study found county-level breast, cervical, and colorectal cancer screening rates ranging from 39.8 to 89.7 percent.[113] Another study found that among those eligible for LCS, breast and colorectal cancer screening rates were nearly 4 times higher than the LCS rates.[114]

Disparities in Lung Cancer Screening

Lung cancer screening is one of the most observed topics in the health disparities literature.[91] Evidence of disparities in LCDT use for LCS are notable among racial and ethnic minoritized adults, uninsured individuals, and residents of specific regions.[21,38,91,115–118] Evidence also suggests that education level, income, and veteran status also impact lung cancer screening decisions and rates.[21,38,91,115–118] A number of studies and systematic reviews found that Black or Hispanic adults had lower rates of LCS than White adults.[38,116–119] However, the most recent data shows that Native

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American people have some of the lowest screening rates (14 percent) compared to Black people and White people (20 and 18 percent respectively).[23]

Access to LDCT is a major factor in screening rates, and lack of access is especially pronounced in rural and socioeconomically disadvantaged areas and populations.[120–123] One study found that unscreened patients had a lower annual household income than those who were screened.[116] Individuals with low socioeconomic status also face financial, social, and geographic barriers to accessing LCS and essential follow-up.[124] LCS utilization is also influenced by health insurance access, coverage, and costs as evidence by the fact that individuals with higher total out-of-pocket medical costs are less likely to adhere to annual LCS.[125,126] Similarly, there is evidence that a greater proportion of screened non-Hispanic Black respondents were of Medicare age and gaining access to Medicare coverage increased LCS in screening-eligible men.[127,128]

Patterns of LCS accessibility and utilization vary with geographical factors like total distance from screening facilities, regional differences tied to historical trends and priorities, and rural-urban environment differences that impact resources. One study found that five percent of the population eligible for LDCT does not have access to screening facilities within 40 miles and this is markedly higher among individuals living in micropolitan and rural counties at 17.1 percent and 24.5 percent.[123] Evidence generally indicates that a larger percentage of the rural population lacks access; however, some studies found that urban residents were less likely to be screened and less likely to be aware of screening.[38,123,129–132] LDCT screening rates also vary widely across states.[119,133] Several southern states with a high lung-cancer burden (e.g., Mississippi, West Virginia, and Arkansas) have relatively low rates of screening, whereas several northeastern states with lower lung cancer burden (e.g., Massachusetts, Vermont, and New Hampshire) had the some of the highest rates of LDCT screening. Kentucky is a notable exception as they have high lung cancer mortality and also one of the highest screening rates.[119,133]

Finally, veteran status is associated with increased odds of screening.[131] Veterans have higher smoking rates than their nonveteran peers, but there is also evidence that efforts by the Veterans Health Administration (VHA) hospitals have resulted in good LCS uptake with more than half of eligible VHA patients agree to undergo screening at eight demonstrations sites between 2013 and 2015.[134,135] Notably, VA-Partnerships to Increase Access to Lung Screening (VA-PALS), a multidisciplinary collaboration between clinicians and computer scientists within and outside the VA to increase access to high quality LCS, might contribute to higher rates of screening among vets.[131,136]

BARRIERS TO LDCT LCS UTILIZATION AND EFFORTS TO ADDRESS THEM

The most common barriers to utilization of LDCT for LCS are patient and clinician knowledge, perceived high false-positive rate leading to unnecessary procedures, patient refusal, time constraints, lack of transportation, concerns about cost or lack of insurance coverage, and difficulty using the electronic medical record (EMR) to determine and notify clinicians of eligible patients.[137] These barriers fall into two conceptual groups: (1) knowledge, attitudes, and beliefs; and (2) structural barriers to access.

Clinician and patient knowledge, attitudes, and beliefs

There is evidence that physicians support LDCT for LCS and that they believe the benefits outweigh the potential harms for high-risk patients.[138] Yet evidence also suggests that physicians' lack of knowledge about eligibility, screening guidelines, and CMS insurance coverage is an obstacle to referral of LDCT.[38,88,116,138–146] Several studies illustrate the mistaken belief among physicians that the USPSTF recommends screening with chest x-ray.[139,140,142] There is also evidence that many clinicians struggle to accurately identify all CMS eligibility criteria or correctly state the current guidelines.[21,137,138,147] One study found that the majority of physicians were unsure whether Medicare/Medicaid covered LDCT LCS, despite the fact that CMS had already issued their coverage determination.[138] This is concerning since a majority of physicians in that study also reported that they would recommend LDCT screening for high-risk patients if cost were not an issue.[138]

There is also evidence that clinicians' perceived patient barriers (e.g., lack of awareness, stress, anxiety, cost, and lack of insurance coverage) and concern about the potential for false positives are significant obstacles to lung cancer screening referrals.[138,140–144,147,148] Clinician knowledge levels may also be impacted by setting. One study found that academic-based clinicians achieved similar knowledge scores to community-based clinicians, both of which were significantly higher than the knowledge scores of health care professionals in safety net-based settings.[137] Similarly, another study found that almost all physicians reported that a computed tomography machine was available at a facility

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within 20 minutes of their practice, but nearly half were unsure of whether LDCT screening was offered at those facilities.[138] Finally, controlling for clinician characteristics (hospital affiliation, specialty, title, employment) and CMS eligibility provider knowledge scores, a higher provider knowledge score was associated with a higher likelihood of ordering a LDCT scan.[137]

Lack of knowledge or awareness about LDCT for LCS is also commonly reported by patients.[149–153] Multiple studies found that most eligible smokers had little or no knowledge about lung cancer screening and had never had a health care professional recommend it to them.[38,144,152,154,155] This is important as lack of knowledge can contribute to feelings of fear, fatalism, and stigma, which are also reported by patients as barriers to utilizing LDCT for LCS.[144,152,153,155–157] Findings from one review show that screening attendance is affected by fear of both diagnosis and screening procedure.[158] Similarly, one study found that the primary barrier to returning for subsequent annual screenings was receiving a negative or false-positive screening result.[151] Moreover, a generational history of discrimination and mistrust contributes to perceptions of stigma and challenges with patient–clinician communication.[39] As a result, underrepresented racial/ethnic populations and individuals with low socioeconomic status exhibit greater feelings of fatalism, nihilism, and futility associated with medical intervention, which may reduce pursuit of lung cancer screening.[155–157,159] Furthermore, there is some evidence of differences in total knowledge scores associated with race, with White participants having slightly higher total knowledge about screening when compared to Black participants.[148] In a separate study, Latinx patients were more likely to believe that lung cancer can be prevented, were less worried about developing lung cancer, and had a greater willingness to be screened when educated about screening when compared with non-Latinx patients.[160]

Intervention to improve knowledge and awareness: Education, public awareness, and shared-decision-making

There is some evidence that educational efforts can increase both clinician and patient knowledge and awareness.[112,161–164] Some studies have demonstrated that group based learning, targeted education programs, and educational lectures can increase clinician knowledge about LCS, improve their ability to identify eligible patients, and increase referrals to LDCT; however, most interventions to increase LDCT LSC rates have targeted patient education with SDM.[112,161,162,164] This is likely because SDM counseling is required for reimbursement and recommended by federal agencies and national specialty societies to help patients in making informed decisions about LCS.[165,166]

There is significant variability in studies of and approaches to SDM for LCS; however, evidence from multiple reviews and studies demonstrate that decision aids, tools, and processes for SDM improve patient knowledge, reduce decisional conflict and regret, show acceptability to patients and clinicians, and increase LCS uptake and adherence.[96,110,167–172] Moreover, when effectively tailored to populations at higher risk for lung cancer, SDM can further promote health equity.[172,173] At the same time screening rates remain low and many clinicians cite major barriers to utilizing SDM, including time constraints, competing clinical demands and priorities, limited awareness about LCS guidelines, lack of skilled training in SDM, and insufficient resources to implement SDM.[164,174–176] One study found that clinicians were concerned about the feasibility of integrating yet another recommendation into routine practice, let alone the capacity to provide the high-volume, high-quality lung cancer screening and treatment centers required to support screening programs.[140] There are also concerns that SDM conversations are often too brief, prioritize exchanging information over patient preferences, focus on benefits over harms, and lack sufficient use of decision aids.[176,177] This underscores the need to both explore alternative methods of SDM which can minimize hands-on clinician time and expand beyond a sole focus on education interventions to incorporate multilevel targets when designing LCS interventions.[110,164]

Proposed approaches include integrating SDM and telehealth for LCS, prediction-augmented SDM tools, developing adaptable SDM training programs, developing novel SDM decision aids and tools, and establishing key SDM process and training quality measures.[172,178] For example, one study found that conducting SDM over the telephone could be a way to address logistical barriers, improve patient knowledge, and reduce fatalistic beliefs and distrust in the medical system.[179] Implementation should consider feasibility and that delivery should include patient-facing print, web, in-person, and video options.[96] Moreover SDM content and presentation methods should be developed collaboratively with screening-eligible adults.[180]

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Structural Barriers: Time Constraints, Insurance Coverage, and Electronic Health Records (EHR)

Even when patients and clinicians are well informed about the risks and benefits of LDCT there are several structural barriers that may prevent them from pursuing or accessing LDCT. For instance, the EHR can be a useful tool to cue physicians to patients who are eligible for LDCT; however, that requires that the EHR contains detailed and accurate smoking history calculation and age.[21] Eligible individuals may be missed if they do not have a clinical encounter or if the EHR fails to capture and retain accurate cumulative pack-year calculations.[181] For example, one cross-sectional study found that imprecise smoking history data in the EHR resulted in identifying only 30 percent of potentially LCS eligible study respondents when searching for screen-eligible beneficiaries for LCS.[182] Reliance on EHRs for referrals is complicated by the patchwork nature of the current health care system in the U.S. and by the underuse of health care services and cancer screening among people who smoke.[183,184]

Many physicians also referenced patient barriers like insurance coverage and cost as rational for why they did not bring up or recommend LDCT for LCS with the patients who might be eligible.[140] One study found that the most reported barriers to ordering screening included prior authorization requirements, lack of insurance coverage, and coverage denials.[175] Since 2015, LCS with LDCT has been covered under Medicaid; however, to qualify for reimbursement several criteria, including SDM counseling, must be met. This creates two interconnected barriers. First, the SDM requirement has been interpreted by some to be a time-consuming barrier to uptake.[179,185] Second, individual state-based decision-making rules and rejection of Medicaid expansion have limited access to LCS using LDCT, and in some cases, continues to leave eligible LCS candidates without a route to screening.[19,39,186,187] There is evidence that screening implementation is higher among individuals with insurance compared with uninsured subjects.[188] Yet, underrepresented racial/ethnic populations are more likely to be uninsured or ineligible because of foreign-born nativity or citizenship status.[39] More than half of those who qualify for lung cancer screening on the basis of USPSTF recommendations are estimated to have Medicaid or be uninsured.[146]

Structural barriers like lack of transportation, cost of screening, and time constraints (e.g., inability to get time off of work, inability to find child care, and other pressing issues) also limit access or a patient's reported willingness and/or ability to pursue LDCT for LCS.[144,149–152,158] For example, one study found decreased intention to screen when patients were required to pay for the test.[157]

Structural Interventions: Mobile LDCT, digital interventions, and patient navigation

Logistical barriers to access are some of the most reported by patients, particularly by marginalized individuals who often have higher rates of lung cancer and worse lung cancer mortality. The two primary approaches that have been used to address logistical barriers are those that either focus on bringing LDCT to underserved areas (e.g., mobile LDCT and telehealth) or on facilitating patient navigation (e.g., scheduling support, reminders, transportation).

For instance, mobile screening services might offer a potential solution to narrow healthcare disparities for marginalized populations.[125,189] There are some studies that show that mobile LDCT LCS platforms can lead to higher rates of LCS and early lung cancer detection, particularly in underserved populations. However, more research is needed to confirm the evidence and determine scalability.[190] Similarly, digital interventions, particularly decision aids and telehealth, have shown promise in improving knowledge and the quality of decision-making around LCS, but there are very few studies and the effects are small.[191] Ultimately, further research is needed to determine the evidence of effectiveness, feasibility, and scalability of mobile LDCT, digital decision aids, and telehealth interventions.

There is also evidence that centralized programs are more effective regarding screening rates, adherence to guidelines, and follow-up care, than decentralized programs.[192–195] However, centralized programs require considerably more investment and resources.[178,196] There is also substantial variation in practices utilized across centralized LCS program models, including the specific structures and practices that enhance LCS quality and effectiveness, which has not been sufficiently explored.[119,192,193,195,196] Often centralized programs employ processes that improve screening among underserved populations, including clinical reminders to identify eligible patients, providing educational materials, addressing barriers to accessing care such as insurance coverage and transportation, and patient navigation.[196,197] There is also some evidence that patient navigation practices, including scheduling support, reminders, and transportation may improve LCS uptake and adherence, particularly in vulnerable populations.[198–201] Furthermore, the few interventions addressing social determinants of health in LCS have favorably resulted in increased screening rates.[202] While more evidence is still needed, it is likely that effective, equitable screening requires addressing barriers along several steps of the LCS continuum.[195,203]

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CURRENT AMA POLICY

AMA Policy, H-185.936 "Lung Cancer Screening to be Considered Standard Care" addresses LDCT for LCS. It highlights the importance of insurance coverage, improving access, and the need to promote education and awareness about LDCT for LCS to patients and clinicians.

CONCLUSION

Lung cancer has significant health and economic impacts in the U.S., particularly since it is often diagnosed late when prognosis is poor.[1–3] Moreover, these effects are often more prevalent among marginalized individuals. However, there is strong evidence that LDCT LCS can result in earlier diagnosis and better health outcomes as well as emerging evidence of the potential to use LDCT for LCS to diagnosis CAC.[4–12] Despite the benefits of LDCT for LCS, rates remain low.[17–22] Most of the current interventions to improve LDCT LCS focus on either: (1) improving education or (2) addressing structural barriers. There is some evidence that education improves knowledge and awareness for both patients and clinicians, particularly through SDM. However, even with increased use of SDM, screening rates remain low, suggesting greater emphasis should be put on evaluating ways to improve SDM or on interventions that address structural barriers. Early efforts to bring LDCT to underserved areas (e.g., mobile LDCT and telehealth) or to facilitate patient navigation (e.g., scheduling support, reminders, transportation) are promising but there is a clear need for more research to confirm the evidence of effectiveness, feasibility, and scalability.

RECOMMENDATIONS

Your Council on Science and Public Health recommends that the following be adopted in lieu of Resolution 404-A-25 and the remainder of the report be filed.

That Policy H-185.936 "Lung Cancer Screening to be Considered Standard Care," be amended by addition to read as follows:

1. Our American Medical Association recommends that coverage of screening low-dose CT (LDCT) scans for patients at high risk for lung cancer by Medicare, Medicaid, and private insurance be a required covered benefit.
2. Our AMA will empower the American public with knowledge through an education campaign to raise awareness of lung cancer screening with low-dose CT scans in high-risk patients to improve screening rates and decrease the leading cause of cancer death in the United States.
3. Our AMA will work with interested national medical specialty societies and state medical associations to urge the Centers for Medicare & Medicaid Services and state Medicaid programs to increase access to low-dose CT screening for Medicaid patients at high risk for lung cancer by including it as a covered benefit, without cost-sharing or prior authorization requirements, and increasing funding for research and education to improve awareness and utilization of the screening among eligible enrollees.
4. Our AMA, in conjunction with other interested national specialty societies of expertise (e.g., ACP, AAFP, ACR), will create and share educational resources and training to help physicians efficiently discuss and document low-dose computed tomography (LDCT) lung cancer screening during shared decision-making visits for high-risk populations.
5. Our AMA will promote physician education and awareness regarding the value of low-dose CT in detecting lung cancer, and will encourage education, technological innovation, and continued research around the detection of coronary artery calcification on low-dose CT performed as a part of a lung cancer screening program.
6. Our AMA will support efforts by key stakeholders in cardiology, pulmonology, oncology, and imaging specialties to research interventions to improve access to and utilization of lung cancer screening with low-dose CT scans in high-risk patients.

Fiscal note: Minimal

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APPENDIX

Table 1. Lung Cancer Screening Guidelines

Organization (Year)	Age	Pack years	Other
American Academy of Thoracic Surgeons (2012)[204]	55-79	30	Currently smoke or quit <15 years ago
US Preventive Services Task Force – B Recommendation (2021)[166]	50-80	20	Currently smoke or quit <15 years ago
American Academy of Family Physicians (2021)[205]	50-80	20	Currently smoke or quit <15 years ago
American Cancer Society (2023)[206]	50-80	20	Currently smoke or previously smoked
American College of Chest Physicians (2021)[207]*	55-77	30	Currently smoke or quit <15 years ago
American College of Chest Physicians (2021)[207]**	50-80	20	Currently smoke or quit <15 years ago
National Comprehensive Cancer Network (2024)[208]	50 ≥	20	History of smoking
Medicare & Medicaid Coverage[186]	50-77	20	Currently smoke or quit <15 years ago

*Offered with a strong recommendation
**Offered with a weak recommendation

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5. REMOVING ARTIFICIAL TURF IN SCHOOLS, PARKS, AND PUBLIC PLACES

Reference committee hearing: see report of Reference Committee E.

HOUSE ACTION: RECOMMENDATIONS ADOPTED
REMAINDER OF REPORT FILED
See Policy H-135.899

Resolution 408-A-25, "Removing Artificial Turf in Schools, Parks and Public Places," was referred for study and asked the following:

> That our American Medical Association (AMA) recommend replacing artificial turf with natural, drought-tolerant and hardiness zone appropriate turfgrass in parks, sports fields and lawns when it is to be replaced; and be it further
>
> That our AMA support natural, drought-tolerant and hardiness zone appropriate turfgrass as the preferred choice on sports fields or lawns, in all public and private schools and colleges, as well as in city parks.

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This report provides a summary of the available evidence on the positive and negative health impacts of artificial turf fields, the current landscape of legislative activity to limit artificial turf, and available evidence for disproportionate impacts on specific populations.

METHODS

English language reports were selected from searches of PubMed and Google Scholar databases using the search terms: "artificial turf" AND "health impacts", "artificial turf" AND "injury," and "artificial turf" AND "accessibility." Legal websites, such as LexisNexis, and Google were utilized to search for state and local legislation on artificial turf. Search terms included "[State name] ban or regulations on artificial turf" and "cities or counties in [State name] that have bans or regulations on artificial turf". Additional articles and sources were identified by manual review of the reference lists of pertinent publications. Web sites managed by federal agencies, such as the U.S. Environmental Protection Agency, and applicable professional and advocacy organizations were reviewed for relevant information.

BACKGROUND

Artificial turf is made by heating plastic resin (generally polyethylene and polypropylene) so it can be reshaped into a yarn-like substance to produce grass-like threads that sit on several layers that provide cushioning. Artificial turf was first introduced in the 1960s and was originally intended to provide cushioned recreational surfaces for urban schools that did not have natural grass play areas or found them difficult to maintain.[1] Artificial turf has gone through several technological phases since then. First generation artificial turf, commonly known as AstroTurf, gained notoriety when it was installed in the Houston Astrodome in 1966.[1] AstroTurf was composed of short, stiff nylon fibers layered over a compacted soil base, sometimes with a closed-cell foam cushion added beneath the carpet.

AstroTurf had significant technical limitations, aesthetic shortcomings, and was criticized for its abrasive textures, resulting in concerns about injuries. The second generation of artificial turf was developed in the late 1970s and included a shock-absorbing pad beneath the first-generation carpet with longer fibers compared to the first-generation turf. Additionally, in this evolution of artificial turf, infill materials were added, such as silica sand, which filled the spaces between the turf fibers, allowing them to stand upright. While the introduction of infill materials improved shock absorption, it caused painful abrasion injuries.[1,2]

For the current, or third generation, of artificial or synthetic turf, introduced in the late 1990s, the composition of artificial threads changed from polypropylene to polyethylene which increased the fiber length and decreased the risk of skin abrasion.[1] The artificial grass sits on several layers, including an infill layer made of rubber (generally recycled tire crumb), coconut fibers, cork, nutshells and sand, a backing layer to which the blades are sewn, a drainage layer, and sometimes additional padding layers.[2] Technological advances within the last five years in artificial turf aim to address existing issues with heat retention, environmental concerns, and injury risk, with the development of environmentally friendly materials, improved drainage, recyclability, and antimicrobial treatments, but these are very recent advances and most installations of artificial turf are using third generation synthetic turf as described above.[1,2]

Since its introduction in the 1960s, the use of artificial turf across the country has grown, with nearly 19,000 turf fields currently estimated to be in use across North America.[3] Proponents of artificial turf argue that it can be used in all weather conditions, it provides multi-use opportunities, that it can save water, reduce the need for toxic pesticides and fertilizers, uses recycled materials (i.e., rubber tires), and is less expensive.[4] Despite these purported advantages, many communities are concerned about the potential health impacts of artificial turf, leading some cities to ban them or reject installation of new fields.[5] The following summarizes the known health risks and environmental concerns of artificial turf versus natural turf as well as an overview of legislative activity on this subject. For easy reference, a comparison table summarizing the advantages and disadvantages between artificial turf and natural turf grass is provided in Table 1.

DISCUSSION

Environmental Health Concerns

Many chemicals found in synthetic turf fields have known health risks, including benzene, arsenic, volatile organic compounds, phthalates, and per- and polyfluoroalkyl substances (PFAS). A 2016 Environmental Protection Agency (EPA) literature review on recycled tire crumb used in artificial turf identified 350 unique chemical compounds, some

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of which have known adverse health impacts.[6] This EPA report stated that studies had not shown an elevated health risk from playing on artificial turf fields but acknowledged study limitations that did not allow for a comprehensive evaluation.[6] A 2024 follow-up report by the EPA, Centers for Disease Control and Prevention (CDC), and the Agency for Toxic Substances and Disease Registry (ATSDR) included pre- and post-activity biomonitoring data on polycyclic aromatic hydrocarbon (PAH) concentrations in approximately 160 study participants. PAHs represent a group of chemicals naturally found in fossil fuel-based products.[7] The 2024 EPA/CDC/ATSDR study did not report any significant differences in PAH concentrations based on turf type (i.e., synthetic versus natural).[7] This indicates that while there may be chemicals present in the artificial turf, that does not necessarily equate to increased exposure risk for users of artificial turf fields. However, beyond point of contact exposure, artificial turf has the potential to pollute local water systems, such as groundwater and nearby streams and water bodies.[3,8,9]

Artificial turf is also of concern as plastics break down into smaller pieces called microplastics. Microplastics are pieces of plastic that range in size but are less than 5 millimeters.[10] Microplastics have been found throughout the human body, including a recent finding of microplastics in the olfactory bulb of the brain.[11,12] While research on the health impacts of microplastics themselves in our body is still nascent, recent research found a four-fold increase in the risk of poor cardiovascular outcomes in patients with microplastics present in their carotid artery plaque.[13] Microplastics can also be viewed as "trojan horses" as they carry with them a complex array of chemicals which separate from the plastic and spread throughout our bodies via the circulatory system.[14] While health and safety information are lacking for most chemicals in plastic, at least four major categories of chemicals found in plastics have been more extensively studied in terms of health impacts. These include phthalates, bisphenols, PFAS, and flame-retardant additives.[15] The effects of these chemical additives are known to affect nearly every organ system in the body of people of all ages, but particularly young children.[16] More detailed information on the health and environmental impacts of plastics and microplastics can be found in the AMA Council on Science and Public Health Report, *Plastic Pollution Reduction*, adopted at the AMA House of Delegates 2025 Interim meeting.[17]

In comparison, the primary environmental concerns for natural turf fields include exposure to and environmental contamination from pesticides and water usage. Pesticide pollution negatively impacts water, soil, and the surrounding environment and has negative health impacts, particularly for workers regularly exposed via occupational applications (e.g., groundskeepers, landscapers, and farm workers).[18] Depending on the frequency and level of exposure, pesticides can result in both acute and long-term health consequences, including cancer, neurological disorders, and endocrine disruptions.[19] Pesticide exposure can also increase the incidence of respiratory issues and neurodegenerative diseases.[19] However, agricultural uses account for nearly 90 percent of total pesticide applications in the U.S. and thus the contribution of pesticides from use on recreational fields likely constitutes a relatively small portion of human and environmental exposure.[20]

In terms of water usage, natural grass turf is water-intensive and depending on the size of the field and local climate, may require substantial water resources per year. On the other hand, natural grass helps reduce runoff and mitigate flooding as it both stores water and slows down groundwater infiltration, although fields can flood with heavy rainfall.[18] Flooding has been demonstrated to be a challenge for artificial turf fields as well, sometimes requiring intensive repairs or total replacement after a flood event.[3] In a risk-benefit analysis of natural grass versus artificial turf, it was noted that the creation of the plastic used in artificial turf is so water intensive and because artificial turf may require water to cool it during hot weather, the purported water savings over the course of its useful life might be overstated.[2] Natural grass fields also offer several environmental benefits, including reducing surface temperatures, supporting biodiversity (depending on pesticide usage), reducing soil erosion, and acting as a carbon sink.[18]

Another important environmental consideration in the debate between artificial and natural turf is the disposal of artificial turf at the end of its useful life. One factor that proponents of third generation artificial turf market is that the infill uses recycled rubber tire crumb.[4] There are many challenges with disposing of rubber tire crumb, including that it contains a range of metals, semivolatile organic compounds, volatile organic compounds and bacteria that can leach into surrounding soil and water, contaminating local ecosystems.[21] Additionally, large concentrations of rubber tires in landfills pose a fire hazard as they are highly flammable and create toxic smoke when burned.[21] However, while artificial turf has been positively marketed as a way to help with the issue of rubber tire waste, the turf itself has a limited lifespan and poses its own waste management challenges. Artificial turf has an average life span of eight to ten years and disposal of turf is difficult, as it cannot be easily recycled.[22] Communities have struggled to find ways to dispose of it, as in some cases municipal collection systems will not accept it and existing methods create additional environmental challenges.[2,22]

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Heat-related Illness

In addition to the chemical exposure risk, artificial turf fields also retain more heat than natural grass as the synthetic materials absorb solar energy, creating localized 'heat islands.'[23] Artificial turf fields have been documented to reach temperatures between 160- 200 degrees Fahrenheit on warm, sunny days (over 90 degrees).[23] These extreme temperatures increase the risk of skin burns (first to third degree) and heat-related illness, such as heat stress, heat exhaustion, and heat stroke. These issues are increasingly of concern with warmer temperatures caused by climate change and have important implications for urban climate resilience. For example, the average number of heat waves experienced by U.S urban areas has increased from two per year in the 1960s to six per year in the 2010s.[24] Higher temperatures have resulted in higher rates of heat-related illness, particularly for young athletes; the prevalence of heat illnesses and heat-related deaths occurring in organized sports has increased among high school athletes.[18]

Injury Risk

Many different factors influence the risk of sports injury, including the type of activity, level of competition, weather conditions, individual characteristics, and playing surface. Even among synthetic turf fields, there is a range of turf surfaces and there have been changes to synthetic turf products over time, which make attribution of risk challenging. In terms of comparing lower extremity injury risk between natural and synthetic turf fields, a systematic review found similar overall injury rates in a majority of articles evaluating newer synthetic turf fields, but football players, particularly those at high levels of competition, were more likely to sustain a knee injury on artificial turf than on natural grass.[25] Another systematic review comparing injury rates between female and male soccer players on artificial turf versus natural turf found female soccer players had a significantly higher risk of anterior cruciate ligament injuries on artificial turf compared to natural turf.[26] Concerns over increased risk of knee injuries led the National Football League Players Association to call for the elimination of artificial turf fields in 2023.[27]

Other common injuries for competitive contact sports include head injuries and concussions. A systematic review on comparative risk of these types of injuries based on the type of playing field found rate ratios for head injury and concussion were less on artificial turf compared to natural grass fields, though the analysis was based on limited publications.[28] In subgroup analyses by sport type, effects were significant among rugby and American football but not significant for soccer.[28] These mixed findings indicate that the potential risk of sport injuries on artificial turf versus natural turf is complicated by many factors, including the type of sport, the type of injury studied, and the age (and likely maintenance) of the fields.

User Preferences and Recreational Opportunities

Anecdotally, artificial turf fields are believed to promote more physical activity as they provide consistent, year-around, and needed recreational fields to meet the needs of many competing community interests. Additionally, media accounts of local decision-making processes regarding the installation of turf fields reflect a high demand for recreational playing fields in communities with high levels of youth and adult sports leagues, hence why the durability and year-round ability to play on artificial turf fields is a compelling advantage for these communities.[3] However, research among a broad array of park users, including athletes, have demonstrated an overall preference for natural turf fields over artificial turf, with respondents to surveys on the issue indicating environmental, aesthetic, heat, and perceived injury risk concerns associated with artificial turf in comparison to natural turf.[29–31]

Equity considerations

While underserved urban areas may have a lack of greenspace available for recreational uses, installing artificial turf in these same areas may inadvertently increase the urban heat island effect. Urban heat islands are a phenomenon where urban areas experience significantly warmer temperatures as compared to surrounding suburban and rural areas, due to a lack of greenspace, a higher proportion of concrete and asphalt surfaces, and radiative heating from buildings and cars.[32] Urban heat islands disproportionally impact communities that have been historically marginalized, especially Black communities, due to historical discriminatory practices like redlining and racialized zoning.[33] Urban heat islands can be exacerbated by artificial turf fields as they also retain and radiate heat.[2,23] Thus, installing artificial turf in communities that already are at greater risk of heat-related illnesses from exposure to urban heat may exacerbate existing inequities.

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During testimony at the reference committee hearing on Resolution 408-A-25, delegates raised the question of whether the removal of artificial turf fields would have negative repercussions for users and athletes with disabilities, in particular those who use wheelchairs. There was no peer-reviewed evidence on differences in accessibility for users with disabilities between artificial turf and natural turf fields. While it is assumed artificial turf can provide good accessibility for those using wheelchairs due to its relatively smooth and even surface, it is critical that it meet the Americans with Disabilities Act requirements, be well installed, and consistently maintained to improve accessibility for all users.[34]

LEGISLATION

A few states have passed legislation that bans or restricts the installation of artificial turf and many of them are explicitly focused on banning artificial turf that contains PFAS chemicals. Colorado, for example, beginning January 1, 2026, bans the installation of artificial turf "that contains intentionally added PFAS chemicals" though it does not prohibit maintaining existing artificial turf that is installed before January 1, 2026.[35] Similarly, as of July 1, 2024, Vermont banned manufacturers from selling or distributing artificial turfs that have PFAS intentionally added or entered the product from the manufacturing or processing of the product that the manufacturer knew or should have been aware about.[36] As of January 1, 2025, Minnesota prohibited PFAS in a variety of products.[37] While artificial turf is not explicitly mentioned in that state statute, the Minnesota Pollution Control Agency noted that artificial turf falls under one of the explicitly mentioned categories.[38] Nevada has required "nonfunctional turf" to be removed before December 31, 2026.[39] Beginning January 1, 2029, artificial turf that contains intentionally added PFAS is not allowed to be sold in Rhode Island.[40] Maryland has required the Department of the Environment, in collaboration with several other groups and representatives, to conduct a study on the synthetic turf industry and report its findings to committees within the General Assembly by July 1, 2026.[41] Based on that report and the Department's findings, regulations and restrictions on artificial turf may be adopted.

In the absence of state-wide regulations, some cities have passed ordinances or rules regulating artificial turf.[42–45] Regulations can include a complete ban on the installation of new artificial turf, a ban on artificial turf in only some areas or lot types, requiring existing artificial turf to be replaced with natural grass by a certain year or once repairs cost a certain amount, or be a temporary ban. Temporary bans, typically referred to as moratoriums, often act as a pause on the installation of artificial turf so the community can further study the effects and possible alternatives to artificial turf. An example of this was a proposed in Maine, but it was not enacted.[46] In locations without legislative activity, municipalities are educating residents about potential health risks. For example, the Board of Health in Amherst town, Massachusetts created advisements related to the health risks of artificial turf and hosted webinars about the issue even though they have no law or ordinance regulating the use or installation of artificial turf.[47,48] Table 2 highlights the types of regulations related to artificial turf, but this should not be considered a comprehensive list.

EXISTING AMA POLICY

AMA does not have existing policy on artificial turf but does have policy on the health harms of microplastics, supporting the use of ecologically sustainable products, as well as several policies on a few chemical additives common in artificial turf, including PFAS, and phthalates.[49–52] Additionally, AMA policy supports the creation and maintenance of existing public land and outdoor spaces for recreation and policy that aims to reduce the risk of concussion and other injuries in youth sports.[53,54]

CONCLUSION

While artificial turf has the potential to provide more reliable and consistent recreational fields for year-round activities, there are risks and disadvantages that communities should consider prior to its installation. These disadvantages include high costs of installation, increased human and environmental exposure to a wide array of chemicals, heat absorption and increased risk of heat-related illnesses for users during the summer, injury risks, and disposal challenges at the end of its useful life. While artificial turf may ease mobility constraints compared to natural grass, true accessibility remains broader in scope.

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RECOMMENDATIONS

The Council on Science and Public Health recommends that the following be adopted in lieu of Resolution 408-A-25, and the remainder of the report be filed.

1. The American Medical Association (AMA) recommends well maintained, natural, drought-tolerant and hardiness zone appropriate turfgrass, with the use of integrated pest management to reduce potential chemical exposures, as the preferred choice on sports fields or lawns, in public and private schools and colleges, as well as in city parks.
2. Our AMA recommends municipalities conduct comprehensive risk-benefit analyses when deciding whether to replace natural turfgrass with artificial turf (or vice versa) to best meet the needs and concerns of their communities, including those with accessibility concerns.
3. The AMA encourages more research to address evidence gaps on the potential health risks of artificial turf fields. In particular, more research is needed on the release of chemicals from artificial turf, the level of exposure to turf users, and potential health impacts, as well as the differences in risk from heat-related illnesses and physical injuries on artificial turf versus natural turf.

Fiscal note: Minimal

Table 1. Natural Grass Fields vs. Synthetic Turf - A Summary of Advantages and Disadvantages

Natural Grass	Artificial Turf
Environmental impacts	
Advantages • Climate benefits. Natural grass contributes to carbon sequestration, reduces stormwater surface runoff, and helps maintain a healthier ecosystem by supplying oxygen, filtering stormwater, and absorbing heat. • No waste. Natural grass fields do not have an end of life and, therefore, do not create waste that must be recycled or disposed of. **Disadvantages** • Chemical Exposures. Natural grass athletic fields often require the use of pesticides to ensure playability. • Water Dependency. Natural grass athletic fields require consistent irrigation, particularly in drier climates.	**Advantages** • Water Conservation. Although water is used occasionally for cooling and cleaning synthetic turf, limited evidence is available for quantifying the amount of water used for these purposes. **Disadvantages** • Chemical Exposures. Synthetic turf fields can contain chemicals that may be harmful to human health and the environment. Chemicals can leach from the synthetic components of the turf into local water systems and research shows that some synthetic turf fields contain microplastics and potentially toxic chemicals, such as PFAS chemicals. • Waste. Currently, recyclability of the components of synthetic turf fields at the end of their usable life (~8 to 10 years) is questionable both due to limited information provided by companies that supply and maintain synthetic turf fields and because the complex construction of synthetic turf makes it challenging and costly to recycle. • Drainage. Synthetic turf does not pull water out of soil and release it into the air nor does it filter pollution to protect water quality of nearby waterways like natural grass can.
Maintenance and Costs	
Maintenance. Keeping natural grass up to the highest playing standards requires more consistent upkeep compared to a synthetic turf field. Natural grass requires regular mowing, watering, fertilizing,	**Maintenance.** Synthetic turf fields typically require less maintenance than natural grass fields as it does not require mowing, watering or fertilizing.

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and pest control, which requires labor and incurs costs. This is especially true in climates that are not conducive to growing and maintaining grass. **Cost-Efficiency for Installation and Renovation**. The installation and renovation cost of natural grass is typically lower than that of synthetic turf.	Thus, required labor and maintenance costs are typically lower for synthetic turf fields. **Initial Cost.** The initial cost of installing synthetic turf can be relatively high, with costs varying depending on the type and quality of turf chosen. The replacement cost of synthetic turf can also be high.
Accessibility and Playability	
Advantages • Potential for Less Injuries. There are some studies that show that natural grass is a safer playing surface with fewer injuries to players compared to synthetic turf fields, however studies are inconclusive and limited. • Cooler Surface. Natural grass remains cooler than synthetic turf during hot weather, reducing the risk of heat-related injuries and making it more comfortable for athletes. **Disadvantages** • The overuse of a natural grass field can result in uneven and damaged playing surfaces, affecting the quality of gameplay and increasing the risk of injuries to players. Further, rainfall or moisture on natural grass fields can create a slick surface. • Weather Dependency. Use of natural grass fields can be heavily influenced by weather conditions. Fields are typically closed for use due to rain or extreme weather, which can disrupt scheduled events. Fields often cannot be used for several days after a big rainfall because use can significantly damage wet fields. • Limited Hours. Often, natural grass fields are not available for play during winter months because the field needs to "rest." In addition, hours of use must be limited throughout the rest of the year to maintain fields in playable condition.	**Advantages** • Year-Round and Consistent Usage. Synthetic turf fields are typically available for use year-round except when the ground is frozen. Additionally, turf provides more predictable play for athletes such as consistent player footing. • Durability/More Hours of Play. Synthetic turf can withstand heavy use and is less susceptible to wear and tear compared to natural grass. Fields are not susceptible to bald spots or other damage from overuse like natural grass fields, allowing for longer hours of play on synthetic turf field. However, more use can reduce its useful life. • Limited space: Synthetic turf fields are useful in environments with limited recreational fields as they can be used consistently throughout the year. • Permanent Marking. Field lines and markings for multiple sports can be permanently inlaid on synthetic turf fields, eliminating the need for continual re-striping with paint required for natural grass fields. **Disadvantages** • Potentially More Injuries. While more research is needed, data from several studies show that injuries are more prevalent for athletes on synthetic turf compared with natural grass. An increased risk of "turf burn" also increases players' susceptibility to antibiotic-resistant staph infections (i.e., MRSA). • Heat Issues. Synthetic turf can reach significantly greater temperatures than natural grass under the same weather conditions, which can increase the risk of heat-related illnesses for players, create uncomfortable play conditions, and result in skin burns if direct contact is made.

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	• Limited Lifespan. Synthetic turf has a lifespan of typically eight to ten years. Lifespan can be impacted by local climate, maintenance, and use. • Movement of Infill. Synthetic turf infill requires proper depth and weight or it can move throughout the seasons, causing bulges and wrinkles in the surface that can be a hazard to players.

Table 2. Examples of artificial turf legislative/regulatory actions

California	A handful of cities in California have banned artificial turf and added restrictions on existing ones. In 2024, Millbrae prohibited the installation of synthetic grass and artificial turf.[43] Additionally, if existing synthetic grass or artificial turf is damaged or destroyed to a prescribed level, it must be replaced with "water-efficient natural landscaping." Similarly, San Marino recently banned installation of synthetic grass and artificial turf in most cases.[55] Exceptions are that the ban does not apply to facilities that are owned and used by schools and rear yards of residences under 100 square feet. Any existing artificial turf or synthetic grass that is damaged to the extent of 35 percent of its replacement cost must be removed and replaced with water-efficient natural landscaping. Additionally, all existing artificial turf, synthetic grass, artificial plants or artificial vegetation must be removed no later than October 31, 2030.
Connecticut	Westport has banned the creation of any new or replacement of playing fields using synthetic infill material (means ambient and cryogenic crumb rubber, coated crumb rubber, ethylene propylene diene monomer granules, and recycled footwear).[56]
Louisiana	In the historic districts of Louisiana, many preservation commissions have prohibited synthetic turf in front yards and have issued removal orders and fines for homeowners that have installed artificial turf without permission.[57]
Massachusetts	In 2022, Boston's mayor directed that no new artificial turfs are to be installed in the city of Boston.[42] Some other cities, such as Wayland and Concord, have passed a temporary ban on installing new artificial turf.[58,59]
New Jersey	The city of Belmar has a list of districts and locations where artificial turf is banned and has requirements that locations must meet before being allowed to install artificial turf.[60] This does not apply to designated sports fields on public property where the installation of artificial turf has been approved by the Borough's Governing Body.
Texas	Murphy city has banned homeowners from installing synthetic turf if it is visible from the street. However, if artificial turf was installed before August 1, 2014, it is not affected by this ban as it was grandfathered in.[44]
Utah	In Salt Lake City, artificial turf is not allowed in "areas that require landscaping" and any artificial turf that was installed before March 5, 2024 must be removed by September 18, 2025. Previously, as early as 1995, Salt Lake City banned artificial turf in other specific areas.[45]

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6. MITIGATING AIR AND NOISE POLLUTION FROM AVIATION IN MINORITY COMMUNITIES DISPROPORTIONATELY IMPACTED AND VULNERABLE COMMUNITIES

Reference committee hearing: see report of Reference Committee D.

HOUSE ACTION: RECOMMENDATIONS ADOPTED AS FOLLOWS
REMAINDER OF REPORT FILED
See Policy H-135.898

Resolution 421-A-25 was referred by the American Medical Association (AMA) House of Delegates (HOD) and asked the following:

That our AMA seek a study and report back providing recommendations at the federal level to reduce the adverse impact of air and noise pollution in disproportionately impacted and vulnerable communities from aviation, including the following areas:

1. Promotion of Sustainable Aviation Fuels: Advocate for the adoption of sustainable alternative jet fuels, which have been shown to decrease premature death rates in communities near airports and downwind.
2. Implementation of Noise Abatement Procedures: Encourage the use of flight paths and operational procedures that minimize noise impact on residential areas, particularly those inhabited by minority populations disproportionately impacted communities.

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3. Investment in Noise Mitigation Infrastructure: Support the installation of soundproofing materials in homes, schools, and healthcare facilities located in high-noise areas to reduce the adverse health effects of noise pollution as well as non-combustion engines (i.e. solar or electric).
4. Community Engagement and Education: Foster partnerships with affected communities to raise awareness about the health impacts of air and noise pollution and involve them in decision-making processes regarding aviation operations.
5. Research and Monitoring: Advocate for ongoing research to monitor air and noise pollution levels in minority populations disproportionately impacted communities and study the effectiveness of implemented interventions.

METHODS

English language reports were selected from searches of the PubMed and Google Scholar databases using the search terms: “aviation” AND “air pollution”, “aviation” AND “noise pollution,” and “aviation” AND “health equity.” Additional articles and relevant reports were identified by manual review of the reference lists of pertinent publications. Web sites managed by federal agencies, such as the Federal Aviation Administration (FAA) and United States (U.S.) Environmental Protection Agency (EPA), and websites for airport administration authorities were also reviewed for relevant information, particularly in regard to current mitigation strategies utilized to reduce the adverse impacts of air and noise pollution form aviation.

BACKGROUND

Over the last fifty years, commercial air travel in the U.S. has seen substantial growth in both the number of flights and the expansion of airport facilities. The number of flights performed by U.S. carriers has grown from roughly five million annual departures in the mid-1970s to well over nine million by 2025.[1,2] From a global perspective, airplane traffic has grown at an annual average rate of roughly five percent over the last 30 years.[3] Private jet travel has also increased, with 2025 seeing a record-setting number of private jet flights globally at nearly four million.[4] The Federal Aviation Administration (FAA) is the primary federal agency responsible for regulating airport and airplane activities in the U.S.

While the increase in commercial aviation has made it much easier and cheaper for individuals to travel both domestically and internationally, there are concerns from communities who live around airports or along major flight paths about both air and noise pollution. Aside from baseline federal standards, noise pollution management is largely dependent on local airport policies and regulations. This report primarily focuses on public health concerns regarding air and noise pollution from commercial aviation, as opposed to military aviation. There are important differences in terms of the type of jet fuel used for commercial and military aircraft and noise levels are highly dependent on the size and type of aircraft, with military aircraft (e.g., fighter jets) having significantly different noise profiles and fuel needs compared to commercial airplanes.

DISCUSSION

Air Pollution

As compared to the gasoline used in everyday vehicles, airplanes use different formulations of fossil fuels, enabling airplanes to travel at high speeds, for great distances, and at high elevations without freezing the fuel. There are two main categories of commercial aviation fuels: jet fuel and aviation gasoline (AVGAS).[5] Jet fuel is a kerosine-based fuel aviation fuel that tends to be heavier with a higher flash point and freezing point than standard kerosene and is used for most commercial aviation. AVGAS, as the name suggests, is a gasoline-based aviation fuel that is typically used on smaller aircraft.[5] Unlike gasoline used in motor vehicles which has been unleaded for many decades, AVGAS still contains some amount of lead as it is helpful to meet high octane performance requirements in jet engines.[6]

The combustion of fuel in airplanes releases particulate matter, nitrogen oxides, sulfur oxides, volatile organic compounds, and other air toxics.[7,8] Ultrafine particulate matter (UFP), a term to describe particles smaller than 100 nanometers, is particularly concerning as airplane engines release large amounts of UFP and particulates of this size are able to penetrate deep into lung tissue.[9] A 2021 systematic review on the impacts of commercial airplane activity on air quality near airports found consistent evidence that UFP matter is elevated in and around airports while other studies found elevated levels of black carbon (otherwise known as soot), polycyclic aromatic hydrocarbons, and other

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criteria pollutants regulated by the EPA (e.g., sulfur dioxide, lead, and nitrogen dioxide).[8,9] As a result of growing private jet travel, private jet flights are also a growing source of air pollution, particularly in the U.S., which is where an overwhelming majority of private flights occur.[10] There are numerous factors that impact actual exposure to aviation air pollution, including the size of the airport and volume of air traffic, distance from the source, the prevailing meteorological conditions - which include wind speed and direction, humidity, and temperature – as well as the type, age and size of operational aircraft.[9] However, it has been demonstrated that the highest concentrations of UFP are generally measured downwind of the aircraft, but more research is needed to understand dispersion processes and other environmental factors that affect emissions and exposure levels.[9]

Differentiating air pollution from aviation versus other mobile pollution sources can be challenging. The EPA uses tools such as the Air Toxics Screening Assessment, which provides a snapshot of outdoor air quality and estimates air pollutant concentrations, to measure health risks at the census tract level, estimating both cancer and non-cancer hazards from aviation and other mobile sources.[11] Aviation-related air pollution has been demonstrated to be associated with significant adverse health impacts, particularly in nearby communities. Air pollutants from aviation elevate risks for respiratory diseases (e.g., asthma and chronic obstructive pulmonary disorder), cardiovascular disease, cancer, cognitive impairment, and premature mortality.[9,12,13] Another study found exposure to UFP from aircraft emissions *in Utero* was positively associated with preterm birth among pregnant mothers.[14] A 2015 study assessing the global health impacts of civil aviation emissions attributed about 16,000 premature deaths per year globally to aviation emissions.[15]

Noise pollution

Noise pollution from aviation operations is another public health concern, which was raised as early as the late 1960s and early 1970s.[16] The EPA defines noise pollution as unwanted or disturbing sounds that interfere with normal activities, such as conversation or sleep, and/or diminish one's quality of life.[17] Normal decibel (dBA) levels generally range between about 35 to 70, with 60 dBA benchmarked as the noise level of a typical conversation. Prolonged exposure to noises at 85 dBA or over can lead to potential hearing loss.[18] The noise of a jet engine taking off is somewhere in the range of 120 to 130 dBA (depending on your proximity to the sound) and is considered unsafe.[18] The European Environment Agency classifies environmental noise—including aircraft noise—as the third most significant environmental cause of ill health in Europe after air pollution and temperature-related factors, emphasizing the scale and seriousness of the issue for policy makers and public health authorities.[19]

Noise created from aviation operations is different and unique in a few ways from noise created by everyday transportation and traffic patterns. First, the frequency of aircraft noise is different from traffic noise as it is dominated by low-frequency engine hums, high-frequency jet whine, and the sound of propellers moving depending on the speed of the aircraft. Second, the temporal pattern of aircraft noise – isolated with quick onset and decay (i.e., a plane flying over) – is distinct from traffic noise which tends to create a continuous, persistent background noise.[20] There are several tools airports can use to understand aviation noise. Many airports monitor noise levels through the placement of monitors at strategic places across the airports.[20] Additionally, sound level contour maps use a combination of sound measurements and sound mapping software to better predict where the highest levels of sound will occur, which can help with mitigation planning.[20]

A 2022 Australian report based on survey data of nearly 2000 residents found that airplane noise was associated with negative impacts to sleep, mental distress, and that aircraft noise interfered with daily activities in their homes.[21] A consensus paper on the health impacts from aviation noise pollution reported similar detrimental effects, including mental health impacts, sleep disruption, adverse effects on academic performance of children, and increases the risk for cardiovascular disease of people living in the vicinity of airports.[20] Increased rates of anxiety, depression, and general feelings of annoyance have been reported in communities exposed to persistent aircraft noise.[22] Aircraft noise is a major cause of sleep disruption, leading to fatigue, cognitive impairment, reduced productivity, and long-term mental health effects.[23] Studies highlight impaired learning, memory, and reading comprehension among children attending schools located near airports with high noise exposure.[24–26] Lastly, chronic exposure to aviation noise has been found to increase the risk for hypertension, heart attacks, and stroke.[27–29] In their most recent report, published in 2025, the European Environment Agency estimated that chronic exposure to transport-related noise (of which aviation is included) in Europe contributes to 66,000 premature deaths annually in Europe, around 50,000 new cardiovascular disease cases, and over half a million children experience reading difficulties and about 63,000 experience behavioral issues.[19]

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Equity considerations

Communities near airports and aviation corridors, which tend to be lower-income, minority communities, often face higher pollution exposure, compounded risks, and fewer resources for mitigation and therefore aviation-related air and noise pollution contributes disproportionately to poor health outcomes in these communities.[30] For example, communities living near airports may have less access to mitigation resources (e.g., air purifiers or home soundproofing) and live close to other emission sources such as major roads and highways.[31] With the U.S., research has highlighted that integrating socioeconomic factors with pollution data is critical for identifying and addressing disparities with air pollution exposure.[32–35]

The FAA had previously created guidance for environmental justice analyses that required consideration disproportion and adverse effects on low-income or minority populations for any airport development action or any airport action subject to FAA approval.[36] However, due to executive order and identified priorities under the current administration, environmental justice and climate impacts are no longer required as part of FAA environmental analyses.[37] The FAA must still comply with the National Environmental Policy Act, which requires appropriate environmental impact assessments for relevant actions directly undertaken by the FAA.[37]

Airport workers, in particular those working on the ground in the airport tarmac (i.e., where airplanes approach and leave the airport terminal), represent another vulnerable population as they are exposed to significantly higher levels of aviation-related air and noise pollution for longer periods of time. Aviation workers are often exposed to noise levels that exceed safe noise thresholds and chronic exposure to high noise levels can cause permanent hearing loss, sleep disturbances, and heightened stress, potentially leading to cardiovascular problems.[38–40] The Occupational Safety and Health Administration (OSHA) sets protection standards for airport workers and requires hearing protection, such as ear plugs, muffs, or both, when noise exposure exceeds the action levels, which is 85 decibels, and mandates proper ventilation and personal protective equipment to mitigate air quality hazards.[41] OSHA also requires employers to provide hearing conservation programs and training, medical surveillance, and access to resources to reduce exposure levels and safeguard worker health. However, airport workers are a largely understudied population and more research is needed.[42]

Strategies to mitigate air and noise pollution

Both the EPA and the FAA play important roles in setting and enforcing standards around air and noise pollution from aircraft. Under the Clean Air Act, the EPA sets national standards limiting emissions of pollutants such as hydrocarbons, carbon monoxide, nitrogen oxides, particulate matter, and lead which apply to aircraft engines used in commercial aviation.[7] While the EPA sets air pollution standards, the FAA administers compliance and certification requirements. States and local authorities cannot set independent aircraft emissions standards. For noise pollution regulation, originally the EPA was responsible for aviation noise standards under the Noise Control Act of 1972, which also established the EPA's Office of Noise Abatement and Control, but since the early 1980s, direct regulatory authority for aircraft noise standards has been under the FAA.[17,43] However, the EPA still provides technical input and coordinates with federal partners and the public on relevant studies and recommended practices.[17] As part of their responsibilities, the FAA regulates the maximum noise level that an aircraft can emit through requiring aircraft to meet noise certification standards.

The International Civil Aviation Organization (ICAO), a United Nations agency that serves as the global forum on issues related to international civil aviation, has studied various noise abatement strategies and developed a 'balanced approach' system that identifies 18 policy measures aimed at reducing noise, which are categorized into four pillars: (1) reduction of noise a the source (i.e., aircraft design and technical requirements), (2) land-use planning and management (e.g., reduce noise-sensitive land use around airports, such as residential areas), (2) operational procedures that focus on noise abatement (e.g., preferential runways and flight paths away from residential areas), and (4) aircraft operating restrictions (e.g., airport curfews).[16,44] The most common policy measures implemented were noise abatement procedures, engine run-up restrictions, preferential runways, and airport curfews.[16] Fifty percent of airports in North America use one to four of these policy measures, and nearly forty percent use five to nine of these policy measures.[16]

Modern aircraft technology has achieved significant improvements in noise levels through technological advances and lighter materials, with current jet aircraft being much quieter than first models released in the 1960s and 1970s.[45,46] ICAO's Chapter 14 standard, introduced in 2013 and effective in 2024, requires new aircraft models to be at least

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seven decibels quieter than previous standards.[47,48] Additionally, the aviation industry has set ambitious targets, including the Advisory Council for Aviation Research and Innovation in Europe's FlightPath 2050 vision of a 65 percent reduction in noise emissions by 2050 compared to 2000 levels.[49]

Aside from baseline federal standards, in the U.S. noise and air pollution management is largely dependent on the policies and regulations of local airports and municipalities. For example, airports develop their own noise compatibility programs to meet FAA requirements, which include land use strategies, operational procedures, and sometimes flight curfews. In general, as air pollution standards are set at the federal level, local airport policies and regulations focus more on noise pollution than air pollution, though some noise pollution reduction policies may also help reduce air pollution as well. A table is provided in the Appendix outlining the policies and programs of several major U.S. airports. It is also worth noting that many of these airports, in addition to the programs and specifics listed in the chart, implement some form of voluntary curfew where planes are not allowed to enter or leave between late hours of the night and early hours of the morning.

The regulatory approach for airport noise mitigation in the U.S. is noticeably different from the European Union (EU), which is more centralized and requires uniform reporting and standardized mitigation efforts across EU member countries. The European Noise Directive, the primary regulatory framework for airport noise management, requires major airports (over 50,000 movements per year) to regularly assess and report noise levels.[50] These assessments are used to create noise maps and action plans for mitigation involving stakeholders that include airports, airlines, local authorities, and communities. Additionally, EU noise exposure thresholds are generally 55 dBA during the day and 50 dBA during the night, while the FAA applies a Day-Night Average Sound Level threshold of 65 dBA.[19,43] In summary, Europe has a centralized regulatory structure with lower noise threshold limits and more proactive land-use planning as part of their noise mitigation efforts. On the other hand, the U.S. has a more decentralized approach, higher federal noise thresholds, and mitigation measures that often depend on local airport initiatives that focus on operational procedures and operating restrictions.

From an air pollution perspective, one promising solution is the integration of and eventual transition to sustainable aviation fuel. Sustainable Aviation Fuel (SAF) refers to a class of liquid fuels produced from renewable or waste-derived sources—such as used cooking oil, non-food crops, agricultural residues, municipal solid waste, and even CO_2 direct air capture.[51] Studies show that SAF produces less PM, sulfur oxides, and aromatics compared to conventional jet fuel, especially during the landing and take-off cycle at airports.[52,53] Thus, shifting toward SAF could lower emissions of these pollutants and improve local air quality, particularly for airport-adjacent communities and airport workers. While SAF generally produces fewer soot particles and less NOx, the specific reduction of different air pollutants will vary by fuel type and process pathway.

Lastly, another benefit of SAF is its lower greenhouse gas (GHG) emission profile. Currently, the EPA estimates that commercial airplanes and large business jets contribute 10 percent of U.S. transportation emissions, and account for three percent of the nation's total GHG emissions.[54] SAF has the potential to reduce lifecycle GHG emissions by up to 80 percent (and potentially more), but it depends on the feedstock and production process of the SAF.[55–57] The U.S., EU, and other regions have implemented policy supports like the SAF Grand Challenge and FEETS (Fuels Eligible for ETS Support) to close cost gaps and scale up SAF production, aiming for large-scale deployment by 2030 and 2050 for meaningful climate and health impact.[58] The European Union Aviation Safety Agency has a set a minimum supply mandate for sustainable aviation fuels in Europe, starting with two percent in 2025 and increasing to 70 percent by 2050.[55]

LEGISLATION

There were two proposed bills in the 2025-2026 Congressional legislative session that are relevant to mitigation of air and noise pollution from airplanes. The first, entitled the 'Aviation Noise and Emissions Mitigation Act' proposed to develop pilot grant programs through the EPA to research and collect data on aircraft, airport noise, and emissions in order to develop mitigation strategies.[59] The second, the 'Sound Insulation Treatment Repair and Replacement Program Act', which passed as part of the National Defense Authorization Act for Fiscal Year 2026 on December 18, 2025, established a pilot program at up to four large airports to fund projects to repair or replace failing sound insulation systems in nearby residential homes.[60,61]

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CURRENT AMA POLICY

While AMA does not have specific policy on aviation related pollution, it has several existing policies, supporting federal regulation and action on air pollution, including policy H-135.998, "AMA Position on Air Pollution" and D-135.985, "Air Pollution and Public Health."[62,63] AMA also has policy, D-135.996, "Reducing Sources of Diesel Exhaust, " which has a similar threat profile to airplane jet fuel.[64] Additionally, AMA has policy recognizing noise pollution as a public health issue, supporting ongoing federal environmental justice initiative, and the importance of environmental determinants of disease.[65,66]

CONCLUSIONS

The expansion of commercial aviation continues to raise important concerns about air and noise pollution, particularly for communities near airports and other vulnerable groups. Evidence shows that aviation emissions contribute to adverse health outcomes, including respiratory and cardiovascular diseases, cognitive impairment, and cancer, while associated noise pollution increases risks for sleep disruption, mental health issues, and cardiovascular conditions. Despite technological advances and existing mitigation strategies, disparities in exposure persist, especially among low-income and minority neighborhoods near airports. Ongoing policy, research, and legislative efforts are needed to address health and environmental concerns and to ensure strong protections are adopted for both affected communities and airport workers exposed to elevated levels of aviation pollution.

RECOMMENDATIONS

The Council on Science and Public Health recommends that the following be adopted in lieu of Resolution 421-A-25, and the remainder of the report be filed.

Our American Medical Association:

1. Supports increased surveillance, monitoring and research of air and noise pollution exposure from aviation, specifically for airport workers and persons who reside in neighborhoods near airports or under flight paths.
2. Encourages studies on the effectiveness of different interventions to mitigate air and noise pollution exposure from aviation.
3. Encourages airports to implement policy measures identified under the 'balanced approach' system to minimize noise exposure in surrounding communities, which could include changes to common flight paths, flight curfews, land use planning and community engagement, sound-proof insulation projects in nearby communities, and further technological advances to reduce jet engine noise.
4. Supports the phase-in of sustainable aviation fuels to reduce air pollution and climate impacts associated with aviation.

Fiscal note: Minimal

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APPENDIX

San Francisco International Airport (SFO)	SFO was the first airport in the US to implement an extensive noise insulation program. They provide acoustic improvements to single family residential properties, at no cost to the homeowner, that are inside a specific noise contour based on noise mapping. Additionally, in 2020, the SFO Noise Office launched its Noise Action Plan that have five objectives: promote quieter planes, introduce and prioritize quieter procedures, maintain and encourage active community engagement, expand and improve our noise monitoring program, and active land-use planning and mitigation.[67,68]
Los Angeles International Airport (LAX)	LAX has in place a Preferential Runway Use Policy that, when applicable and safe, has planes depart and land on the ocean side (west) instead of over neighborhoods (east side). It also has a LAX Residential Sound Insulation Program to treat homes, free of cost to the homeowner, close to LAX and reduce the noise level by at least 5 decibels.[69,70]
Westchester County Airport (HPN)	HPN has a noise abatement program, with several sub-programs that are each designed to reduce the noise levels created by aircraft operations. As part of these efforts, they have noise monitoring systems and adopted special programs for helicopters and large aircrafts.[71]
Long Beach Airport (LGB)	In collaboration with city efforts, Long Beach has one of the strictest noise-controlled airports in the US. With its Noise Ordinance, it lays out maximum single event and cumulative noise exposure limits and the ability to fine aircrafts owners/operators for multiple violations of their noise ordinance.[72]
Santa Monica Airport (SMO)	The airport's Fly Neighborly Program has several features that help reduce noise pollution. Such features include departure paths to be over the Penmar Golf Course instead of neighborhoods and special procedures for helicopters. There is also an imposed maximum noise exposure limit of 95 decibels for any single noise event.[73]
Tweed New Haven Airport (HVN)	HVN has distributed nearly $12 million dollars in federal funding to soundproof nearby homes, with the most recent phase being completed in 2023. They also have an online platform that the community can access to see aircraft activity and noise levels.[74]
Seattle-Tacoma (SEA-TAC) International Airport	SEA-TAC International Airport operates one of the most comprehensive aircraft noise reduction programs, including a sound insulation program dating back to 1985 that has insulated over 9,400 single-family homes. Their SEA Stakeholder Advisory Round Table serves as a forum for discussion and practical aircraft noise reduction initiatives.[75]
Chicago O'Hare International Airport	Chicago O'Hare International Airport operates the Airport Noise Management System, a comprehensive system providing actual measurement of aircraft noise levels in neighborhoods and suburban communities around O'Hare and Midway airports. The system includes permanent noise monitors and connects directly to FAA air traffic control radar to collect aircraft flight tracks, recording more than 5 million data points daily.[76]

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7. FRAMEWORK TO CONVEY EVIDENCE-BASED MEDICINE IN AI TOOLS USED IN CLINICAL DECISION MAKING

Reference committee hearing: see report of Reference Committee E.

HOUSE ACTION: RECOMMENDATIONS ADOPTED AS FOLLOWS
REMAINDER OF REPORT FILED
See Policy D-480.950

American Medical Association (AMA) Policy D-480.951, "Framework to Convey Evidence-Based Medicine in AI Tools Used in Clinical Decision Making," which was adopted at the 2025 Annual Meeting by the AMA House of Delegates (HOD), and directs the following:

> That our American Medical Association collaborate with stakeholders, including physicians, academic institutions, and industry leaders, to create a report by A-26 with recommendations for how AI tools used in clinical decision support convey transparency in the quality of medical evidence and the grading of medical evidence to physicians and advanced care practitioners so clinical recommendations can be accurately verified and validated.

This report serves as the Council on Science and Public Health's (CSAPH's) findings and recommendations after collaboration with key parties and review of the evidence surrounding transparency of evidence-based medicine in augmented intelligence (AI) tools for clinical decision-making.

METHODS

English-language reports, peer-reviewed articles, white papers, government publications, and grey literature were selected from PubMed and Internet search, using the text terms "artificial intelligence", "augmented intelligence", "level of evidence", and "grading of evidence". Additional articles were identified by manual review of the references cited in these publications. Further information was obtained from the Internet sites of organizations that specialize in AI, large language models, and medical information. Additional collaboration with the AMA Center on AI and Digital Health and other key parties was utilized to incorporate broad information.

BACKGROUND

AI-enabled decision support systems are rapidly evolving across sectors such as health care, business, and industrial operations to assist human decision-making by synthesizing complex data, making predictions, and offering evidence-based recommendations. In health care, clinical decision support systems now move beyond traditional rule-based alerts to include real-time evidence synthesis and large language model assistance, helping clinicians interpret patient data, identify high-risk cases, and recommend guideline-aligned interventions while preserving human judgment in final decisions. For example, modern platforms are used for medical imaging alerting and triage in radiology, such as systems that analyze CT scans to flag critical findings and can reduce diagnostic turnaround times and associated mortality.[1]

AI decision support is also widely used in business and industry to forecast trends, optimize resource allocation, and support strategic planning through predictive analytics and prescriptive modeling integrated into enterprise systems.[2]

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These tools synthesize large datasets and provide decision frameworks that would be infeasible to process manually, improving strategic clarity and operational responsiveness.

Outcomes data for AI-assisted decision support shows promising signals with surveys indicating a growing adoption among clinicians with many reporting perceived improvements in care delivery, and some implementations have demonstrated measurable benefits such as enhanced guideline adherence and faster, more accurate identification of critical clinical events.[3] However, systematic evidence linking AI decision support directly to broad improvements in patient outcomes remains mixed, and many tools still lack validation across diverse real-world settings.[4]

Despite these advances, AI clinical decision support systems cannot replace human expertise - they are constrained by data quality, lack full transparency in reasoning, and are often assistive in nature rather than autonomous decision-makers.[5] In health care, opaque model logic and liability concerns persist. These limitations underscore ongoing challenges in trust, explainability, and regulation as AI continues to support rather than supplant human decision-making.[6]

Evidence-Based Medicine

Evidence-based medicine (EBM) is the cornerstone of clinical decision making in medical practice to provide the best patient outcomes. EBM utilizes rigorous scientific method and critical appraisal to organize and systematize the application of research and data to ground health care decisions.[7,8] By utilizing EBM, physicians are able to implement the most up-to-date scientific information into their practice while also building confidence in medical decisions and discussions with patients.

EBM application is a systematic process. EBM in clinical practice follows five steps: 1. Ask a searchable question; 2. Acquire information; 3. Appraise search results; 4. Apply the evidence in practice; and 5. Assess the provided care.[9] These five steps can be applied to each individual patient in each encounter and also to larger populations of patients in products such as clinical protocols and guidelines.[9] EBM is a key component in medical education to support evidence-based decision-making and these five steps are a framework for clinical teaching.

Levels of evidence play a vital role in evidence-based practice by providing a structured hierarchy for evaluating the quality and relevance of research. Typically illustrated as a pyramid, this framework helps clinicians make well-informed decisions by emphasizing studies with stronger methodologies and lower risk of bias (Appendix 1).[10] Grading systems translate the level of evidence into a commonly understood alphabetic system for hierarchical consumption and application (Appendix 2).[11,12] Clinical guidelines often utilize grading systems to demonstrate the strength of their recommendations based on the level of evidence used for their recommendations.[13,14] These grading systems help to support communication between patients and their physicians and ensure clear understanding of evidence-based practice for high quality care. There are multiple leveling or grading systems for use in EBM, each with their own challenges and drawbacks, particularly how the system can disadvantage certain study designs.[11] By understanding these levels, practitioners can ensure that their clinical decisions are grounded in the most reliable and rigorous evidence available. The integration of an EBM grading system into AI may support transparency but may be complex.

DISCUSSION

Transparency in AI refers to the accessibility and clarity of information about how an AI-enabled system is designed, trained, and makes decisions, such that key parties can understand and justify its behavior and outputs. At its core, transparency covers process-level elements (e.g., intended use, data sources, bias, model structure) and outcome-level explanations (e.g., why the system made a specific prediction), and is closely tied to explainability and interpretability as ethical principles in AI governance.[15,16]

The AMA's Council on Science and Public Health (CSAPH) Report 8-A-25, "Explainability of Artificial/Augmented Intelligence and Machine Learning Algorithms," underscores that while explainability is highly desirable (especially for augmented intelligence tools used in clinical care) it is also complex and nuanced, reflecting fundamental differences between algorithmic computation and human reasoning.[17] The report notes that explainability to build transparency is difficult to implement in practice and must be balanced with considerations such as safety, efficacy, and contextual expertise, and that explanations should be evaluated independently rather than relying solely on developer claims.[17]

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Mechanisms

Building transparency includes embedding explainability into AI design (e.g., using inherently interpretable models or Explainable AI techniques like LIME and SHAP), documentation and reporting of data and model decisions, user-centered explanation interfaces, and third-party evaluation frameworks that assess explanation quality according to criteria like consistency, plausibility, fidelity, and usefulness.[18,19] At present, there is no single global standardization of transparency in AI; efforts such as principles in the EU AI Act and third-party explainability requirements in health care policy reflect emerging but fragmented standards across domains, and many organizations still lack universally accepted definitions or metrics for transparency.[20,21] Examples of how transparency is built into systems range from open-sourced models with clear documentation of training data and algorithms to clinical AI tools that generate feature attribution heatmaps showing which inputs most influenced a medical prediction, helping clinicians understand and verify outputs.[20] Ideas for improving transparency include adopting standardized explanation frameworks (e.g., model cards), multidisciplinary evaluation involving ethics and domain experts, embedding interpretability mechanisms during early model design, and enhancing communication tools so end users can meaningfully engage with AI reasoning.[22–25]

Challenges

Complex models like deep neural networks are often inherently opaque, presenting a black box problem that complicates transparency. A notable technical issue is “hallucinations” in generative AI, where models produce plausible sounding but incorrect outputs because they lack grounded reasoning tied to factual input data. Given that the industry standard term “hallucination” has specific behavioral health implications, we refer to this occurrence as a “confabulation" for this report.[26] Furthermore, transparency depends heavily on the quality and provenance of input data; datasets that are biased, incomplete, or poorly documented undermine meaningful explanation and increases the risk of misleading outputs.[27]

Many state-of-the-art AI models, especially deep learning and large transformer-based systems, are inherently highly complex and non-linear, with millions or even billions of parameters.[28] These internal representations do not map cleanly to human-understandable concepts, so tracing how an input leads to a specific output becomes extremely difficult even for the engineers who built them. This “black box” opacity fundamentally limits transparency.[28] There is currently no universally accepted framework for what constitutes transparency or how to measure it reliably across applications. Some techniques produce local feature attributions, and others create surrogate models, but there is no consensus on which methods provide faithful or useful explanations.[29] This means that even when explanations are produced, they may be inconsistent, unvalidated, or misleading. There is no consensus on which methods provide faithful or useful explanations.

Many powerful AI systems are developed by private companies that protect their models and train data as trade secrets. This obscures key information about data provenance, processing steps, and architectural decisions, complicating independent audit or regulatory scrutiny.[30] Transparency is not only a technical issue but also a legal one. Even when explanation tools are used, they can inadvertently create a false sense of understanding. Explanations may oversimplify complex reasoning, leading users to over-trust AI outputs or misinterpret how decisions are reached. Some research suggests that explanations can increase human over-reliance on AI, even when AI is wrong, because explanations inflate perceived reliability without improving actual understanding.[31,32]

Generative AI models like large language models can produce outputs that are fluent and convincing but factually incorrect or fabricated, a phenomenon known as confabulation. Recognition of an AI confabulation is critical in the health care setting, where if not detected, it could cause harm to a patient.[33] These errors highlight a core transparency challenge: appearances of coherence does not guarantee truthfulness or logical validity, and users may mistake fluency for reliability.[34] Because confabulations emerge from the probabilistic nature of these models, they can be difficult to detect or explain post hoc.[20] Transparency is intimately tied to the quality and representativeness of input data. If training datasets are biased, incomplete, or poorly documented, explanations derived from these models may simply reflect those flaws, perpetuating hidden biases (e.g., demographic or cultural skew) that are difficult to uncover without transparent data reporting, and complicating ethical assessment and trust.[35]

Legal and governance frameworks for AI transparency are still evolving and vary significantly across jurisdictions.[30] Most health systems rely on vendor logs, institutional governance committees, and organizational policies to oversee how these technologies are used. Those approaches have worked reasonably well for earlier generations of clinical

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software. However, as the number of AI systems participating in clinical care grows, that model may outpace our ability to fully understand how these systems are involved in patient care. Regulatory uncertainty can discourage organizations from fully disclosing how their systems operate, and fragmented standards make cross-domain transparency difficult to implement consistently. Highly technical explanations may be accurate but remain incomprehensible to non-expert key parties, undermining transparency's goal of meaningful understanding for decision makers.[36]

As multiple AI systems begin to participate in a single patient visit, the profession will need visibility into that participation that is independent of vendor-controlled logs to preserve patient safety, physician accountability, and evidence-based care. Utilization of agentic AI is an emerging team member for many physicians working with AI in their clinical workflows.[37] If AI contributes to documentation, diagnostic suggestions, treatment recommendations, or other elements of the medical record, physicians and health systems need the ability to understand when those systems participated and how their outputs entered the clinical workflow. Maintaining that level of visibility will also help ensure that physicians remain aware of when AI contributes to patient care and that clear lines of human accountability for clinical decisions are preserved.

Current Upkeep of Clinical Recommendations and Training

Currently with AI, clinical guidelines support EBM in practice, with transparency of inputs and thorough analysis of the evidence for their recommendations. Typically clinical guidelines are developed and updated on a three to five year basis, with a latency period between when incorporation of newer evidence-based practice may lag.[38,39] With new research emerging daily, these time periods are at risk for quickly becoming outdated, with some research showing at least 20 percent of recommendations are outdated within three years of their publication.[40] AI poses possibility in this area with the ability to incorporate data inputs in a real time fashion, however without transparency or explainability capabilities, it is difficult to support clinical decision making in an evidence-based way.

Teaching EBM and training its implementation in practice is embedded into medical education. Originally as a mechanism to teach the skills necessary for information overload, something AI may be taking the workload of, EBM is an empirical approach for medical learners and practitioners to provide quality care and is highly embedded in medical education accreditation structures.[41,42] AI information and utility with best practices is emerging in medical education, similar to EBM decades ago.[42,43] With unclear transparency and explainability mechanisms, applying EBM structures and implementing them into medical education is challenging. Incorporating the intersection of EBM and AI tools, with their limitations and benefits of transparency and explainability, into medical education is prudent to prepare physicians for utilization of AI in their clinical decision-making.

CURRENT AMA POLICY

The AMA has extensive policy on AI in general. Several of these policies specifically discuss the need for transparency of AI used in clinical decision-making. Policy H-480.931, "Augmented Intelligence Development, Deployment, and Use in Health Care," outlined the regulatory landscape and AMA's historical role in AI governance. The section below briefly summarizes the most relevant portions of AMA policy.

H-480.931, "Assessing the Intersection Between AI and Health Care"

- Health care AI must be designed, developed, and deployed in a manner which is ethical, equitable, responsible, accurate, transparent, and evidence-based.
- Health care AI requires a risk-based approach where the level of scrutiny, validation, and oversight should be proportionate to the overall potential of disparate harm and consequences the AI system might introduce
- Clinical decisions influenced by AI must be made with specified qualified human intervention points during the decision-making process. A qualified human is defined as a licensed physician with the necessary qualifications and training to independently provide the same medical service without the aid of AI. As the potential for patient harm increases, the point in time when a physician should utilize their clinical judgment to interpret or act on an AI recommendation should occur earlier in the care plan. With few exceptions, there generally should be a qualified human in the loop when it comes to medical decision making capable of intervening or overriding the output of an AI model.
- Health care practices and institutions should not utilize AI systems or technologies that introduce overall or disparate risk that is beyond their capabilities to mitigate. Implementation and utilization of AI should avoid

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exacerbating clinician burden and should be designed and deployed in harmony with the clinical workflow and, in institutional settings, consistent with AMA Policy H-225.940, "Augmented Intelligence and Organized Medical Staff."

- When to Disclose: Transparency in Use of Augmented Intelligence-Enabled Systems and Technologies That Impact Medical Decision Making at the Point of Care
- Decisions regarding transparency and disclosure of the use of AI should be based upon a risk- and impact-based approach that considers the unique circumstance of AI and its use case. The need for transparency and disclosure is greater where the performance of an AI-enabled technology has a greater risk of causing harm to a patient.
    - AI disclosure should align and meet ethical standards or norms.
    - Transparency requirements should be designed to meet the needs of the end users. Documentation and disclosure should enhance patient and physician knowledge without increasing administrative burden.
    - When AI is used in a manner which impacts access to care or impacts medical decision making at the point of care, that use of AI should be disclosed and documented to both physicians and/or patients in a culturally and linguistically appropriate manner. The opportunity for a patient or their caregiver to request additional review from a licensed clinician should be made available upon request.
    - When AI is used in a manner which directly impacts patient care, access to care, medical decision making, or the medical record, that use of AI should be documented in the medical record.
- The use of AI-enabled technologies by hospitals, health systems, physician practices, or other entities, where patients engage directly with AI, should be clearly disclosed to patients at the beginning of the encounter or interaction with the AI-enabled technology. Where patient-facing content is generated by AI, the use of AI in generating that content should be disclosed or otherwise noted within the content.
- Appropriate governance policies should be developed by health care organizations and account for and mitigate risks of:
    - Training data set limitations that could result in responses that are out of date or otherwise incomplete or inaccurate for all patients or specific populations.
- Mitigating Misinformation in AI-Enabled Technologies
    - AI developers should ensure transparency and accountability by disclosing how their models are trained and the sources of their training data. Clear disclosures are necessary to build trust in the accuracy and reliability of the information produced by AI systems.
    - Algorithms should be developed to detect and flag potentially false and misleading content before it is widely disseminated.
    - Developers of AI should have mechanisms in place to allow for reporting of mis- and disinformation generated or propagated by AI-enabled systems.
    - Developers of AI systems should be guided by policies that emphasize rigorous validation and accountability for the content their tools generate, and, consistent with AMA Policy H-480.939(7), are in the best position to manage issues of liability arising directly from system failure or misdiagnosis and must accept this liability with measures such as maintaining appropriate medical liability insurance and in their agreements with users.

D-480.954, "Explainability of Artificial/Augmented Intelligence and Machine Learning Algorithms"

- To maximize the impact and trustworthiness of augmented intelligence and machine-learning (AI/ML) tools in clinical settings, our AMA recognizes that:
    - Explainable AI with safety and efficacy data should be the expected form of AI tools for clinical applications, and exceptions should be rare and justified and require at minimum safety and efficacy data prior to their adoption or regulatory approval;
    - To be considered "explainable," an AI device's explanation of how it arrived at its output must be interpretable and actionable by a qualified human. Claims that an algorithm is explainable should be adjudicated only by independent third parties, such as regulatory agencies or appropriate specialty societies, rather than by declaration from its developer;
    - Explainability should not be used as a substitute for other means of establishing safety and efficacy of AI tools, such as through randomized clinical trials; and
    - Concerns of intellectual property (IP) infringement, when provided as rationale for not explaining how an AI device created its output, does not nullify a patient's right to transparency and autonomy

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in medical decision-making. While intellectual property should be afforded a certain level of protection, concerns of infringement should not outweigh the need for explainability for AI with medical applications.

- Our AMA will collaborate with experts and interested parties to develop, and disseminate a list of definitions for key concepts related to medical AI and its oversight.

H-480.939, "Augmented Intelligence in Health Care"

- Oversight and regulation of health care AI systems must be based on risk of harm and benefit accounting for a host of factors, including but not limited to: intended and reasonably expected use(s); evidence of safety, efficacy, and equity including addressing bias; AI system methods; level of automation; transparency; and, conditions of deployment.
- Payment and coverage for health care AI systems intended for clinical care must be conditioned on
  - clinical validation.
  - alignment with clinical decision-making that is familiar to physicians.
  - high-quality clinical evidence.
- There should be federal and state interagency collaboration with participation of the physician community and other key parties in order to advance the broader infrastructural capabilities and requirements necessary for AI solutions in health care to be sufficiently inclusive to benefit all patients, physicians, and other health care key parties.

CONCLUSION

AI-enabled decision support systems are transforming how information is synthesized and applied across health care, business, and other sectors, offering rapid data analysis and evidence-informed recommendations that enhance, but do not replace, human expertise. In medicine, these tools show promise in improving efficiency, clinical workflow, and detection of high-risk conditions, yet their full impact on patient outcomes remains undetermined due to limited long-term validation and persistent concerns about transparency, bias, and explainability. EBM remains the foundation for trustworthy clinical decision-making and integrating its principles, such as graded evidence hierarchies and rigorous appraisal, into AI systems could strengthen confidence in integrating AI-enabled technologies into clinical care. However, significant challenges persist, including opaque model reasoning, inconsistent standards for transparency, a lack of transparency mandates in regulatory structures, and risks of confabulations in generative models. As clinical guidelines and medical education continue evolving to keep pace with rapid evidence generation, AI offers substantial potential to support real-time updates and organize and analyze large amounts of information, provided that transparency, reliability, and user-centered design remain central. Ultimately, AI should be viewed as an augmenting tool that complements human judgment, reinforces evidence-based practice, and supports clinicians in delivering high-quality, patient-centered care.

RECOMMENDATIONS

The Council on Science and Public Health recommends that the following be adopted, and the remainder of the report be filed:

1. That our AMA will:
   a. Recognize and promote the importance of transparency and explainability so physicians have sufficient information to make sound clinical decisions when using AI clinical decision support tools, which depending on the tool, may include information such as the grading of medical evidence including the data sources.
   b. Collaborate with medical specialty societies, relevant key parties, regulators, and AI developers to establish standards and develop a framework for evidence attribution, evaluation, and validation in AI clinical decision support systems.
   c. Encourage medical education key parties to incorporate training on the utility, limitations and interpretation of evidence-based medicine practices when using AI tools in clinical decision- making.
   d. Monitor best practices and policies of AI transparency and evidence-based recommendations to improve the quality and reliability of patient care.
2. Policy D-480.951, "Framework to Convey Evidence-Based Medicine in AI Tools Used in Clinical Decision Making," be rescinded as having been accomplished by this report.

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Fiscal note: Minimal

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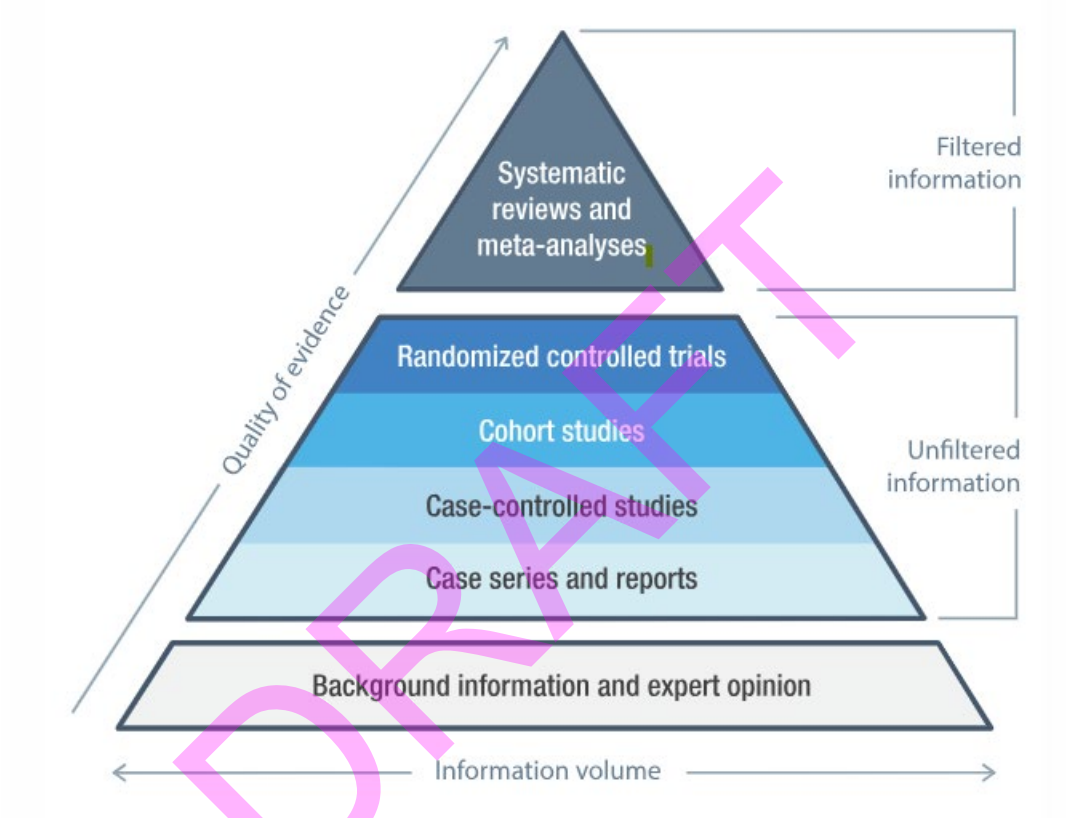
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APPENDIX

Appendix 1. Level of Evidence Pyramid[44]



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Appendix 2. Level of Evidence and Grades of Recommendations[12]

Grade of Recommendation	Level of Evidence	Type of Study
A	1a	Systematic review of (homogeneous) randomized controlled trials
A	1b	Individual randomized controlled trials (with narrow confidence intervals)
B	2a	Systematic review of (homogeneous) cohort studies of "exposed" and "unexposed" subjects
B	2b	Individual cohort study / low-quality randomized control studies
B	3a	Systematic review of (homogeneous) case-control studies
B	3b	Individual case-control studies
C	4	Case series, low-quality cohort or case-control studies
D	5	Expert opinions based on non-systematic reviews of results or mechanistic studies

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8. INCREASED TRANSPARENCY AMONG PSYCHOTROPIC DRUG ADMINISTRATION IN PRISONS

Reference committee hearing: see report of Reference Committee E.

HOUSE ACTION: RECOMMENDATIONS ADOPTED
REMAINDER OF REPORT FILED
See Policies D-430.990, D-430.997, H-110.932, H-130.958, H-430.986 and H-430.997

American Medical Association (AMA) Policy D-430.990, "Increased Transparency Among Psychotropic Drug Administration in Prisons," adopted at the 2025 Annual Meeting directs the following:

1. Our AMA will study issues surrounding the use of psychotropic medications in the carceral system, including inconsistencies in dosage, frequency, duration, allowed formularies, side effects, and oversight by a psychiatrist or another physician with expertise in mental illness.
2. Our AMA supports increased transparency from jails and prisons surrounding protocols pertaining to the administration of psychotropic medications, including components such as dosage, frequency, duration, allowed formularies, management of side effects, and requirements for oversight by a psychiatrist or another physician with expertise in mental illness.

This report examines the use of psychotropic medications in carceral settings (i.e., jails and prisons) including drug formulary considerations, evidence-based policies, as well as the legal right to health care for individuals in carceral settings.

METHODS

English-language reports, peer-reviewed articles, white papers, government publications, and grey literature were selected from PubMed and Internet search, using the text terms "psychotropic medication," AND "carceral," OR "correctional," OR "prison," OR "jail"; "drug administration," AND "carceral," OR "correctional," OR "prison," OR

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"jail". Additional articles were identified by manual review of the references cited in these publications. Further information was obtained from the Internet sites of organizations that specialize in carceral health care including the treatment of mental health disorders and medication management.

BACKGROUND

The U.S. has the largest incarcerated population in the world with over 2 million people in carceral settings.[1] Individuals in jails and prisons have a higher rate of chronic conditions, substance use, and mental health disorders when compared to the general population.[2] A national survey reported that in the U.S. "there are now more than three times more seriously mentally ill persons in jails and prisons than in hospitals;" some states, such as Arizona and Nevada, had almost 10 times more.[3] A 2019 report found that 52 percent of those arrested two or more times reported a substance use disorder in the past year and 25 percent of people with multiple arrests reported having a serious mental illness (See Appendix 1).[4] Mental health courts and other deflection programs serve as a mechanism to link eligible individuals to court-supervised, community-based treatment. AMA policy is supportive of diversion programs including mental health courts and drug courts to direct people to treatment programs in the community, but these are outside of the scope of this report. Deflection programs, immigration detention, and juvenile detention centers are also beyond the scope of this report.

The most recent government report and survey of incarcerated individuals compiled information from 233 state and federal prisons, 358 jails, and 15 special facilities (military, Indian country, and Immigration and Customs Enforcement facilities).[5] Nearly a quarter (24 percent) of the prisoners who had ever been told they had a mental disorder had major depressive disorder, 18 percent had bipolar disorder, 13 percent had post-traumatic stress disorder (PTSD) or a personality disorder; and 9 percent had schizophrenia or another psychotic disorder.[5] With the exception of personality disorder, local jail inmates were more likely than state prisoners to have been told they had each type of mental health disorder.[5] Studies also indicate that 60–87 percent of people in carceral settings have co-occurring mental health and substance use disorders (CODs).[6,7] However, few existing specialized COD treatment programs have been developed for carceral settings, in part due to the lack of integrated treatment programs in carceral settings.[8] Appropriate psychotropic medications are an effective intervention for treating mental health disorders and are generally the standard of care, particularly for serious mental illness.

DISCUSSION

Mental Health Disorder Screening

Timely psychiatric assessment is essential to prevent psychiatric deterioration following arrest, yet formal guidelines remain limited.[10,11] Best practices recommend screening for high-risk conditions during medical intake and prioritizing rapid evaluation for individuals with serious mental illness, prior hospitalizations, or suicidal behavior.[11] National Commission on Correctional Health Care (NCCHC) standards note that "screening may be done by qualified mental health professionals or by mental health staff, and when the results are positive for mental health problems, the inmate must be referred to qualified mental health professionals (e.g., psychiatrist, psychologist, psychiatric nurse, psychiatric social worker) for further evaluation."[12,13] Research shows that individuals screened for mental health conditions at intake are significantly more likely to be evaluated by a medical professional, which in turn increases the likelihood of receiving consistent pharmacologic treatment for their condition.[9]

Psychotropic Medications

Psychotropic medications are drugs that alter neurotransmitter activity at synapses in the brain and are the cornerstone of treatment for mental health disorders. They are often used to treat and manage behavioral and psychiatric symptoms.[14] There are five major categories of psychotropic medications: (1) antipsychotic medications; (2) antidepressants; (3) anxiolytic medications; (4) stimulants; and (5) mood stabilizers (See Appendix 2 for common psychotropic medications).[15–17]

In addition to providing relief to specific symptoms of mental health disorders, psychotropic medications have adverse side effects including producing a sedative effect, tardive dyskinesia, muscular rigidity, seizures, depression, or increased risk of suicide.[15,33] Inappropriate administration of psychotropic medications can further impair functioning. Although advances in the psychopharmacological field have produced a new generation of psychotropic drugs that result in less adverse side effects, most prisons employ the older medications which are less expensive.[34,35]

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Use and Prevalence of psychotropics in prisons and jails

Individuals in carceral settings often face significant barriers to receiving or continuing psychotropics for mental health conditions.[2] Barriers to receiving or continuing psychotropics include a shortage of qualified psychologists and psychiatrists, reliance on screening tools designed primarily for security risk rather than diagnostic accuracy, limited carceral budgets that prioritize only the most severe cases, and the high cost and logistical difficulties associated with off-site specialized programs.[9] Additionally, research on psychotropic medication use among those in carceral settings remains limited, partly because this population is a protected research class.

The prevalence of psychotropic prescribing in carceral settings is substantially elevated compared to the community, with recent data showing significant increases across all medication classes from 2013 to 2023, including a 249 percent increase in antipsychotic prescriptions.[18] Women in prison receive psychotropic medications at particularly high rates (47.9 percent), approximately six times higher than the general population.[19] There are multiple key considerations related to the use of psychotropic medications, particularly in carceral settings.

The states with the highest percentage of prison inmates receiving psychotropic medication report that approximately 20 percent of their inmates were on such medications.[20] In Louisiana, Maine, Nebraska and Wyoming at least one in four inmates participated in mental health therapy or counseling programs.[20] In Nebraska state prisons specifically, 56 percent of inmates suffer from a mental illness, 16 percent have a serious mental illness, and 25 percent of male inmates and 50 percent of female inmates are prescribed psychotropic medications.[21] Only three states, North Dakota, Rhode Island, and Wyoming, lack dedicated psychiatric facilities and instead place prisoners who require mental health treatment in state hospitals, prison infirmaries, or in special needs units within general confinement facilities.[20] However, this data is from 2000-2001 data, and there is a need for updated studies in a field where pharmacologic and administrative processes are rapidly progressing.

Recent data shows a shift towards the increased use of medications in jails. [23-24] An analysis of psychotropic prescribing trends in 34 jails over an 11-year period (2013–2023), based on data from more than 1.25 million detainees' health records, revealed a significant increase in medication use over time (See Appendix 3).[25] Similarly, a study that assessed prescription patterns for individuals before and after COVID-19 in 18 county and municipal jails found that prescription patterns in all major therapeutic drug classes steadily increased, with 10 percent more people prescribed at least one drug post COVID-19 in 2023, despite the jail census decreasing over this time.[26] Prescription increases were observed across central nervous system medications including antipsychotics, antidepressants, and antianxiety medications (See Appendix 4).[26]

Medication Administration, Continuity, and Monitoring

Psychotropics, particularly selective serotonin reuptake inhibitors (SSRIs) or selective norepinephrine reuptake inhibitors (SNRIs), can take up to 12 weeks of administration to achieve efficacy and conversely may cause significant withdrawal symptoms if abruptly stopped.[27] Continuity of psychotropic medications in carceral settings is less than optimal, with reports of more than 50 percent of those on psychotropics for mental health disorders not receiving them while in prison.[9] The NCCHC standard requires that individuals entering a correctional facility continue receiving their clinically indicated prescription medications without interruption, unless a qualified clinician determines a justified change.[28]

Coordination and continuity of care are often disrupted for a multitude of reasons in prisons and jails, such as inadequate screening, lack of health professional staff, and inmate refusal – this can lead to the people in carceral settings being under prescribed psychotropic medications that they were previously prescribed.[9,29] Maintaining continuity of psychotropic medications in carceral settings is a persistent challenge. During intake, transfers, or initial health assessments, incarcerated individuals often cannot provide complete or accurate details about their medication history—such as drug names, dosages, and schedules.[10] Records from community providers and pharmacies rarely accompany them, and obtaining these records typically requires a signed release of information.[10] Intake staff may attempt to verify prescriptions by contacting community pharmacies, but delays are common. While electronic medical records can enhance communication, the lack of interagency agreements for sharing of information often delays verification of medications, diagnoses, and recent treatment dates.[10]

In jails, where stays are typically short, strategies such as "bridge orders" can help maintain continuity of care by temporarily continuing outpatient medications until a psychiatrist can conduct an evaluation.[11] These orders should

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be time-limited and supported by collateral information from pharmacies, community providers, or family members to ensure accuracy and expedite appropriate treatment.[11]

Administration of psychotropics often requires significant monitoring, such as electrolytes, renal function, and cardiac monitoring for safety.[30,31] Ongoing assessment of prescription effects are essential to evaluate therapeutic response, detect adverse effects, and adjust treatment plans as clinically indicated. Certain antipsychotics are subject to additional monitoring through Risk Evaluation and Mitigation Strategies (REMS) programs, a Food and Drug Administration (FDA) mandated safety program required for medications that carry serious risks.[32] These additional monitoring requirements limit access to these agents in carceral settings.

Continuity of care, including discharge planning, is equally important to reduce health risks. Discharge planning should include providing enough medication or refills until the patient sees a community provider, using affordable and widely available psychotropics, and considering long-acting formulations.[10] For those on parole, coordination with parole departments can make adherence to mental health treatment a condition of release.[10] Additionally, the release dates for people in local jails are often unpredictable posing significant challenges to discharge planning. These have the potential to be mitigated through bridge prescriptions, rapid medication verification, expedited linkage to care. Medicaid re-enrollment on discharge and telehealth handoffs to community healthcare providers can support the continuity of psychotropic care. When a lack of discharge planning and continuity of care are not executed well this can lead to increased risk of psychiatric decompensation, return to illicit substance use, overdose, and suicide.

Involuntary Administration

Incarceration does not alter the fundamental medical, ethical, or legal requirements for informed consent, and therefore the involuntary administration of psychotropic medications in carceral settings raises significant clinical and ethical concerns. Most available information on the use of psychotropic medications to control, rather than treat, incarcerated individuals comes from inmate self-reports and human rights organizations, as carceral institutions rarely disclose intentional use of psychotropic medications for coercion or control.[33] It is important to distinguish evidence-based psychiatric treatment, delivered to address a diagnosed mental health disorder, from pharmacologic behavioral management used primarily for institutional convenience or security. Chemical restraint, even when framed as treatment, is governed by distinct ethical and clinical standards and requires heightened justification, procedural safeguards, and oversight. Health conditions may result in behavior that puts patients at risk of harming themselves. In such situations, it may be ethically justifiable for physicians to order the use of chemical or physical restraint to protect the patient (See Code of Medical Ethics 1.2.7 Use of Restraints and CSAPH Report 4, A-25).

An analysis of state Department of Corrections (DOC) and Federal Bureau of Prisons (BOP) policies related to mental health found that 35 out of the 36 states (97 percent) with publicly available information allowed the involuntary use of psychotropic medications in emergency situations; this correlates to 76 percent (one million) of the total incarcerated population in the U.S (See Appendix 5).[36] Additionally, state policies vary widely in both the allowable types and maximum duration of involuntary psychotropic medications; while some states specify these limits in statute or policy, others provide no guidance at all (See Appendix 6).[36] Many laws and policies lack mechanisms for independent review or appeals, effectively placing decisions about treatment in the hands of individuals who may not be mental health professionals.[36]

There are also ethical considerations as carceral facilities may justify involuntary sedation arguing that the policy is necessary for the safety of others in the prison environment.[37] The American Psychiatric Association (APA) states that non-emergency involuntary administration of psychotropic medication in jails presents a complex ethical dilemma, balancing beneficence—the obligation to alleviate suffering and restore functioning—against autonomy, the right of individuals to make decisions about their own care.[38] While such treatment can reduce symptoms, prevent harm of the prisoner and others, and improve outcomes such as reducing disciplinary infractions and facilitating legal resolution, it also carries significant risks.[38] Involuntary medication should only occur after reasonable attempts at voluntary engagement have failed, under strict procedural safeguards, and with adequate clinical oversight.[38] Where clinically appropriate, psychiatric hospitalization should remain an alternative to ensure patient safety and uphold ethical standards.[38]

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Psychotropic administration challenges

There are variabilities in medication practices across carceral settings. A survey of 51 county jails in Missouri found that most jails (74 percent) never charged a fee for medication administration, while 22 percent always did, creating potential barriers for individuals without income or Medicaid eligibility.[23] While some states permit correctional officers to administer medications dispensed from the pharmacy, the NCCHC advises that these staff receive specialized training in security, accountability, side effects, and documentation.[10] In a state survey of 51 county jails in Missouri, 57 percent of jails could administer long-acting injectable antipsychotics, and 49 percent performed weekly lab tests.[23]

In the 51 Missouri jails, medication restrictions were common — 11 jails refused all controlled substances, 16 excluded benzodiazepines, and 20 excluded opioids.[23] Additional limitations included quetiapine, gabapentin, bupropion, and trazodone.[23] Many jails did not allow individuals to use their own medications upon discharge from psychiatric facilities.[23] Despite the benefits of LAIAs for treatment, oral medications were preferred due to cost and logistical challenges, especially in facilities lacking on-site medical staff.[23] It is important to note that this is a state specific example and the generalizability to other states is unknown. However, these findings highlight significant gaps in access and continuity of psychiatric care in jails, with financial and operational barriers limiting evidence-based treatment. [23]

Psychotropic drugs are rarely classified as "keep on person," where incarcerated persons can maintain their own medications, due to concerns about adherence and misuse. Medication diversion represents a significant security concern, necessitating direct observation of medication administration and careful monitoring of controlled substances.[39] While certain state DOC settings have allowed lower-risk psychotropic medications to be self-administered on a case-by-case basis, at least one system discontinued this practice after discovering that patients were "hoarding" medications for nonmedical purposes.[10]

Drug Formulary Considerations

Drug formularies in carceral settings play a critical role in incarcerated patients' access to psychotropic medications, imposing significant restrictions on treatment options, often to lower cost by providing older medications. Over one-quarter (28 percent) of jails have a formulary. For example, the California Correctional Health Care Services formulary bans or limits access to at least 14 commonly used psychiatric medications, including bupropion, quetiapine, gabapentin, and hydroxyzine.[40] While formulary restrictions can limit access to certain psychotropic medications, they may also serve clinical and security purposes, as some commonly restricted agents carry significant potential for misuse, underscoring that such policies can present both benefits and harms. A review of jail formularies in Texas revealed significant variability in practices, driven primarily by local decision-making rather than medication cost.[40] The Pharmacy and Therapeutics Committee in carceral settings oversees medication management by maintaining the formulary and reviewing requests for nonformulary medications.[10]

There are significant policy-level barriers to pharmaceutical purchasing in carceral systems, notably the restrictions on Medicaid coverage.[41,42] Few jails offer the same range of medications available in state hospitals, and omissions often include inexpensive and commonly used drugs. In some cases, facilities include costly antipsychotics while excluding essential, lower-cost options.[43] These inconsistencies highlight the absence of standardized formulary policies and raise concerns about equitable access to evidence-based psychiatric care as well as unnecessary elevations in cost.[43] Similar restrictions appear in the BOP national formulary, which also limits medications like fluoxetine and venlafaxine, two of the most commonly used antidepressant medications.[40] The BOP allows temporary use of nonformulary medications for up to four days if withholding them would pose a significant risk to the patient.[40] However, determinations of what constitutes a 'significant risk' are inherently subjective and treatment options may depend more on formulary rules than on clinical need or appropriateness of the medication, raising concerns about equitable access to care.[40]

Carceral Health Care Staff and Oversight

The composition of health care teams in carceral facilities varies by facility size and inmate population. Larger institutions often employ multidisciplinary teams, while smaller facilities may rely on a single clinician with specialty care delivered on-site through contracted physicians, telehealth, or off-site referrals. Despite financial incentives state prisons have lost 12 percent of their full-time workforce over the past decade, with most of the decline occurring

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during the pandemic, while local jails experienced a smaller but notable reduction (7 percent).[44] The APA recommends one prescriber for every 75 to 100 patients with serious mental illness on psychotropic agents in jails, and one prescriber for every 150 such patients in prisons.[45] However, many facilities face persistent staffing shortages utilizing psychologists in place of physicians. Physicians are needed for oversight and to prescribe psychotropic medications because safely managing these powerful drugs requires extensive medical training in physiology, pharmacology, diagnosis, and the management of complex comorbid conditions that psychologists and other non-medical professionals do not receive.[46]

CURRENT AMA POLICY

Our AMA maintains a broad set of policies relevant to this report, including support for diversion programs (H-100.955 "Support for Diversion Programs, Including Drug Courts, Mental Health Courts, Veterans Courts, Sobriety Courts, and Similar Programs"), support for the provision of adolescent health care within detention and correctional facilities (H-60.986, "Health Status of Detained and Incarcerated Youth"), and justice reinvestment initiatives (H-95.931, "AMA Support for Justice Reinvestment Initiatives").

Additional policies address drug safety and REMS (H-100.961, "The Evolving Culture of Drug Safety in the United States: Risk Evaluation and Mitigation Strategies (REMS)"), behavioral health emergency practices in carceral settings (H-345.969, "Carceral Systems and Practices in Behavioral Health Emergency Care"), prevention of unnecessary hospitalization or jail confinement (H-345.995, "Prevention of Unnecessary Hospitalization and Jail Confinement of the Mentally Ill"), and mental health crisis interventions (H-345.972, "Mental Health Crisis Interventions").

The AMA also supports access to health care while incarcerated (H-430.986, "Health Care While Incarcerated") and standards of care for correctional facilities (H-430.997, "Standards of Care for Inmates of Correctional Facilities"). Further policies include guidance on medications for opioid use disorder (H-430.987, Medications for Opioid Use Disorder in Correctional Facilities"), minimum requirements for medication formularies (H-110.958, "Minimum Requirements for Medication Formularies"), and best practices for acute care of patients in law enforcement or correctional custody (D-430.993, "Study of Best Practices for Acute Care of Patients in the Custody of Law Enforcement or Corrections").

In efforts to improve the administration of psychotropic medications, in 2024 AMA released "Psychopharmacology How-To Guide," which offers primary care physicians practical strategies and evidence-based resources on when and how to treat patients with psychotropic medications if deemed medically necessary.[47] This is part of AMA's efforts to improve health care by overcoming obstacles to accessible and equitable treatment for patients' behavioral, mental, and physical health needs.

CONCLUSION

Psychotropic medication use in carceral settings presents complex clinical, ethical, and operational challenges that demand greater transparency and evidence-based oversight. While these medications are essential for managing mental health disorders, their administration must adhere to rigorous standards of screening and assessment, informed consent, and ongoing monitoring to prevent misuse and improve outcomes. Involuntary treatment, though sometimes clinically necessary, raises profound ethical concerns and procedural safeguards should be in place to balance beneficence with autonomy. Systemic barriers, including inconsistent formularies, staffing shortages, and opaque pharmaceutical purchasing processes, further compromise continuity of care and equitable access to psychotropic medications and treatment.

RECOMMENDATION

The Council on Science and Public Health recommends that the following be adopted, and the remainder of the report be filed:

1. That policy D-430.990, "Increased Transparency Among Psychotropic Drug Administration," be amended by addition and deletion to read as follows:

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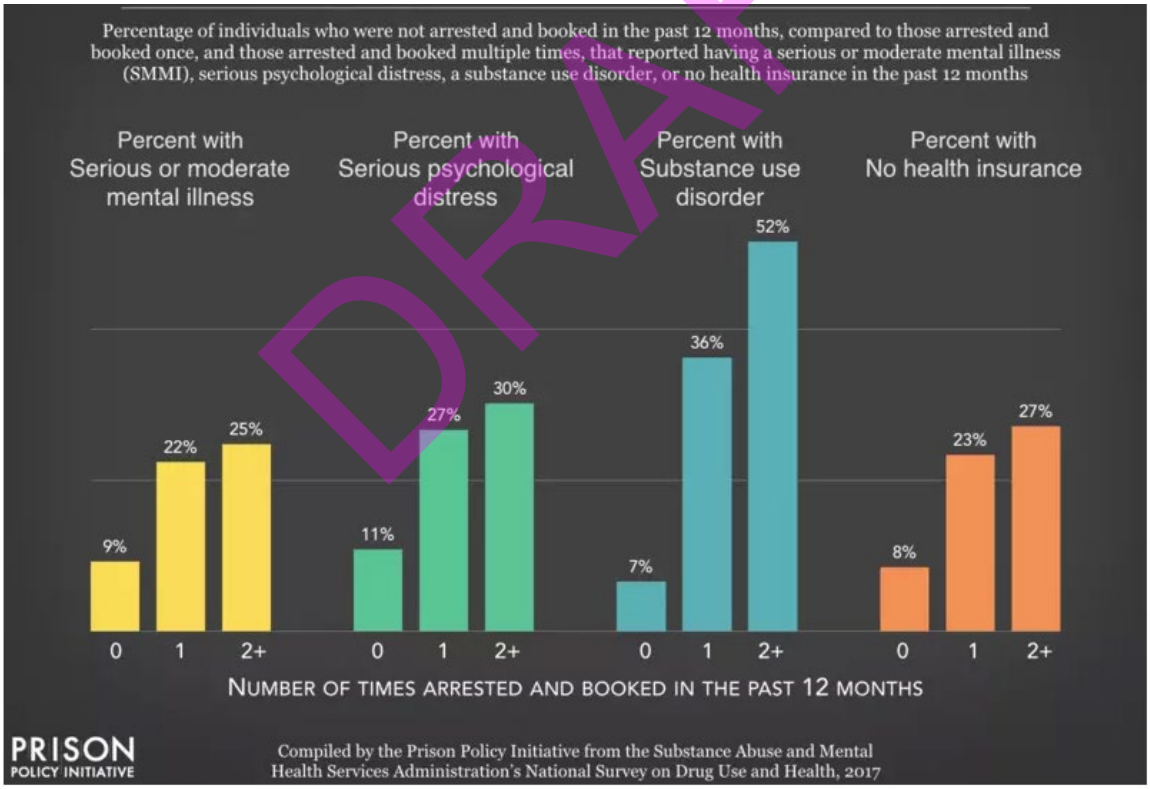
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A. Our AMA will study issues surrounding the use of psychotropic medications in the carceral system, including inconsistencies in dosage, frequency, duration, allowed formularies, side effects, and oversight by a psychiatrist or another physician with expertise in mental illness.
B. Our AMA supports increased transparency from jails and prisons surrounding mental health care, including utilization ~~protocols pertaining to the administration~~ of psychotropic medications, and corresponding patient outcomes, potential harms, and system challenges. ~~including components such as dosage, frequency, duration, allowed formularies, management of side effects, and requirements for oversight by a psychiatrist or another physician with expertise in mental illness.~~
C. Our AMA acknowledges the importance of continuity of care for mental health disorders in carceral settings and encourages incorporation of programs and procedures to promote evidence-based continuity of care, including bridge programs, medication verification protocols, access to qualified physicians, and post-release linkage to community clinics for continued care.

2. That our AMA reaffirm the following HOD policies:
H-130.932, "Pharmacological Intervention for Agitated Individuals in the Out-of-Hospital Setting;" H-430.997, "Standards of Care for Inmates of Correctional Facilities;" H-430.986, "Health Care While Incarcerated;" D-430.997, "Support for Health Care Services to Incarcerated Persons;" and H-110.958, "Minimum Requirements for Medication Formularies."

Fiscal Note: Minimal

APPENDIX 1. People with Multiple Arrests that have Serious Health Needs[4]



APPENDIX 2. Common Psychotropic Medications, Their Indications, and Considerations[30,31,48–57]

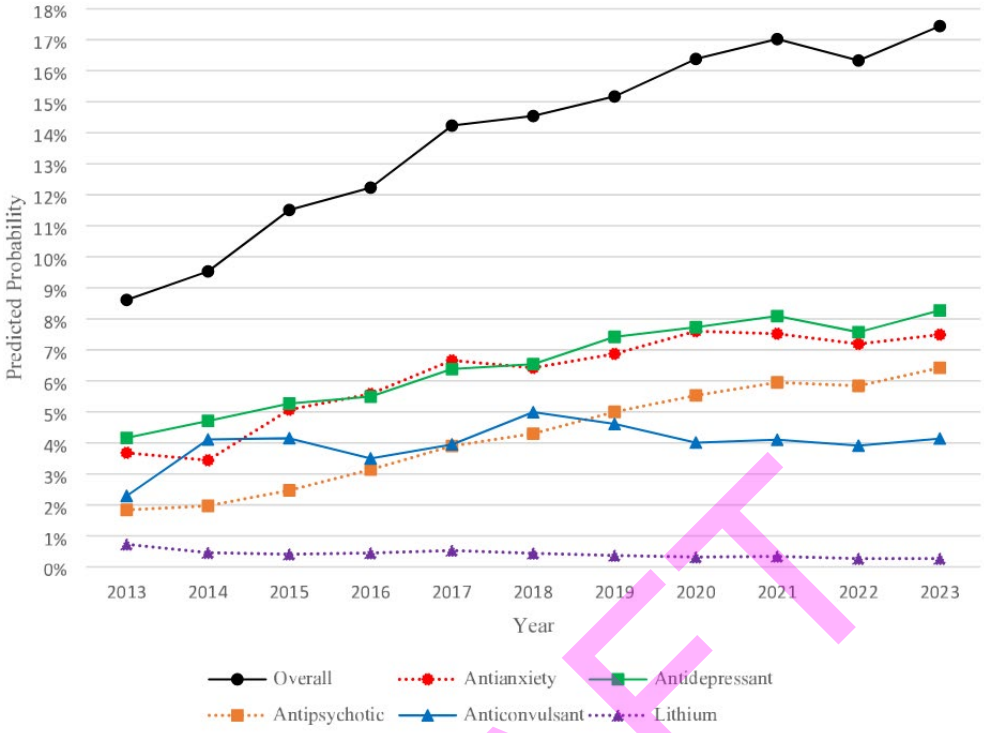
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Class	Examples	Typical Dosing	Primary Indications	Key Side Effects	Monitoring
SSRIs	Sertraline, Escitalopram, Fluoxetine, Citalopram, Paroxetine	Sertraline: 50-200 mg/day; Escitalopram: 10-20 mg/day; Fluoxetine: 20-80 mg/day; Citalopram: 20-40 mg/day	Depression, anxiety disorders	GI symptoms, sexual dysfunction, hyponatremia, insomnia; Citalopram: QTc prolongation	Hyponatremia risk (especially with thiazides), bleeding risk with anticoagulants
SNRIs	Venlafaxine, Duloxetine, Desvenlafaxine	Venlafaxine: 150-375 mg/day; Duloxetine: 60-120 mg/day; Desvenlafaxine: 50 mg/day	Depression, anxiety, neuropathic pain	Hypertension, tachycardia, GI symptoms, sexual dysfunction, increased sweating	Blood pressure (especially venlafaxine >300 mg/day), lipids
Atypical Antidepressants	Bupropion, Mirtazapine, Trazodone	Bupropion: 300-450 mg/day; Mirtazapine: 15-45 mg/day; Trazodone: 150-500 mg/day	Depression, insomnia (trazodone)	Bupropion: insomnia, anxiety; Mirtazapine: sedation, weight gain; Trazodone: sedation, priapism	Bupropion: seizure risk; Trazodone: QTc, orthostatic hypotension
Tricyclic Antidepressants	Amitriptyline, Nortriptyline, Desipramine	Amitriptyline: 25-300 mg/day; Nortriptyline: 25-150 mg/day; Desipramine: 25-300 mg/day	Depression, neuropathic pain	Anticholinergic effects, sedation, weight gain, orthostatic hypotension, arrhythmias	ECG, avoid in ischemic heart disease; therapeutic drug levels for nortriptyline
Second-Generation Antipsychotics	Risperidone, Quetiapine, Aripiprazole, Olanzapine, Lurasidone	Risperidone: 0.25-6 mg/day; Quetiapine: 150-800 mg/day; Aripiprazole: 2-30 mg/day; Olanzapine: 5-20 mg/day	Schizophrenia, bipolar disorder, augmentation for depression	Metabolic syndrome (weight gain, hyperglycemia, dyslipidemia), sedation, EPS, hyperprolactinemia, QTc prolongation	Baseline and periodic: BMI/waist circumference (monthly x3, then at 6 mo, yearly), fasting glucose/HbA1c, lipids; AIMS for tardive dyskinesia
Mood Stabilizers	Lithium, Valproate	Lithium: 600-1,200 mg/day; Valproate: variable	Bipolar disorder, augmentation for depression	Lithium: tremor, polyuria, hypothyroidism, renal impairment; Valproate: weight gain, sedation, hepatotoxicity, teratogenicity	Lithium: levels (0.6-1.2 mEq/L), renal function, thyroid; Valproate: levels, LFTs, CBC
Stimulants	Methylphenidate, Amphetamines	Methylphenidate: variable; Amphetamines: variable	ADHD, narcolepsy	Decreased appetite, insomnia, cardiovascular effects, growth suppression in children	Blood pressure, heart rate, growth parameters in children
Anxiolytics/Hypnotics	Benzodiazepines, Z-drugs	Variable by agent	Anxiety, insomnia	Sedation, dependence, cognitive impairment, falls	Assess for dependence, falls risk in elderly

APPENDIX 3. Predicted Probabilities of Prescribed Psychotropic Medications by Year[25]

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APPENDIX 4. Prevalence Estimates and Demography of Individuals Prescribed Select Pharmaceutical Agents / Products by Year[26]

	Year				
GPI therapeutic class	*2019* N = *17,607*	*2020* N = *12,158*	*2021* N = *14,249*	*2022* N = *15,125*	*2023* N = *16,062*
Analgesic and anesthetics					
# Individuals prescribed agent	1,142 (6.5)	988 (8.1)	1,162 (8.2)	1,420 (9.4)	1,630 (10.2)
Total agents prescribed	1,233	1,086	1,268	1,578	1,852
Drug class					
Analgesics—narcotics	241 (1.4)	218 (1.8)	336 (2.4)	536 (3.5)	541 (3.4)
Analgesics—non-narcotics	446 (2.5)	467 (3.8)	521 (3.7)	541 (3.6)	645 (4.0)
Antirheumatic	497 (2.8)	350 (2.9)	336 (2.4)	440 (2.9)	574 (3.6)
Gout	29 (0.2)	34 (0.3)	36 (0.3)	34 (0.2)	56 (0.3)
Age, years					
15–19	8 (0.7)	9 (0.9)	7 (0.6)	19 (1.3)	14 (0.9)
20–34	404 (35.4)	355 (35.9)	390 (33.6)	538 (37.9)	559 (34.3)
35–54	515 (45.1)	437 (44.2)	526 (45.3)	639 (45.0)	777 (47.7)
55+	215 (18.8)	187 (18.9)	239 (20.6)	224 (15.8)	280 (17.2)
Sex * Race					
Female	193 (16.9)	98 (9.9)	137 (11.8)	189 (13.3)	282 (17.3)
Black	34 (3.0)	30 (3.0)	30 (2.6)	33 (2.3)	72 (4.4)
White	133 (11.7)	54 (5.5)	95 (8.4)	121 (8.5)	152 (9.3)
Other	5 (0.4)	4 (0.4)	3 (0.3)	8 (0.6)	8 (0.5)
Unknown	21 (1.8)	10 (1.0)	9 (0.8)	27 (1.9)	50 (3.1)
Male	949 (83.1)	889 (90.1)	1,025 (88.2)	1,231 (86.7)	1,348 (82.7)
Black	416 (36.4)	428 (43.3)	454 (39.1)	479 (33.7)	592 (36.3)
White	427 (37.4)	374 (37.9)	465 (40.0)	529 (37.3)	562 (34.5)
Other	18 (1.6)	12 (1.2)	25 (2.2)	34 (2.4)	28 (1.7)
Unknown	88 (7.7)	76 (7.7)	81 (7.0)	189 (13.3)	166 (10.2)
Central nervous system					
# Individuals prescribed agent	4,526 (25.7)	3,917 (32.2)	4,797 (33.7)	4,878 (32.3)	5,212 (32.5)
Total agents prescribed	8,848	8,300	9,734	9,610	10,214
Drug class					
Antianxiety	1,508 (8.6)	1,319 (10.8)	1,525 (10.7)	1,425 (9.4)	1,682 (10.5)
Antidepressant	3,291 (18.7)	2,910 (23.9)	3,457 (24.3)	3,479 (23.0)	3,685 (22.9)
Antipsychotic	2,375 (13.5)	2,149 (17.7)	2,670 (18.7)	2,675 (17.7)	2,840 (17.7)
Hypnotics	5 (<0.1)	5 (<0.1)	3 (<0.1)	4 (<0.1)	4 (<0.1)
Lithium	141 (0.8)	110 (0.9)	122 (0.9)	105 (0.7)	121 (0.8)
Stimulants	3 (<0.1)	5 (<0.1)	7 (<0.1)	7 (<0.1)	11 (<0.1)
Miscellaneous psychotherapeutics	9 (0.1)	9 (0.1)	7 (<0.1)	11 (0.1)	5 (<0.1)
Age, years					
15–19	102 (2.3)	101 (2.6)	112 (2.3)	114 (2.3)	105 (2.0)
20–34	2,031 (44.9)	1,862 (47.5)	2,204 (45.9)	2,253 (46.2)	2,262 (43.4)
35–54	1,953 (43.2)	1,630 (41.6)	2,055 (42.8)	2,056 (42.1)	2,348 (45.0)
55+	440 (9.7)	324 (8.3)	426 (8.9)	455 (9.3)	497 (9.5)
Sex * Race					
Female	978 (21.6)	683 (17.4)	725 (15.1)	822 (16.9)	1,035 (19.9)
Black	214 (4.7)	170 (4.3)	192 (4.0)	221 (4.5)	373 (7.2)
White	698 (15.4)	481 (12.3)	492 (10.3)	535 (11.0)	581 (11.2)
Other	25 (0.6)	12 (0.3)	11 (0.2)	25 (0.5)	24 (0.5)
Unknown	41 (0.9)	20 (0.5)	30 (0.6)	41 (0.8)	57 (1.1)
Male	3,548 (78.4)	3,234 (82.6)	4,072 (84.9)	4,056 (83.1)	4,177 (80.1)
Black	1,431 (31.6)	1,467 (37.5)	1,803 (37.6)	1,831 (37.5)	1,915 (36.7)
White	1,897 (41.9)	1,585 (40.5)	2,009 (41.9)	1,897 (38.9)	1,915 (36.7)
Other	101 (2.2)	79 (2.0)	93 (1.9)	112 (2.3)	113 (2.2)
Unknown	119 (2.6)	103 (2.6)	167 (3.5)	216 (4.4)	234 (4.5)

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APPENDIX 5. State Policies on Emergency and Non-Emergency Administration of Psychotropic Medications[36]

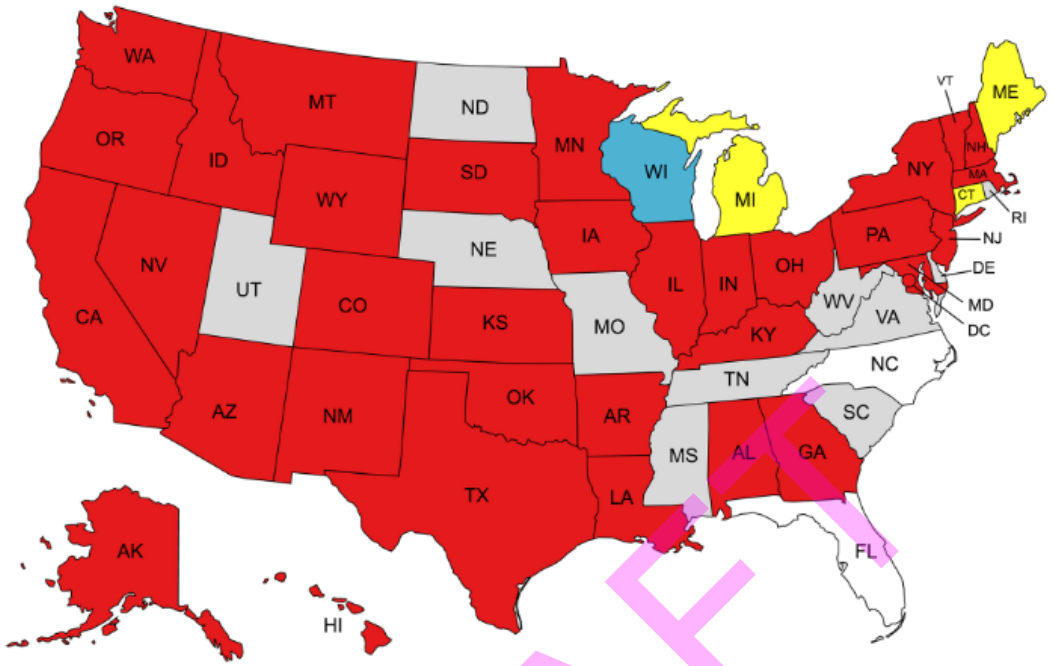


Fig. 1 Policies regarding emergency and non-emergency involuntary administration of psychotropic medication across the United States. Federal Bureau of Prisons is represented by District of Columbia (DC). Red = available policies on involuntary administration of psychotropic medication explicitly allow use in emergency situations, Blue = available policies on involuntary administration of psychotropic medication allow use in non-emergency situations, but do not specify use in emergency situations, Yellow = available policies on involuntary administration of psychotropic medication do not distinguish between emergency and non-emergency use, Gray = no policy data or insufficient data, White = excluded from analysis due to withdrawn policy or limited in scope. Source: Data collected by the authors; map created in mapchart.net

APPENDIX 6. Summary of State Policy Characteristics for the Use of Psychotropic Medications[36]



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9. IN SUPPORT OF A NATIONAL DRUG CHECKING REGISTRY

Reference committee hearing: see report of Reference Committee E.

HOUSE ACTION: RECOMMENDATIONS ADOPTED
REMAINDER OF REPORT FILED
See Policies D-95.947, D-95.987, H-95.900 and H-95.901

Policy D-95.950, "In Support of a National Drug Checking Registry," was adopted by the House of Delegates at the 2025 Annual Meeting and directs the following:

> Our AMA will study the creation of a national drug-checking data system that would provide a mechanism whereby community-run drug-checking services may communicate their de-identified results, with legal protections, data use agreements, and user opt-in/opt-out mechanisms.

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This report focuses on the value of drug checking tools and services, evidence for the use of drug checking, data protection measures, and ethical considerations.

METHODS

English-language reports, peer-reviewed articles, white papers, government publications, and literature were selected from PubMed and Internet search, using the text terms "drug checking." Additional articles were identified by manual review of the references cited in these publications. Further information was obtained from the Internet sites of organizations that specialize in community drug checking, data collection, and legal protections of public health data.

BACKGROUND

Despite decades of prohibition under the 1970 Controlled Substances Act, illicit drug use remains widespread in the United States (U.S).[1] People who use drugs (PWUD) often lack accurate information about the substances they ingest, inhale, insert and inject, increasing the likelihood of polydrug exposure and unexpected contact with potent adulterants such as fentanyl and its analogues. In this context, drug checking is a critical tool for improving safety by providing real-time insight into drug composition for PWUD, community outreach, researchers, and health care professionals.[2]

Drug checking, the use of technology to provide user insight into the contents of illicit drug products, is an overdose prevention strategy with an emerging evidence base.[3–8] There were 105,007 overdose deaths in 2023 and 80,135 in 2024, primarily from illicit drug use.[9] According to the European Union Drugs Agency, "drug-checking services…provid[e] information on the content of the samples as well as advice, and, in some cases, counselling or brief interventions."[10] Drug checking provides real-time, accurate information on street-level drug composition allowing PWUD to understand the composition of the substances they consume.

In addition to illicit substances, drug checking services are increasingly encountering regulated pharmaceuticals that are being diverted, compounded, or sold on the illicit market, including products such as hormones and GLP-1 medications. Studies on hormones are limited and often do not reflect the U.S. context, but they have documented counterfeit semaglutide products entering the U.S. through illegal online pharmacies. One investigation found that test-purchased semaglutide products from unregulated online vendors contained 7-14 percent purity (versus advertised 99 percent), delivered 29-39 percent more semaglutide than labeled, and showed evidence of endotoxin contamination.[11] The American Diabetes Association has warned that counterfeit products have made their way into the U.S. drug supply chain through online and unregulated sources.[12] Compounded GLP-1s (primarily semaglutide and tirzepatide) have proliferated through online vendors, with 79 websites identified selling these products, though these represent unregulated pharmaceutical products rather than illicit drugs.[13] A poison center study documented a sharp increase in GLP-1 exposures, predominantly from unintentional therapeutic errors, with some patients obtaining medications through online platforms and poorly regulated compounding sources.[14] These findings highlight that drug checking contends not only with illicit substances but also misrepresented or compounded regulated drugs, reinforcing the need for adaptable testing strategies capable of handling a diverse and unpredictable drug supply.

Drug Checking Technologies

There are a wide range of analytical instruments utilized in drug checking including immunoassay test strips, reagent tests, infrared absorption spectroscopy , Raman spectroscopy, surface-enhanced Raman spectroscopy (SERS), and gas chromatography mass spectrometry (GCMS). Each technology presents a unique balance of strengths and limitations, often requiring programs to weigh accuracy, portability, cost, required expertise, and environmental constraints when choosing testing mechanisms (See Appendix 1).

Drug checking technologies vary widely in complexity, sensitivity, and practical application, offering complementary strengths for identifying substances in an increasingly unpredictable drug supply. Basic tools such as immunoassay test strips and reagent tests are inexpensive, easy to use, portable, and well-suited for high volume or low resource environments, though they are limited by risks of false positives or negatives, lack of standardization, and their inability to detect concentration levels or all drug analogues.[15] More advanced spectroscopic methods, Fourier Transform Infrared Spectroscopy (FTIR), Infrared Raman (IR), and its enhanced form SERS, provide rapid, nondestructive identification of major components through chemical "fingerprinting," but their performance varies depending on sampling conditions, fluorescence interference, and instrument sensitivity, especially for trace

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substances.[15] At the highest level of analytical rigor, portable GCMS delivers highly accurate, trace-level detection and remains the gold standard for confirmatory testing, though it requires technical expertise, careful calibration, and laboratory grade procedures.[15] Together, these technologies illustrate the spectrum of tools available to meet diverse drug checking needs across community, clinical, and mobile settings.

Because each technology involves tradeoffs in cost, portability, speed, and training requirements, drug checking programs benefit from access to multiple technologies. A multi-instrument approach provides clear advantages by allowing verification across methods, increasing confidence when substances are detected by more than one technique. Rapid optical tools like test strips, IR and handheld Raman are sufficient for identifying major components or confirming drug classes, particularly in high population/dense settings such as music concerts and festivals. However, these portable methods struggle when active ingredients are at very low concentrations. In these cases, confirmatory laboratory-based analysis, often using mass spectrometry, remains essential for accurate trace-level detection and quantification. Ultimately, drug checking and an understanding, of each technology's capabilities and constraints can deliver accurate, actionable, and timely information.[15]

Generalizability of Drug Checking Results

The hyper-variability of the unregulated drug supply necessitates a shift toward precision-based harm reduction. A Philadelphia-based program illustrated this by documenting two separate overdose clusters on the same block involving entirely different substances within a 15-minute window.[16] Rather than diminishing the value of the data, this case highlights why drug checking is an indispensable tool for real-time risk assessment. While geopolitical boundaries and historical data offer limited predictive power, drug checking fills a critical gap by providing the individualized, immediate information required to navigate a rapidly shifting supply environment.

DISCUSSION

Potential Health Care and Physician Utilization of Drug Checking Results

Drug checking has the potential to meaningfully inform health care practices by providing clinicians with timely, real-world insight into the rapidly shifting illicit and counterfeit drug supply. Because drug checking technologies can identify both major and trace components in substances, drug checking data can help clinicians better understand what their patients are likely exposed to and tailor clinical care accordingly. For physicians, access to drug checking results can improve the accuracy of overdose assessments, guide decisions about reversal and withdrawal management agents, anticipate polysubstance complications, and inform conversations about secondary prevention. These insights can also help clinicians counsel patients on adulterants that may not be apparent, especially given the rise of counterfeit and substandard regulated pharmaceuticals circulating alongside illicit drugs.

Beyond direct clinical care, drug checking can strengthen surveillance systems and bridge gaps between frontline health care, community-based programs, and public health agencies. Physicians who understand drug checking data may be better equipped to identify emerging trends, such as novel psychoactive substances or unexpected adulteration patterns, before they appear in traditional toxicology or mortality reporting, which often lags behind real-time trends. National efforts like National Drug Early Warning System (NDEWS) and state-level dashboards already demonstrate the value of integrating early warning systems to inform prevention and response strategies across health sectors.[17] As drug checking becomes more widespread, physicians may increasingly rely on these data to guide evidence-informed decision-making, advocate for safer drug supply interventions, and contribute to a more coordinated public health response.

Drug Checking Evidence and Outcomes

Drug checking programs have demonstrated measurable impacts on attitudes and intended behaviors among people who use drugs. Studies consistently show that when individuals receive unexpected or concerning test results—such as confirmation of fentanyl adulteration—they are more likely to express intentions to reduce their dose or avoid using the substance altogether. For example, a supervised injection site in Vancouver, BC reported that 36.3 percent of participants planned to reduce their drug dose after receiving concerning test results, and similar findings were observed in festival settings where unexpected results prompted users to reconsider their intended use.[18,19] However,

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attitude changes do not always translate into actual behavior change, highlighting the need for education and counseling to reinforce secondary harm prevention practices.[20]

Evidence on actual drug use behavior changes is mixed but generally positive. While some participants disposed of adulterated substances after testing, many continued to use them, often with modifications such as smaller doses, slower administration, or using with others present. For instance, in San Francisco, among those who received positive fentanyl test strip (FTS) results, 26.5 percent disposed of the substance, 30.1 percent reduced their use, and 43.4 percent made no changes.[21] Other programs reported adoption of risk reduction behaviors, such as keeping naloxone nearby or injecting a test shot, particularly among individuals who were previously unaware of adulteration. For example, a drug checking program at a syringe services site in the southeastern U.S. reported that 63 percent of FTS results were positive, and individuals who received a positive result were five times more likely to change their drug use behavior compared to those with negative results.[6] Additional positive behaviors included a willingness to share information about FTS and distribute them to peers at high risk of exposure.[22] These findings suggest that drug checking can change behavior, and reduce anticipated lethality, even though complete avoidance usually does not occur.

Legality of Drug Checking

In the absence of federal laws, the legality of drug checking is governed at the state-level. A 50 state survey on the legality of drug checking equipment found that state paraphernalia laws remain a major barrier to scaling drug checking initiatives.[23] Most of these laws are modeled after a DEA framework from the late 1970s which categorize nearly all items associated with illicit drug use as "drug paraphernalia." While enforcement against drug checking equipment (DCE) is rare, these statutes create confusion and may discourage the implementation and funding of drug checking programs.[23]

A review of laws across all 50 states, the District of Columbia, and Puerto Rico between 2021 and 2024 revealed persistent structural barriers that complicate the implementation of drug checking services.[8] The review concluded "…that all forms of DCE are legal to sell, give away, and possess in 20 states. Massachusetts and Michigan allow possession and free distribution of DCE but prohibit its sale. Six states allow possession of all DCE but restrict or prohibit both free distribution and sale. Thirteen states expressly allow the possession, free distribution, and sale of DCE only for specific drugs or with certain types of testing modalities—most commonly fentanyl and fentanyl test strips—while the same activities with all other forms of DCE remains illegal. Two states restrict possession of DCE to only fentanyl test strips, while allowing distribution or sale of DCE more generally. In five states and territories (Indiana, Iowa, North Dakota, Puerto Rico, and Texas) possession, free distribution, and sale of all drug checking equipment remains arguably a crime, typically because the law both defines paraphernalia as including testing equipment and criminalizes the possession of such paraphernalia."[23] The wide variation and criminalization of DCE hinders the ability to establish a national framework for drug checking.

Laws regarding the distribution of DCE by syringe exchange programs (SSPs) are at times legally unclear. In approximately six states, SSPs are permitted to distribute DCE even when such distribution is not otherwise permitted.[23] Good Samaritan laws in 39 states provide protection from criminal action related to DCE.[23] Recently, many states have modified their laws to increase access to DCE. Between August 2021 and August 2024, 37 states modified their laws to increase access to DCE including possession and distribution.[23] However, laws vary by state.[23] For example, the laws in Georgia, Kentucky, and Tennessee are limited to devices used to detect synthetic opioids, while laws in Alabama, Arizona, Florida, Louisiana, Mississippi, Missouri, and South Dakota apply only to objects used to test for fentanyl or fentanyl analogues. Those in Hawaii, and Oklahoma apply only to FTS.[23] In many states where DCE is not clearly legal, distribution occurs through health departments and other entities (Appendix 2).[23] These findings underscore the need for federal and state-level action to provide legal protections for programs and people conducting services. Without such changes, efforts to establish a national drug checking data system will face significant legal and operational challenges.

Funding of Drug Checking Programs

Drug checking programs in the U.S are typically associated with universities, public health departments, and community-based organizations that often work together to publish data and dashboards regarding drugs in their communities.[24–28] Locally, community programs are either privately funded through grants or have grants with their

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local or state health department through federal funding sources such as Centers for Disease Control and Prevention (CDC). The current government grant funding for drug checking is through the CDC's Overdose Data to Action Local (OD2A: LOCAL) surveillance grants which, "fund jurisdictions to test drug products and/or drug paraphernalia to identify and track emerging public health threats in illicit drug markets so they can understand and respond to drug overdose outbreaks."[29] As of February 2026, 40 health departments are funded by OD2A: LOCAL program in 25 states.[30]

Opioid litigation settlement funds represent a major opportunity to support evidence-based secondary prevention strategies, including drug checking, by financing the infrastructure, workforce, laboratory capacity, and community-based services needed to detect emerging drug threats and reduce overdose deaths. As of November 2025, most states and several U.S. territories have enacted laws governing how opioid settlement funds may be used, while a smaller number rely on written policies, and others absorb the funds into their general budget without spending guidance or are overseen by established councils/committees to approve disbursements or provide recommendations.[31]

Data Protection Measures

Key components for national standards for data protection are adherence to the Health Insurance Portability and Accountability Act (HIPAA) of 1996, safeguarding personally identifiable health information (PII), under HIPAA, the privacy rule sets limits on how protected health information may be used or disclosed, The Security Rule established technical, administrative, and physical safeguards that organizations must implement to protect electronic health information, and The Health Information Technology for Economic and Clinical Health Data Act, which expands HIPAA's privacy and security protections, enhances breach-notification standards, and increases accountability for improper handling of personal health information.[32] These national protection standards are essential for some drug checking efforts because they ensure that sensitive health related information is handled safely, reducing the risk of criminal-legal consequences or misuse of data for people who use these services.

Drug checking and health information can contain highly sensitive details, which, if disclosed, could lead to stigma, reputational harm, and barriers to employment, insurance, or housing. To mitigate these risks, strong privacy protections and data security measures are essential. De-identification is a common strategy that removes direct identifiers, but it does not fully eliminate the risk of re-identification, especially when quasi-identifiers—such as gender or ZIP code—remain in the dataset.[33] De-identified information is commonly used in public health research to prevent information from being traced back to an individual. Although the likelihood of re-identification under HIPAA's Safe Harbor standard is very low (estimated at 0.04 percent), rare attributes can increase this risk.[33] Examples of the types of public health data, vulnerable populations associated with de-identified information, and federal laws governing disclosure are available in Appendix 3 and 4. Y

Drug Databases that Currently Exist

As of winter 2026, the CDC monitors drug overdoses through two primary systems: the Nonfatal Drug Overdose Surveillance and Epidemiology system, which tracks nonfatal overdoses using near–real-time syndromic emergency department data and finalized hospital discharge records, and State Unintentional Drug Overdose Reporting System, which collects detailed information on fatal overdoses from death certificates, medical examiner and coroner reports, autopsies, and toxicology results across 49 states and DC, together providing a comprehensive picture of both nonfatal and fatal overdose trends.[34,35]

Complementing these systems, the National Drug Early Warning System functions as a real-time national surveillance network that detects emerging drug threats by integrating traditional data sources with rapid signal indicators such as community reports, 911 dispatch data, wastewater analysis, darknet monitoring, and machine learning detection of new psychoactive substances, producing timely intelligence that fills critical gaps left by slower indicators like mortality and treatment data and offering a proactive framework for tracking shifts in drug availability, use patterns, and emerging risks.[17]

In some jurisdictions, useful information can be obtained from data systems covering emergency medical services; from poison centers; and from health departments that maintain records of drug "overdoses" and poisonings. These programs vary between states and within states, and specifics are beyond the scope of this report. Such relationships can enable the sharing of important and mutually helpful statistical data, but the confidentiality requirements of each

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service must be scrupulously respected. This focus on confidentiality is especially important for drug checking services, which depend entirely on voluntary cooperation from persons who use drugs and thus are especially reliant on their reputation for confidentiality.

Several states have developed online platforms to share drug checking data with the public and health professionals. For example, New York State provides a dedicated webpage through its Department of Health that publishes results from local drug checking programs, including information on substances detected and adulterant trends.[36] Washington State, through the University of Washington, offers a comprehensive drug checking data portal that aggregates results from community-based programs and highlights emerging substances and adulteration patterns.[37]

In addition to dashboards, there are also applications that have been created to allow drug sample collection reporting across programs. The StreetCheck app, developed by Brandeis University's Opioid Policy Research Collaborative and funded through the Massachusetts Department of Public Health, enables users to log test samples—from simple strips to advanced spectrometers—streamlining result delivery and reinforcing prevention messaging in real time.[38] However, users may face challenges without the technical familiarity needed for accurate reporting, whereas trained staff are equipped to ensure correct, complete, and reliable data entry.

There are also dashboards that show available data sent by multiple states. The University of North Carolina at Chapel Hill Street Drug Analysis Lab provides analytical chemistry services to support public health. The lab utilizes GC-MS to confirm chemical formulas of various drugs, enabling highly sensitive and definitive substance identification.[39] The lab is DEA-authorized to handle Schedule I–V controlled substances. As of January 15, 2026, the lab has analyzed 18,667 samples from 41 states, making it a key resource for monitoring drug composition and trends.[40]

The ToxIC SCANNED (Substance Checking and Analysis of New and Evolving Drug) Overdose Surveillance Program is funded by the White House Office of National Drug Control Policy to address critical gaps in understanding the rapidly evolving illicit drug supply.[41] ToxIC SCANNED combines advanced laboratory toxicology, emergency department data, and national drug-checking data to provide real-time insights on geographic trends, patient characteristics, and clinical outcomes.[42] Using residual urine and serum specimens from routine emergency care, the program can identify over 1,200 drugs and metabolites, offering a comprehensive view of substances contributing to medical emergencies and overdoses.[42] This initiative builds on the ToxIC Core Registry, which comprises over 50 locations throughout the U.S., with several international sites also participating. [43] The majority of active U.S. medical toxicology practices and accredited fellowship programs contribute to this registry, creating a robust network for data collection and analysis.[43] By integrating multiple data streams, from biological specimens to seized drug analyses, ToxIC SCANNED delivers a snapshot of the changing drug market.[43] However, while this registry includes some community based drug checking programs, it does not capture all of them.

The Substance Abuse and Mental Health Administration recently affirmed support for education, naloxone, drug-checking supplies, and sharps disposal kits.[44]

CURRENT AMA POLICY

Our AMA supports a comprehensive drug policy approach that includes decriminalizing secondary prevention supplies to reduce health risks associated with drug use (H-95.900, “Supporting Harm Reduction”), eliminating criminal penalties for personal drug possession, and ensuring access to evidence based prevention, treatment, and supportive services tailored to community needs (H-95.901, “Drug Policy Reform”). Additionally, our AMA advocates for removing fentanyl test strips and other drug checking tools from the legal definition of drug paraphernalia, expanding civil and criminal immunity for their possession and distribution, and increasing access to drug checking supplies as a critical strategy to prevent drug related overdose (D-95.987, “Prevention of Drug-Related Overdose”).

CONCLUSION

Multiple states have shown that drug checking and dashboards are both feasible and valuable, providing timely insight into local drug markets and supporting more informed public health responses. As these systems continue to expand, the challenge is no longer whether drug checking data can be collected, but how to scale such models in ways that are ethical, safe, and responsive to the needs of diverse populations and stakeholders. Despite their promise, national drug

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checking efforts face substantial feasibility barriers. Legal uncertainty, state by state variability in paraphernalia laws, and the persistent risk of criminalization complicate implementation and may deter program participation. Governance questions—including who oversees the data, how it may be used, and what protections prevent misuse—are particularly critical given the vulnerabilities of the communities served and the increasingly politicized landscape surrounding harm reduction strategies.

Given these considerations, strong data protection standards must form the foundation of any drug checking data initiative. Safeguards should include strict adherence to federal and state privacy requirements and ethical principles, rigorous deidentification protocols, and protections that minimize both individual and community-level risks of reidentification and to ensure that expanding public health surveillance data does not inadvertently perpetuate stigma, inequity, or harm. With these protections in place, a national framework has the potential to support public health goals while honoring the priorities and safety of the populations most affected.

RECOMMENDATIONS

The Council on Science and Public Health recommends that the following be adopted, and the remainder of the report be filed:

1. That our AMA: (1) supports drug checking that provides real-world insight into the rapidly shifting drug supply, which helps reduce harm among people who use drugs, better inform clinicians, and enhance public health surveillance efforts; (2) advocates for funding and legal authorization to support drug checking services at the local, county, state, and national level; and (3) will continue to monitor ongoing drug checking efforts.

2. That our AMA reaffirm the following HOD policies: H-95.900, “Supporting Harm Reduction,”; H-95.901, “Drug Policy Reform,” and D-95.987, “Prevention of Drug-Related Overdose.”

Fiscal Note: Minimal

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APPENDIX 1 – Comparison Chart of Drug Checking Equipment

Technology	Discrimination / Accuracy	Substances Detected	Identifies Specific Compounds?	Quantifies?	Training Needed	Cost Range (USD)	Ease of Use	Time to Results	Portability / Infrastructure	Servicing / Support	Notes
Immunoassay (test strips)	★★	Specific, but not all compounds (e.g., fentanyl, metabolites)	Yes	No	None	Low: few dollars/strip; $50–400/mo	Basic–intermediate	Seconds–minutes	Highly portable; point-of-care	Free support (some makers)	No ongoing op costs besides strips
Infrared spectroscopy (FTIR)	★★★★	Virtually any	Yes	Yes	1–2 days	$30k–$60k + licensing	Basic–intermediate	<2 minutes	Portable; vehicles	Included: updates, warranty, support	Widely used; fast results
Raman/ NIR/SERS	★★★★	Virtually any	Yes	Yes	Training needed	Midrange; licensing	Basic	5–15 minutes	Portable	Included: software, warranty	Often paired with test strips
Mass spectrometry	★★★★★	Virtually any	Yes	Yes	Trained tech required	High: $100k+; high recurring	Intermediate–advanced	<3 min (mini) / 5–20 min	Not portable except mini-MS	Included (varies)	Highest accuracy
Thin-layer chromatography (TLC)	★★★	Most organics; common drugs	Yes	Yes	Basic–intermediate	$200–$500; <$300/mo	Basic–intermediate	Minutes	Portable	Minimal support	Good for low-resource settings
Ultraviolet spectroscopy	★★	Drugs w/ UV-absorbing groups	Yes	No	Basic	$1k–$3k	Basic–intermediate	Minutes	Portable	Some support	Less common

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Technology	Discrimination / Accuracy	Substances Detected	Identifies Specific Compounds?	Quantifies?	Training Needed	Cost Range (USD)	Ease of Use	Time to Results	Portability / Infrastructure	Servicing / Support	Notes
											in harm reduction
X-ray diffraction	★★★	Crystalline solids	Yes	Yes	Advanced-expert	$15k–$60k	Intermediate–advanced	Minutes–hours	Lab-bound	Varies	Confirms crystal structure
Reagent tests	★	Broad categories	No	No	None	Very low cost	Basic	Seconds	Portable	None	High false results
Microcrystal tests	★★	Several	Yes	No	Intermediate	Low; $300–800/yr	Intermediate	Minutes	Portable	Some	Identifies certain substances

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APPENDIX 2. 2024 Legal Status of Drug Checking Equipment

State	Possession of DCE generally permitted[26]	Free distribution of DCE generally permitted	Sale of DCE generally permitted	Free distribution of DCE from SSPs clearly permitted	Possession of DCE obtained from SSPs clearly permitted	Good Samaritan law covers DCE
Alabama	Fentanyl: Yes Others: No[27]	Fentanyl: Yes Others: No[28]	Fentanyl: Yes Others: No[29]	N/A[30]	N/A[31]	Yes[32]
Alaska	Yes[33]	Yes[34]	Yes[35]	Yes[36]	Yes[37]	N/A
Arizona	Fentanyl: Yes Others: No[38]	Fentanyl: Yes Others: No[39]	Fentanyl: Yes Others: No[40]	Fentanyl: Yes Others: No[41]	Fentanyl: Yes Others: No[42]	Yes[43]
Arkansas	Fentanyl test strips: Yes Others: No[44]	Yes[45]	Yes[46]	Yes[47]	Fentanyl test strips: Yes Others: No [48]	No[49]
California	Yes[50]	Fentanyl and analogs, ketamine, and gamma hydroxybutyric acid: Yes Others: No[51]	Fentanyl and analogs, ketamine, and gamma hydroxybutyric acid: Yes Others: No[52]	Yes[53]	Yes[54]	Yes[55]
Colorado	Yes[56]	Yes[57]	Yes[58]	Yes[59]	Yes[60]	Yes[61]
Connecticut	Yes[62]	Yes[63]	Yes[64]	Yes[65]	Yes[66]	Yes[67]
Delaware	Fentanyl and xylazine test strips: Yes Others: No[68]	Fentanyl and xylazine test strips: Yes Others: No[69]	Fentanyl and xylazine test strips: Yes Others: No[70]	Fentanyl and xylazine test strips: Yes Others: No[71]	Fentanyl and xylazine test strips: Yes Others: No[72]	Yes[73]
Florida	Fentanyl: Yes Others: No[74]	Fentanyl: Yes Others: No[75]	Fentanyl: Yes Others: No[76]	Fentanyl: Yes Others: No[77]	Fentanyl: Yes Others: No[78]	Yes[79]
Georgia	Synthetic Opioids: Yes Others: No[80]	Synthetic Opioids: Yes Others: No[81]	Synthetic Opioids: Yes Others: No[82]	Synthetic Opioids: Yes Others: No[83]	Synthetic Opioids: Yes Others: No[84]	Yes[85]
Hawaii	Fentanyl test strips: Yes Others: No[86]	Fentanyl test strips: Yes Others: No[87]	Fentanyl test strips: Yes Others: No[88]	Fentanyl strips: Yes Others: No[89]	Fentanyl strips: Yes Others: No[90]	Yes[91]
Idaho	Fentanyl, fentanyl analogs, and derivatives: Yes Others: No[92]	Fentanyl, fentanyl analogs, and derivatives: Yes Others: No[93]	Fentanyl, fentanyl analogs, and derivatives: Yes Others: No[94]	N/A[95]	N/A[96]	Yes[97]
Illinois	Yes[98]	Yes[99]	Yes[100]	Yes[101]	Yes[102]	Yes[103]
Indiana	No[104]	No[105]	No[106]	Yes[107]	No[108]	Yes[109]
Iowa	No[110]	No[111]	No[112]	N/A[113]	N/A[114]	Yes[115]
Kansas	Fentanyl, fentanyl analogs, ketamine and gamma hydroxybutyric acid: Yes Others: No[116]	Fentanyl, fentanyl analogs, ketamine and gamma hydroxybutyric acid: Yes Others: No[117]	Fentanyl, fentanyl analogs, ketamine and gamma hydroxybutyric acid: Yes Others: No[118]	N/A[119]	N/A[120]	No[121]
Kentucky	Synthetic Opioids: Yes Others: No[122]	Synthetic Opioids: Yes Others: No[123]	Synthetic Opioids: Yes Others: No[124]	Yes[125]	Synthetic Opioids: Yes Others: No[126]	Yes[127]
Louisiana	Fentanyl: Yes Others: No[128]	Fentanyl: Yes Others: No [129]	Fentanyl: Yes Others: No[130]	Yes[131]	Yes[132]	Yes[133]

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State	Possession of DCE generally permitted[26]	Free distribution of DCE generally permitted	Sale of DCE generally permitted	Free distribution of DCE from SSPs clearly permitted	Possession of DCE obtained from SSPs clearly permitted	Good Samaritan law covers DCE
Maine	Yes[134]	Yes[135]	Yes[136]	Yes[137]	Yes[138]	Yes[139]
Maryland	Yes[140]	Yes[141]	Yes[142]	Yes[143]	Yes[144]	Yes[145]
Massachusetts	Yes[146]	Yes[147]	No[148]	Yes[149]	Yes[150]	N/A[151]
Michigan	Yes[152]	Yes[153]	No[154]	Yes[155]	Yes[156]	N/A[157]
Minnesota	Yes[158]	Yes[159]	Yes[160]	Yes[161]	Yes[162]	Yes[163]
Mississippi	Fentanyl: Yes Others: No[164]	Fentanyl: Yes Others: No[165]	Fentanyl: Yes Others: No[166]	N/A[167]	N/A[168]	Yes[169]
Missouri	Fentanyl and fentanyl analogs: Yes[170] Others: No	Fentanyl and fentanyl analogs: Yes[171] Others: No	Fentanyl and fentanyl analogs: Yes[172] Others: No	N/A[173]	N/A[174]	Yes[175]
Montana	Yes[176]	No[177]	No[178]	Yes[179]	No[180]	Yes[181]
Nebraska	Yes[182]	Yes[183]	Yes[184]	N/A[185]	N/A[186]	Yes[187]
Nevada	Yes[188]	Yes[189]	Yes[190]	Yes[191]	Yes[192]	Yes[193]
New Hampshire	Yes[194]	Fentanyl and xylazine: Yes Others: No[195]	Fentanyl and xylazine: Yes Others: No[196]	Fentanyl and xylazine: Yes Others: No[197]	Yes[198]	N/A[199]
New Jersey	Yes[200]	Yes[201]	Yes[202]	Yes[203]	Yes[204]	Yes[205]
New Mexico	Yes[206]	No[207]	No[208]	Yes[209]	Yes[210]	Yes[211]
New York	Yes[212]	Yes[213]	Yes[214]	Yes[215]	Yes[216]	Yes[217]
North Carolina	Yes[218]	No[219]	No[220]	Yes[221]	Yes[222]	Yes[223]
North Dakota	No[224]	No[225]	No[226]	No[227]	No[228]	Yes[229]
Ohio	Fentanyl test strips: Yes Others: No[230]	Yes[231]	No[232]	Yes[233]	Fentanyl strips: Yes (within 1,000 feet of SSP only) Others: No[234]	Yes[235]
Oklahoma	Fentanyl test strips: Yes Others: No[236]	Fentanyl test strips: Yes Others: No[237]	Fentanyl test strips: Yes Others: No[238]	Yes[239]	Fentanyl strips: Yes Others: No[240]	Yes[241]
Oregon	Yes[242]	Yes[243]	Yes[244]	Yes[245]	Yes[246]	Yes[247]
Pennsylvania	Yes[248]	Yes[249]	Yes[250]	N/A[251]	N/A[252]	Yes[253]
Puerto Rico	No[254]	No[255]	No[256]	Yes[257]	Yes[258]	No[259]
Rhode Island	Yes[260]	Yes[261]	Yes[262]	Yes[263]	Yes[264]	N/A[265]
South Carolina	Yes[266]	Yes[267]	Yes[268]	Yes[269]	Yes[270]	Yes[271]
South Dakota	Fentanyl: Yes Others: No[272]	Fentanyl: Yes Others: No[273]	Fentanyl: Yes Others: No[274]	N/A[275]	N/A[276]	No[277]
Tennessee	Synthetic opioid: Yes Others: No[278]	Synthetic opioid: Yes Others: No[279]	Synthetic opioid: Yes Others: No[280]	Synthetic opioid: Yes Others: No[281]	Synthetic opioid: Yes Others: No[282]	Yes[283]
Texas	No[284]	No[285]	No[286]	N/A[287]	N/A[288]	Yes[289]
Utah	Yes[290]	Yes[291]	Yes[292]	Yes[293]	Yes[294]	Yes[295]
Vermont	Yes[296]	Yes[297]	Yes[298]	Yes[299]	Yes[300]	N/A[301]
Virginia	Yes[302]	Yes[303]	Fentanyl: Yes Others: No[304]	Yes[305]	Yes[306]	Yes[307]

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Washington D.C.	Yes[308]	No[309]	No[310]	Yes[311]	Yes[312]	Yes[313]
Washington	Yes[314]	Yes[315]	Yes[316]	Yes[317]	Yes[318]	N/A[319]
West Virginia	Yes[320]	Yes[321]	Yes (with some exceptions)[322]	Yes[323]	Yes[324]	N/A[325]
Wisconsin	Fentanyl and Xylazine: Yes Others: No[326]	Fentanyl and Xylazine: Yes Others: No[327]	Fentanyl and Xylazine: Yes Others: No[328]	Yes[329]	Yes[330]	Yes[331]
Wyoming	Yes[332]	Yes[333]	Yes[334]	N/A[335]	N/A[336]	N/A[337]

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APPENDIX 3. Vulnerable Populations Associated with Different Types of Public Health Data

Centers for Disease Control and Prevention. Legal and Ethical Framework to Use Centers for Disease Control and Prevention Data for Patient-Centered Outcomes Research.

Degrees of identifiability	Explanation of terms	Examples	Possible vulnerable populations	CDC safeguards in addition to technical safeguards
Data with direct identifiers	Information that relates specifically to an individual. The inclusion of a name, Social Security number, or phone number, makes data identifiable.	US Zika Pregnancy Registry[79]	Pregnant women whose fetuses would be at high risk for complications	No access to individual-level data. Information is released to the public in an aggregate form.
Linkable or coded data	Data that is not identifiable, but can be linked to a named person with the use of a secure code.	HIV case reports[80]	Patients infected with HIV	Data is sent from the state health department to CDC using a Soundex code.
Data with indirect identifiers	Information that can be combined with other information to identify specific individuals. Information about location, race, and sex can identify an individual.	National ART Surveillance System (NASS)[81]	Egg donors, surrogate mothers, and children	Only onsite access allowed with a member of the ART team.
De-identified data	Direct and known indirect identifiers in any information are removed or obscured to minimize the risk of unintended disclosure of the identity of individuals.	National Program of Cancer Registry (NPCR) Cancer Surveillance System[82]	Individuals residing in areas with high incidence of certain cancers	Most of the de-identified datasets are publicly available.
Anonymized data	Direct and indirect identifiers have been irreversibly removed or altered so that re-identification is impossible.	NHANES Genetic Data Repository[83]	Patients belonging to minority ethnic groups	Anonymized data is available with a data use agreement.

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APPENDIX 4. Federal Laws Governing Exposure of Health Data

Centers for Disease Control and Prevention. Legal and Ethical Framework to Use Centers for Disease Control and Prevention Data for Patient-Centered Outcomes Research.

Law	Provision(s) that allow disclosure of de-identified information	Criteria or standard for determining whether information is identifiable
Health Insurance Portability and Accountability Act of 1996 (HIPAA), Public Law 104-191, implemented by the HIPAA Privacy Rule, 45 CFR Part 160 and Part 164.	The HIPAA Privacy Rule applies to protected health information (PHI). The Privacy Rule does not apply to health information that does not identify an individual and with respect to which there is no reasonable basis to believe that the information can be used to identify an individual. 45 CFR § 160.103, 45 §164.500.	Information may be de-identified by removing 18 identifiers specified in the Rule, provided that the covered entity does not have actual knowledge that the remaining information can be used alone or in combination with other reasonably available information to identify a subject (safe harbor de-identification). These identifiers include personal identifiers (such as name, address, telephone number, birth date, Social Security number) and non-personal identifiers (such as geographic information smaller than a state and dates directly associated with an individual). Alternatively, a covered entity may rely on a determination by a properly qualified statistician using accepted analytic techniques who determines that the risk is very small that the information could be used, alone or in combination with other reasonably available information, by an anticipated recipient to identify an individual who is a subject of the information (statistical de-identification). 45 CFR § 164.514.
Protection of Human Research Subjects (Common Rule), 45 CFR part 46, subpart A.	The Common Rule applies when an investigator conducting research **obtains** identifiable "private information" of a living individual (human subject) for use, study, or analysis. Private information must be "**individually identifiable**" for the Common Rule to apply. 45 CFR § 46.102(f).	Private information is individually identifiable when the identity of the subject is or may readily be ascertained by the investigator or associated with the information. 45 CFR § 46.102(f). Note: In its application of the law, the Office for Human Research Protections (OHRP) considers private information or specimens not to be individually identifiable when they cannot be linked to specific individuals by the investigator either directly or indirectly through coding systems. Examples of identifiers would include names, Social Security numbers, medical record numbers, or pathology accession numbers, or any other "code" that permits specimens or data to be linked to individually identifiable living individuals and perhaps also to associated medical information. https://humansubjects.nih.gov/from-applicants https://www.hhs.gov/ohrp/regulations-and-policy/guidance/research-involving-coded-private-information/index.html
Federal Privacy Act 5 U.S.C. § 552a.	The Federal Privacy Act establishes a code of fair information practices that governs the collection, maintenance, use, and dissemination of information about individuals that is maintained in systems of records by federal agencies. The Act protects a "record" of a U.S. citizen or alien lawfully admitted for permanent residence. A "record" includes any item, collection, or grouping of information about an individual that is maintained by a federal agency, including, but not limited to, his education, financial transactions, medical history, and criminal or employment history and that contains his name, or the identifying number, symbol, or other identifying particular assigned to the individual, such as a finger or voice print or a photograph. 5 U.S.C. § 552a(a)(4).	The law does not define or describe de-identification directly, but suggests that a record is de-identified by removing all "identifying particulars." 5 U.S.C. § 552a(a)(4).
Federal Assurance of Confidentiality, Section 308(d) of the Public Health Service Act, 42 U.S.C. § 242m.	This law prohibits use, release, and publication of information, if an establishment or person supplying the information or described in it is identifiable. Applies to information obtained in the course of health statistical, epidemiological, or other activities obtained in the course of certain activities undertaken or supported under the Public Health Service Act.	The law does not define or describe de-identification directly.

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10. STANDARDIZING SAFETY REQUIREMENTS FOR TRADITIONAL AND RIDESHARE BASED NON-EMERGENCY MEDICAL TRANSPORTATION

Reference committee hearing: see report of Reference Committee D.

HOUSE ACTION: RECOMMENDATIONS ADOPTED
REMAINDER OF REPORT FILED
See Policy H-130.925

Resolution 508-A-25, "Standardizing Safety Requirements for Traditional and Rideshare-Based Non-Emergency Medical Transportation," was introduced by the Medical Student Section and was referred. It asked the following:

> That our American Medical Association (AMA) study and report back with recommendations on appropriate minimum safety requirements/certifications (i.e., vehicle, Basic Life Support, Health Insurance Portability and Accountability Act) for non-emergency medical transportation (NEMT) and rideshare-based non-emergency medical transportation (RB-NEMT).

This report provides a review of the topic and makes policy recommendations.

BACKGROUND

Transportation is critical for access to medical care, with nearly six million Americans annually having transportation barriers impacting timely access to care including missed appointments.[1] Traditional non-emergency medical transport (NEMT) programs, typically funded through Medicare or Medicaid, provide essential transportation for vulnerable populations, including the elderly, disabled, and rural residents, via taxis, vans, or buses.[2] However, these services often suffer from reliability issues such as late arrivals and no-shows, which can disrupt continuity of care and increase health care costs.[3] In response to these limitations, rideshare-based NEMT (RB-NEMT) programs have emerged, leveraging platforms like Uber and Lyft to expand access.[4] These services have demonstrated improvements in appointment attendance, reduced wait times, and lower costs, while also enhancing patient satisfaction.[4] Despite these benefits, RB-NEMT drivers are typically independent contractors with minimal training in patient confidentiality, basic life support (BLS), or medical liability protocols.[4,5] This lack of standardized training and credentialing raises concerns about patient safety and quality of care.[4,5]

RB-NEMT proponents note that it is appealing because it may provide more flexibility for passengers; it is well suited for last-minute rides, like hospital discharges; and may reduce waiting times and cost.[6] Additionally, RB-EMT can better track rides and collect data, potentially addressing quality, fraud, waste, and abuse.[7] Conversely, critics of RB-NEMT note that issues include lower pay for drivers, lack of access in rural areas, inadequate driver screening, and safety issues for drivers and riders.[8] Because the NEMT population is more likely to be low-income, older adults, and individuals with disabilities, additional specialized training for drivers is needed.[9]

METHODS

English language articles were selected from searches of PubMed and Google Scholar using the search terms "non-emergency medical transport", "rideshare-based non-emergency medical transport", "Uber Health", "Lyft Healthcare", and "rideshare-based medical transportation AND HIPAA". Additional articles were identified by manual review of the reference lists of pertinent publications. Web sites managed by government agencies; applicable organizations were also reviewed for relevant information.

DISCUSSION

Transportation is a fundamental component of accessing routine, nonemergency medical care.[10] Transportation challenges to health care are disproportionately experienced by individuals who are low-income, older adults, non-White, women, and less educated, many of whom are Medicaid enrollees.[11] An estimated 25 percent to 55 percent of

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Medicaid enrollees missed, arrived late to, or did not try to go to a health care appointment because of transportation issues.[10] Adults and children who missed medical appointments due to transportation issues had extensive comorbidities and a significantly higher prevalence of health conditions compared with those who missed care for other reasons.[12] Inconsistent care due to transportation challenges can negatively affect health and increase preventable emergency department visits, particularly for individuals with chronic conditions.[10] Missed appointments do not just cause delays in medical care. They also cost the U.S. health care system $150 billion annually.[13]

BACKGROUND ON NONEMERGENCY MEDICAL TRANSPORATION (NEMT)

What is NEMT?

NEMT is a system that provides individuals with transportation to medical and health-care services when they lack other means of transport.[14] As a mandatory Medicaid benefit, NEMT plays a central role in reducing transportation-related barriers and ensuring that beneficiaries, particularly those who are older, disabled, or managing chronic conditions, can reliably access needed care.[15,16] Although all states must offer NEMT, the scope of what is covered, how services are delivered, and the overall quality of transportation vary considerably across state programs.[4] States may differ in the number of trips they authorize, whether prior approval is required, and whether small copayments are allowed, reflecting differences in beneficiary needs, delivery systems, and geographic context.[17]

Medicaid has covered NEMT since the program's creation in 1966, with federal authority grounded in 42 CFR § 440.170.[18,19] Congress later reinforced this requirement in the Consolidated Appropriations Act of 2021, explicitly recognizing transportation network companies (TNCs) as allowable NEMT providers.[20,21] Over time, states have adopted three primary approaches to administering NEMT: state-run fee-for-service systems, managed care arrangements in which health plans coordinate transportation directly or through subcontractors, and broker-based models where states contract with a dedicated transportation broker to manage the benefit.[4,19] States most commonly rely on the brokerage model, which research suggests may improve oversight, reduce fraud and abuse, and help contain costs, particularly in capitated arrangements where brokers have fewer incentives to oversupply trips.[22]

Because states retain significant flexibility in implementing NEMT, program structure and operational practices vary widely.[4,6,19] Some states impose extensive credentialing, documentation, or quality-assurance requirements, while others take a lighter regulatory approach. These differences shape the beneficiary experience and influence program integrity, cost management, and access to care.[4,19,22] The federal requirement to provide transportation remains consistent across the country, but how NEMT is delivered, and how effectively it meets patients' needs, ultimately depends on state choices regarding administration, contracting, and service design.[4,21]

Types of NEMT services

People who rely on NEMT have a wide range of physical, cognitive, and functional abilities. To ensure that each individual receives transportation that matches their needs, NEMT services are commonly organized into four broadly recognized levels of assistance.[4] These levels reflect how much support a rider requires before, during, and after the trip.[4]

Hand-to-Hand (H2H). H2H service is intended for individuals who require continuous assistance throughout the transportation process or who must maintain a formal chain of custody.[4,23] This includes riders unable to travel independently whether due to cognitive, sensory, or significant physical impairments, and individuals who must be transferred directly between responsible adults.[4,23] Children, for example, typically fall under H2H because they require a parent, guardian, or caregiver to accompany them for the full duration of the trip.[4,23] The driver or attendant plays an active support role, ensuring the rider is safely handed off at both pickup and drop-off locations.[4,23]

Door-to-Door (D2D). D2D service is appropriate for individuals who can ambulate with some independence but still require light physical assistance from the driver.[4,23] This support may include walking with the rider from their front door to the vehicle, assisting with entering and exiting the vehicle, opening doors, fastening seatbelts, or helping stow mobility devices and belongings.[4,23] Assistance in this category does not involve lifting, securement, or continuous monitoring but instead provides the modest, task-specific help some riders need to safely complete the trip.[4,23]

Curb-to-Curb (C2C). C2C is suitable for riders who can reach the curb independently and enter the vehicle with little or no driver assistance.[4,23] The driver remains responsible for operating the vehicle safely and verifying the passenger's

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identity but does not accompany the rider to or from their residence or destination doors.[4,23] This service level is widely used for riders who remain ambulatory and do not require support beyond the immediate boarding process.[4,23]

Area-to-Area (A2A). A2A serves individuals who are fully ambulatory and can walk longer distances—for example, from their residence to a designated pickup point, such as a bus stop or centralized meeting area.[4,23] Unlike C2C riders, who may only be comfortable walking a short distance to the curb, A2A riders can travel farther and access transportation from non-residential pickup sites.[4,23] This service is frequently used in transit-rich or campus-style settings where stops are located away from individual homes.[4,23]

Assigning a rider to the correct service level requires considering functional ability, cognitive status, environmental factors, and safety needs.[4,23] These categories help transportation providers, care coordinators, and health plans determine the most appropriate and safe mode of travel.[4,23] However, no national dataset currently captures the number of individuals who fall into each service level, and the true distribution likely varies by state, geography, and beneficiary population.[4]

How are NEMT rides scheduled?

NEMT rides may be scheduled either by the individual or by a care provider, depending on the state, the beneficiary's insurance program, and the administrative model used for NEMT.[4,6] In most states, scheduling occurs through a broker or managed care organization that operates a call center or dispatch system.[4,6] When a request is made, the broker first verifies the individual's eligibility for NEMT and determines whether the ride meets coverage criteria.[4,24] If approved, the broker then assigns the trip to an appropriate transportation provider within its network. The selection of a transportation mode is guided by several factors, including the rider's functional needs, the availability of transportation options (such as proximity to a bus stop), and environmental conditions like extreme heat or cold, which may influence safety or accessibility.[4,24] Scheduling decisions also consider whether the ride is planned in advance or a last-minute request, as well as system-level constraints such as cost or vehicle availability.[4,24] Once assigned, a trip may be direct, transporting a single passenger from pickup to drop-off, similar to rideshare or taxi service, or shared, with multiple passengers boarding and disembarking along the route, similar to paratransit operations.[4,15,24]

Benefits of NEMT

Access to NEMT plays a critical role in reducing barriers to care for Medicaid beneficiaries and other transportation-vulnerable populations.[25] Studies consistently demonstrate that providing reliable transportation is associated with increased use of preventive and primary care, reduced reliance on emergency departments and inpatient services, and more timely access to treatment for individuals with chronic health conditions.[1,26,27] Evidence also indicates that NEMT can generate meaningful cost savings for the health system.[4,8,28] Even when accounting for transportation costs, NEMT has been linked to reductions in avoidable hospitalizations and improved management of chronic diseases.[4,8,28] National estimates suggest that Medicaid finances approximately 103 million NEMT trips annually, at an average cost of $26–$29 per trip, underscoring the scale and relatively low per-ride expense of the benefit.[4,29]

Common issues with NEMT

NEMT has long faced operational and oversight challenges that affect both the reliability and integrity of the benefit. A 2016 Government Accountability Office (GAO) review identified persistent concerns about late or missed pickups, and such delays often resulted from complex routing patterns. For example, traditional NEMT trips may involve multiple passengers and numerous stops which can significantly lengthen travel times and reduce patient satisfaction.[30] The report also highlighted broader program-integrity vulnerabilities, including fraud, waste, inefficiencies, and insufficient oversight.[30] States reported difficulty verifying eligibility, confirming that the transportation mode matched patient needs, and ensuring that trip destinations were appropriate for covered services.[30] Investigations by the HHS Office of Inspector General (OIG) further revealed substantial improper payments: between 2005 and 2011, five states collectively paid an estimated $63 million for rides that did not meet NEMT requirements.[31] Additional issues included billing for multiple trips when only one was needed, billing for deceased beneficiaries, and inappropriate up-charging—for example, assigning a costly ambulance trip for routine dialysis transport when a lower-acuity mode would have sufficed.[30,31]

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Together, these findings underscore the complexity of administering NEMT across multiple delivery models, each with different data systems, credentialing requirements, and oversight capabilities.[28,30,31] Variability across states and contractors can make it difficult to consistently ensure that drivers, vehicles, and trips meet program standards.[4,28,30,31] These well-documented challenges continue to shape federal and state efforts to strengthen screening, monitoring, and trip-validation processes across both traditional and emerging NEMT modalities.[28,30,31]

What safety standards exist for NEMT?

Current minimum safety standards for NEMT are shaped primarily by federal Medicaid requirements, the American Disabilities Act (ADA) accessibility regulations, and Health Insurance Portability and Accountability Act (HIPAA) privacy rules.[18,32–35] At the federal level, Medicaid's "transportation assurance" obligates states to ensure necessary transportation and describe how they will provide it, which forms the structural foundation for safety oversight in all NEMT programs.[36] Federal rules for managed care and Prepaid Ambulatory Health Plans (PAHPs) require states and contracted NEMT entities to meet selected standards related to enrollee rights, information disclosure, and operational capacity.[37–40] The ADA further establishes technical minimums for accessible transportation, such as lift specifications, securement systems, and equipment maintenance, which apply whenever NEMT providers transport riders with mobility disabilities.[33] HIPAA compliance is required when protected health information is transmitted for scheduling or coordinating NEMT, which increasingly affects rideshare-integrated NEMT programs.[32]

At the state level, minimum safety standards become more detailed and prescriptive, especially regarding driver qualifications, vehicle conditions, and insurance requirements.[41,42] Most states require criminal background checks, motor-vehicle-record screenings, exclusion (LEIE) checks, drug testing, and periodic re-credentialing.[42–44] Vehicle standards commonly include documented safety inspections, compliance with state transportation codes, adherence to ADA equipment requirements (for accessible vehicles), and routine preventive maintenance.[33,36,43] Insurance requirements typically mandate commercial auto liability, general liability, and workers' compensation, with specific minimum coverage levels defined by state Medicaid contracts or broker agreements.[43,45] These standards serve as the baseline for ensuring safety and provider accountability in traditional NEMT settings.[18,32,33,36–40,43–45]

However, reports have identified recurring vulnerabilities, such as use of unqualified drivers, improperly documented trips, and unsafe or uninspected vehicles, prompting states and brokers to require pre-trip eligibility verification, real-time GPS validation, incident reporting, and strict record-keeping.[30,31] Voluntary accreditation bodies such as the Non-Emergency Medical Transportation Accreditation Commission (NEMTAC) have also emerged, offering consensus standards for driver training, securement practices, quality assurance, and organizational safety culture, which states, brokers, and plans increasingly treat as benchmarks for high-quality NEMT.[46] It should be noted that the 2002-2025 NEMTAC Provider Standard draft is currently open for public comment.[47] The NEMTAC Provider Standard is a comprehensive, American National Standards Institute aligned draft framework designed to establish national, consensus-based safety and operational expectations for NEMT providers.[47] It outlines structured requirements across organizational management, operations, staffing, and compliance, with the goal of elevating service quality, improving safety, and supporting uniformity across diverse state Medicaid environments.[47]

BACKGROUND ON RIDESHARE BASED NONEMERGENCY MEDICAL TRANSPORATION (RB-NEMT)

What is RB-NEMT?

Rideshare-based non-emergency medical transportation (RB-NEMT) refers to the use of transportation network companies (TNCs), such as Uber and Lyft, to provide medical transportation for riders.[4,48,49] Over the past decade, rideshare platforms have expanded rapidly nationwide, creating new opportunities to supplement traditional NEMT services.[50] Their entry into the NEMT market was driven by several converging trends: the growing availability of TNC services, increases in the Medicaid and Medicare Advantage populations, rising demand for transportation among older adults, and capacity constraints within traditional NEMT provider networks.[51,52] Lyft first entered the NEMT space in 2016, followed by Uber in 2018, integrating their platforms with brokers and health plans to deliver curb-to-curb transportation for eligible beneficiaries.[51,52]

In an RB-NEMT model, brokers or health plans schedule rides through dedicated TNC health-care platforms rather than through the consumer-facing app.[4] Riders do not need a smartphone to participate, and TNC drivers generally do not know they are transporting a Medicaid or medically referred passenger, only that the ride was pre-arranged through a third party.[4,53] Early evaluations, including pilot programs and industry analyses, suggest that RB-NEMT may reduce

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missed pickups, improve punctuality, and lower transportation costs, particularly for ambulatory riders.[4,54,55] For example, one health system reported substantial reductions in rider complaints and no-show rates, along with notable cost savings when compared with taxi-voucher programs.[4,56] While these findings draw from industry-sponsored work and may not be generalizable, they highlight the potential operational advantages of rideshare integration.[4,56]

State and federal policy around RB-NEMT continues to evolve, and important gaps remain between NEMT regulatory expectations and what TNCs are structurally designed to provide. For example, state NEMT rules often require driver training in CPR or first aid, routine drug testing, specific insurance coverage, or specialized vehicle licensing, requirements that do not align with the independent-contractor model used by TNCs.[4,42] Vehicles used in RB-NEMT may also lack features required for certain NEMT trips, such as wheelchair securement systems or state-mandated license plates.[4,9]

What types of NEMT services and rider are best for RB-NEMT?

Studies have found that RB-NEMT is most appropriate for individuals who require minimal to no physical assistance and can safely use curb-to-curb (C2C) or area-to-area (A2A) services.[4,54,55,57] While RB-NEMT is primarily suited for riders needing low-assistance service, studies have noted that it can also be effective for specific trip types that benefit from flexibility and rapid deployment. RB-NEMT is a strong option for inpatient and outpatient discharges, where timing is unpredictable and traditional NEMT often requires advance scheduling.[4,54,55,57] It is also well suited for last-minute appointments, recovery rides following a missed pickup, and off-hour or high-volume periods, when traditional fleets may be limited.[4,57] In rural areas, where NEMT access is often sparse, RB-NEMT can expand transportation availability when rideshare networks operate locally.[58] By assigning ambulatory riders and flexible trip types to RB-NEMT, health plans and brokers can preserve traditional NEMT's specialized vehicles and trained personnel for riders who require D2D or H2H support.[4,59] This targeted assignment improves overall system efficiency, helps address capacity constraints, and ensures that higher-acuity riders retain access to appropriately equipped and staffed transportation.[4,59]

What safety standards exist for RB-NEMT?

Current minimum safety standards for RB-NEMT are far less formalized than those governing traditional NEMT, but several expectations have emerged through multiple studies.[4] At present, the only widely supported minimum standard is rider-service matching, meaning RB-NEMT should be used exclusively for low-assistance riders (i.e., those who can safely use C2C or A2A transportation) and do not require physical assistance, medical monitoring, or specialized mobility equipment.[4,54,59] Evidence consistently shows that rideshare vehicles cannot safely accommodate motorized wheelchairs, scooters, or securement-dependent devices, and drivers lack required training in passenger assistance or medical support.[4,54,55,59] In addition, states and brokers implementing RB-NEMT generally rely on platform-level safety controls (i.e., identity verification, GPS tracking, and basic background checks already required of rideshare drivers) rather than NEMT-specific safety certifications.[4,60]

Beyond rider suitability, the most consistent minimum safety expectations relate to privacy and data handling, not clinical or operational safety. Because arranging RB-NEMT requires the transmission of pickup and destination details that may constitute protected health information (PHI), RB-NEMT platforms must operate through HIPAA-aligned scheduling dashboards, with Business Associate Agreements (BAAs) executed between the rideshare intermediary and the covered entity.[4,61–63] For example, Uber Health notes that platforms restrict driver-visible information to the "minimum necessary" (i.e., name and pickup point) and maintain encrypted PHI storage separate from consumer rideshare systems.[64] However, there are no federally defined driver-training requirements, no RB-NEMT-specific vehicle standards, and no validated safety benchmarks for transporting medically vulnerable individuals through TNCs.[4] As multiple studies have emphasized, RB-NEMT safety standards remain largely undeveloped, with the current minimums driven by platform safeguards, state-level rider selection criteria, and HIPAA compliance.[4,33,57]

EXISTING AMA POLICY

The AMA has limited policy on non-emergency medical transportation. AMA Policy H-130.954, "Non-Emergency Patient Transportation Systems," states our AMA supports the education of physicians, first responders, and the public about the costs associated with inappropriate use of emergency patient transportation systems, and encourages the development of non-emergency patient transportation systems that are affordable to the patient, thereby ensuring cost effective and accessible health care for all patients.

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CONCLUSION

NEMT plays a vital role in enabling timely access to health care, particularly for Medicaid beneficiaries, older adults, people with disabilities, and individuals living in rural or underserved communities.[1,12,28] For these populations, transportation is not simply a logistical need, but a foundational determinant of whether patients can obtain preventive services, maintain continuity of care, and effectively manage chronic conditions.[65] Traditional NEMT systems, delivered through state programs, brokers, and managed care plans, continue to serve riders who require specialized vehicles, trained personnel, or hands-on support.[4,19,22] However, despite their longstanding role in supporting access, these systems face persistent challenges in reliability, oversight, and operational consistency that can undermine their effectiveness.[30,31] In recent years, RB-NEMT has emerged as a flexible and on-demand complement to traditional models.[51,52] RB-NEMT may offer advantages such as rapid response times, broad geographic availability, and improved scheduling capacity for ambulatory riders and last-minute needs.[54,55] Yet this model operates within a fundamentally different regulatory structure. Rideshare vehicles are not equipped for mobility-device securement, and drivers, who function as independent contractors, are not trained to provide physical assistance or medical oversight.[4] As a result, RB-NEMT is appropriate only for certain riders and specific types of trips, and its safe integration requires careful matching of riders to service levels that align with vehicle capabilities and driver competencies.[4,54,55,59]

While traditional NEMT is guided by long-standing safety expectations grounded in federal Medicaid requirements, ADA accessibility standards, HIPAA privacy protections, and state-level driver, vehicle, and insurance regulations, these expectations are applied unevenly across states and delivery models.[18,32,33,36–40,42,44,45,61–63] This variability underscores the need for greater consistency and coordination in how minimum safety standards are implemented for traditional NEMT. In contrast, RB-NEMT lacks comparable, evidence-based safety standards altogether. Existing studies provide clear guidance only on the importance of appropriate rider selection for RB-NEMT; beyond this, current research is insufficient to define validated safety requirements for driver training, vehicle specifications, or operational procedures.[4,60,64] Moreover, differences between state NEMT rules and TNC operating frameworks further complicate the development of uniform RB-NEMT safety expectations.[4,41,42]

RECOMMENDATIONS

The Council on Science and Public Health recommends that the following be adopted in lieu of Resolution 508-A-25 and the remainder of the report be filed.

1. Our AMA acknowledges that transportation is a foundational component of health care access and supports policies that ensure vulnerable populations can obtain necessary medical care.
2. Our AMA supports efforts to promote greater consistency and coordination in the minimum safety standards that guide traditional non-emergency medical transportation across states and delivery models and encourages ongoing evaluation of these standards as transportation systems and patient needs evolve.
3. Our AMA acknowledges that rideshare-based non-emergency medical transportation (RB-NEMT) is an expanding component of medical transportation and supports continued research to assess safety risks and establish evidence-based minimum safety requirements to help ensure RB-NEMT can be integrated safely and appropriately into patient care.

Fiscal Note: Modest

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