REPORTS OF THE COUNCIL ON SCIENCE AND PUBLIC HEALTH

The following reports, 1-3, were presented by Mohamed K. Kahn, MD, Chair

1. MERCURY POLLUTION (RESOLUTION 411, A-05)

HOUSE ACTION: RECOMMENDATIONS ADOPTED IN LIEU OF RESOLUTION 411 (A-05) AND REMAINDER OF REPORT FILED

Resolution 411 (A-05), introduced by the Illinois Delegation at the 2005 Annual Meeting and referred to the Board of Trustees, asks:

> That our American Medical Association endorse the reduction of mercury usage in manufacturing whenever possible, especially in chlorine manufacturing; and
>
> That our AMA urge the U.S. to lead the development of a binding protocol to reduce mercury pollution worldwide.

METHODS

English-language reports were selected from a MEDLINE search of the literature from 1995 to 2006 using the search terms "mercury/*analysis," in combination with "air pollutants, environment" or "environmental monitoring," and the text terms "regulation" or "emission." In addition, the Web sites of the U.S. Environmental Protection Agency (EPA), Government Accounting Office, National Resources Defense Council, and the Mercury Policy Project were searched for relevant information.

BACKGROUND

The Council previously discussed the human health effects of mercury (Hg) in Council on Scientific Affairs (CSA) Report 13-A-04. The critical target organ for Hg toxicity is the brain. The developing nervous system is more susceptible than the adult nervous system. Fetal exposure to large amounts of methylmercury (MeHg) from maternal consumption of fish results in a pattern of severe neurodevelopmental defects and fatalities. Chronic low-dose prenatal MeHg exposure from maternal consumption of fish has been associated with more subtle decrements in several measures of neurological development, which may resemble a number of learning disabilities present in the overall population of children. As noted in CSA Report 13-A-04, contemporary data on mercury exposure in U.S. women and children are available from the National Health and Nutrition Examination Survey (NHANES). This cross-sectional national survey conducted by the Centers for Disease Control and Prevention (CDC) is designed to assess the health and nutritional status of adults and children in the United States. A mercury component was added in 1999, which assessed children 1 to 5 years of age, and women aged 16 to 49 years. Extrapolating the NHANES data to the overall U.S. population suggests that each year in the United States more than 300,000 newborns will have blood mercury concentrations exceeding the EPA's exposure reference dose (ie, the estimated daily intake that is likely to be without appreciable risk of harmful effects. The body burden of Hg also may be a risk factor for cardiovascular disease in adults. Thus, reducing the environmental burden of this toxic metal is an important public health issue.

Because CSA Report 13-A-04 addressed the human health effects of mercury and the genesis of regulatory exposure limits, these issues are not revisited in this report, which focuses on Hg emission and manufacturing sources, and on recent actions intended to reduce the environmental burden of Hg. This report briefly reviews the major anthropogenic (human-caused emissions) sources of mercury in the United States, the mobility of environmental mercury, and actions taken by the EPA and the U.S. government to address these issues.

Relevant AMA Policy

The most relevant AMA policy on this issue supports the "maximum feasible reduction of all forms of air pollution, including particulate, gases, toxicants (such as Hg), irritants, smog formers, and other biologically and chemically active pollutants" and that "governmental control programs should be implemented primarily at those local,

regional, or state levels which have jurisdiction over the respective sources of air pollution and the population and areas immediately affected" (Policy H-135.998, AMA Policy Database).

MERCURY EMISSIONS

Mercury is a global pollutant that cycles in the environment, exchanging among air, soil, and water, and back again because of both natural phenomena and human activities. Volcanoes and deep sea vents are large natural contributors. Environmental mercury also is derived from the weathering or mining of rock containing Hg ore (ie, HgS or cinnabar) and from the incineration and burning of fossil fuels. Major man-made sources (or uses) of elemental Hg include coal-burning electric power plants; municipal, medical, and hazardous waste incinerators; commercial/industrial boilers; chlor-alkali plants; gold mining; cement production; and mercury-containing products (eg, thermometers, blood pressure monitors, lamps, batteries, electronic switches and devices). Although volcanoes and other natural sources release substantial amounts of elemental Hg into the environment, anthropogenic emission from coal-fired electric power-generating facilities, chlor-alkali production, waste incineration, and other industrial activities now account for approximately 70% of the 5,500 metric tons of Hg that are released into the earth's atmosphere annually. Anthropogenic releases of Hg have substantially increased the entry of Hg into the environment; by some estimates by a factor of 3 to 5 times since pre-industrial times, and by another analysis, a 10-fold increase.

In some parts of the world, man-made Hg emissions are increasing, but in this country emissions declined from about 220 tons in 1990 to 115 tons in 1999 because of new requirements on incinerators. Among U.S. industrial sources, coal-fired utility plants account for approximately 40% of this burden. These, and other plants that combust other fossil fuels (ie, petroleum, natural gas), account for about two-thirds of U.S. electricity generation, but are also a major source of air pollutants including Hg, as well as fine particulate matter, sulfur dioxide, and nitrogen oxides, which are regulated under the Clean Air Act. Two other potentially large sources of Hg are not well quantified; namely, mobile sources and chlor-alkali plants. The EPA has now promulgated regulations for all major sources of Hg emissions, although not to the same extent.

Environmental Mobility

Once in the environment, the different forms of Hg interconvert, with sequences of emission, deposition via particles or precipitation, and revolatization. The nature of Hg emissions from coal-fired electric power plants varies depending on the technology and the type of coal used , but roughly 50% is elemental Hg. Atmospheric mercury is mostly elemental Hg; this global pool may remain airborne for extended periods and distances. Particulate and reactive mercury (both organic and inorganic) deposit more quickly and travel much shorter distances from the point of emission; thus, their relative atmospheric concentrations are much smaller. Atmospheric deposition tends to be greater in areas closer to emission sources and in locations with more rainfall, setting up a scenario where local and regional sources can create "hot spots" of relatively high Hg deposition. According to the EPA, the highest deposition rates occur in the southern Great Lakes, the Ohio Valley, the Northeast, and scattered areas in the Southeast. The link between industrial emission and Hg concentration in the oceans is less well understood.

After deposition, conversion of inorganic to organic mercury is accomplished by microorganisms or abiotic processes, particularly in aquatic sediment. Once in its predominant organic form (MeHg), bioaccumulation occurs. Some ecosystems (ie, low-alkaline lakes and streams with dissolved, decomposed plant or bacterial matter) are more active in accelerating this conversion. Thus, Hg, particularly MeHg, is an established, worldwide environmental pollutant and is concentrated in the food chain in aquatic systems, especially in larger predatory fish. The amount of MeHg in any given seafood or freshwater fish depends on the species, its age/size, and the waters from which it came. An in-depth analysis of the fate and transport of Hg can be found in the EPA's 1997 Mercury Study Report to Congress. For further discussion of issues related to mercury and fish consumption see CSA Report 13-A-04 (http://www.ama-assn.org/ama/pub/category/15842.html). An analysis for clinicians of the relative toxicity of various types of fish, with a summary sheet for patients to use in selecting fish for consumption can be found at *http://www.mercuryaction.org/uploads/providers_guide.pdf.*

CLEAN AIR MERCURY RULE

The path to the Clean Air Mercury Rule was somewhat "hazardous" in its own right. It was triggered by the 1990 Amendments to the Clean Air Act, under which the EPA was to submit to Congress a study on the risks of hazardous air pollutants from power plants. The Agency was sued in 1992 by the Natural Resources Defense

Council for not including electric power plants on the initial list of emitting sources to be regulated under Section 112 of the Clean Air Act, and by the Sierra Club in 1994 for missing the deadline for submitting the Utility Air Toxics study to Congress. Under a settlement (consent agreement) reached in 1994, the EPA agreed to complete its Utility Air Toxics Study by November 1995 and determine whether it was "appropriate and necessary" to regulate power plants under Section 112. Subsequently, this deadline was extended until February 1998. In the meantime, the EPA submitted a Mercury Study Report to Congress in 1997. This report analyzed mercury emissions, their potential health and environmental impacts, and the availability of control technologies.

Ultimately, the Utility Air Toxics Study was completed in February 1998. In this report, the EPA provided: (1) a description of the electric utility steam-generating industry; (2) an analysis of emissions data; (3) an assessment of hazards and risks due to inhalation exposures to 67 hazardous air pollutants (HAPs), including mercury; (4) assessments of risks due to multipathway (inhalation plus non-inhalation) exposures to four HAPs (radionuclides, mercury, arsenic, and dioxins); and (5) a discussion of alternative control strategies.

In December 2000, the EPA issued a finding that the regulation of mercury emissions from power plants (using the maximum achievable control technology [MACT] approach) was appropriate and necessary under Section 112 of the Clear Air Act. This finding triggered other provisions of the consent agreement, including a requirement for the Agency to propose MACT standards for electric power plants by December 2003, and finalize them by March 15, 2005. Based on Section 112, for new facilities, the MACT standard must be at least as stringent as the degree of emissions control achieved at the best-controlled similar source (ie, the best-demonstrated technology). For existing facilities, Section 112 allows a somewhat less stringent standard, in which limits equal to the average performance of the best 12% of comparable sources generally must be achieved. However, at present, no U.S. coal-fired electric power plants have installed equipment specifically designed to control mercury emissions. Thus, data collection has been on existing technologies, and has required extensive analysis to establish potential control levels. However, four full-scale field tests of a technology called "activated carbon injection" (ACI) have been conducted by the Department of Energy, with emission reductions of 60% to 90%, depending on the type of coal and type of auxiliary control equipment utilized. ACI has also proved capable of reducing Hg emissions by more than 90% on incinerators and other facilities.

Finally, on January 30, 2004, the EPA issued a proposed rule to substantially cut mercury emissions from coal-fired power plants. This proposal purported to cap emissions from coal-fired electric power plants and provided companies with flexibility to achieve early reductions of mercury, but offered two alternatives for controlling mercury emissions. One approach would require power plants to install MACT controls under Section 112 of the Clean Air Act. This proposal met the Agency's requirement under the consent agreement by proposing MACT standards that would apply on a facility-by-facility basis, reducing nationwide mercury emissions by 14 tons (or about 30% from the 1999 level) by early 2008. The EPA's analysis and MACT determination were widely criticized.

The second approach used Section 111(d) of the Clean Air Act, with the EPA proposing to unilaterally amend its December 2000 regulatory finding, arguing that while MACT standards were "appropriate," they were not "necessary" since emissions could be controlled under Section 111(d) This approach freed the EPA from the requirement to regulate toxic air emissions under the more health-protective, technology-based MACT standards. The proposal relying on Section 111(d) created a market-based "cap and trade" program that, if implemented, would reduce nationwide utility emissions of mercury in two phases. The EPA claimed that when fully implemented, mercury emissions would be reduced by 33 tons (nearly 70%).

Despite substantial opposition among medical and public health organizations, including more than 600,000 comments submitted to the Docket, the Clean Air Mercury Rule (CAMR) was promulgated on March 15, 2005. In it, the EPA concluded that the MACT regulations were neither appropriate nor necessary, and in so doing reversed its previous (December 2003) finding. CAMR does establish the United States as the first country in the world to regulate mercury emissions from coal-fired electric power plants; however, this was accomplished by implementing the cap-and-trade system for power plant emissions of mercury. On March 10, 2005, in a separate but related action, the EPA issued the Clean Air Interstate Rule (CAIR), intended to reduce air pollution that moves across states boundaries. This rule is intended to cap emissions on sulfur dioxide and nitrogen oxides from power plants in 28 eastern states and the District of Columbia.

CAMR establishes national and state rather than facility-specific caps on emissions of Hg. In the rule, the EPA assigned each state and two Native American tribes a total emissions allowance. Each must submit a plan revealing

how it will meet the standards. Half of all Hg pollution comes from power plants in eight states (Pennsylvania, Texas, Ohio, Illinois, Indiana, Alabama, West Virginia, and Kentucky). States are free to establish more stringent standards for new or existing units. An intermediate nationwide cap of 38 tons per year becomes effective in 2010, with a final cap of 15 tons per year nationwide in 2018. The intermediate cap reflects the level of emissions resulting from the "co-benefits" of controlling sulfur dioxide (SO_2) and nitrous oxide (NOx) under CAIR (see below). Facilities must demonstrate compliance with the standard by holding one "allowance" for each ounce of Hg emitted in any given year. Allowances are transferable among all regulated facilities. Utilities can either control Hg emissions directly by installing pollution controls or purchase excess allowances from other plants that have decreased their emissions below the cap. These "early reductions" can also be banked for later use, which raises the specter that plants could delay compliance with the final cap by using up previously earned (and banked) allowances. The EPA asserts that such a cap-and-trade approach to limiting Hg emissions is the most cost-effective way to achieve the reductions in Hg emissions from the power sector.

Overall, this approach relies on coupling CAMR with CAIR. Reductions in Hg emissions depend (initially) to a large extent on the SO_2 and NOx emission caps established under CAIR. This rule establishes a broadly applicable cap-and-trade program that significantly limits SO_2 and NOx emissions from the power sector. Through the expanded use of technologies commonly used to reduce SO_2 and NOx (eg, scrubbers; silicon-controlled rectifiers [SCRs]) to comply with CAIR, secondary benefits will accrue on Hg emissions. Therefore, the EPA believes that significant reduction in Hg emissions, especially oxidized Hg, can and will be achieved by the air pollution controls installed to reduce SO_2 and NOx, thereby reducing Hg emissions in a cost-effective manner. In taking this approach, the Agency relied on so-called "co-reduction" to achieve its Hg reduction targets, and anticipated little or no specific installed Hg control technology for coal-fired utility boilers, despite the large contribution to air pollution from this industry. The cap-and-trade approach is similar to the proposed "Clear Skies" legislation. Clear Skies would create a mandatory market-based program that would significantly reduce power plant emission of SO_2, NOx, and mercury by setting a national cap on each pollutant and permitting trading of allowances. This bill, however, was blocked from advancing to the Senate floor in March 2005, and will not be further considered in this report.

One main criticism of the EPA's approach is that it will not eliminate "hot spots" caused by local or regional polluters who purchase allowances rather than meet cap standards. Accordingly, local populations will still be at increased risk for adverse effects from mercury exposure. The concern over hot spots is exemplified by a study of mercury contamination in the Everglades, which showed a 75% decrease in mercury contamination of fish and wildlife after controls were placed on local incinerators and other sources of Hg.

Additionally, many believe that the caps are too high, that the pace to achieve them is too slow, and that total emissions could be more significantly reduced by forcing individual plant compliance with a MACT-type approach. Field tests have proven the effectiveness of ACI for reducing mercury emission, and according to a report from the U.S. Department of Energy, this technology is suited for use on existing coal-fired boilers. These mercury-specific controls are already used on municipal waste combustors and medical waste incinerator facilities in the United States and Europe. Furthermore, the EPA's own Office of Research and Development estimated that the best level of emissions control at existing plants (which would have implications for a MACT-based strategy) could be achieved fairly simply via expanded use of fabric filters. Combining the two processes has the potential to achieve a 90% reduction in Hg emissions.

Reconsideration of the Clean Air Mercury Rule

In response to petitions filed by states, tribes, industry, and environmental groups, the EPA reopened certain aspects of the final rule for public comment (by December 19, 2005) and reconsideration. These included the method used to apportion the national caps to individual states, the definition of "designated pollutant," issues related to New Source Performance Standards, and the definition of covered units as including municipal waste incinerators and some industrial boilers. The EPA took final action on these petitions on May 31, 2006, by: (1) reaffirming its decision regarding interpretation of the Section 112 Rule; (2) amending regulatory language to clarify that CAMR does not apply to municipal waste incinerators (which are controlled under a separate rule); and (3) revising the performance standards for new subbituminous coal-fired units.

In June 2005, the American Academy of Pediatrics, the American Public Health Association, the American Nurses Association, and the Physicians for Social Responsibility jointly moved to intervene in the Hg litigation in federal district court, alleging that CAMR would not protect public health and that the Agency had ignored or failed to ascertain critical evidence about the health effects of its rule on vulnerable populations, especially children.

Additionally, 11 states filed suit in opposition to the Mercury Rule alleging it will delay meaningful emission reductions for many years and perpetuate hot spots of local mercury deposition, thus posing a "grave threat" to the health of children (www.state.nj.us/oag/newsreleases05/pr20050518b.html).

Several legislative proposals also have aimed to reduce levels of mercury in the environment in consumer products, solid waste, utility and other emission sources, and in surface water. The legislative and administrative proposals differ on how much and how soon emission reductions would be required.

MANUFACTURING SOURCES

As noted above, major man-made sources (or uses) of elemental Hg include coal-burning electricity-generating plants, hazardous medical waste incinerators, institutional boilers, chlor-alkali plants, gold mining, cement production, and certain mercury-containing products (eg, thermometers, blood pressure monitors, lamps, batteries, electronic switches and devices). Considerable progress has been made in eliminating the use of mercury in lamps and thermometers, and in phasing out mercury-containing batteries.

One remaining major concern in the manufacturing sector is the use of Hg in chlor-alkali plants. Some U.S. plants continue to manufacture chlorine by using vats of elemental Hg ("mercury-cells"). Individual cells typically are about 60 feet long and 9 feet wide, and are connected in series with 30 or more cells, each containing an electrolytic cell to generate the chlorine gas, and a separate decomposer, which produces hydrogen gas and caustic solution. A stream of liquid Hg flows in a continuous loop between these two elements. Saturated NaCl or KCl solutions are fed in, and an electric current is applied to the anode of the electrolytic cell, as well as the Hg stream, which functions as the cathode. Chlorine gas, caustic solution, and NaHg (or KHg) amalgam are formed. The chlorine is captured and produced for use in water purification, bleach, and a myriad of plastic, polyvinyl chloride, etc., type compounds.

Nine such plants are currently operating in eight states (Alabama, Delaware, Georgia, Louisiana, Ohio, Tennessee, West Virginia, and Wisconsin). One has committed to converting to mercury-free technology, and another has announced plans for closure. The other 53 U.S. chlorine-generating facilities have converted to mercury-free processes for chlorine generation and production. Companies using mercury-free processes rely on the use of membrane electrolysis technology. The electrolysis cells used in modern chlor-alkali plants employ large ion-exchange membranes and inert diametrically stable electrodes in place of the liquid-film mercury cathodes.

In Hg cell plants, Hg is emitted from the end cell ventilation system, and from the by-product hydrogen system. These plants are required to report their mercury emissions and off-site disposals each year. These self-reported emission figures amounted collectively to about 8 tons in 2003, and another 6 tons are attributable to "fugitive emission." However, there is a huge discrepancy between what the industry reports having consumed and what it reports having released. For example, in 2000, the nine mercury-based chlorine plants in the United States used 79 tons of mercury during the manufacturing process, but only 14 tons were reported as released, leaving 65 tons unaccounted for. In 2003, the EPA issued a final rule intended to reduce mercury emissions from mercury cell chlor-alkali plants. In its analysis, the EPA declared that "the fate of all the mercury consumed at mercury cell chlor-alkali plants remains somewhat of an enigma." The industry claims the remainder is contained on site within the manufacturing infrastructure and processing equipment.

GLOBAL CONTEXT

Worldwide, 5000 to 6000 tons of mercury are emitted from all sources annually. On a continental basis, Asia generates more than half of the emissions, followed by Africa and Europe. Although U.S. anthropogenic emissions account for approximately 3% of the world total, significant problems remain with local emissions and deposition.

International Actions for Reducing Mercury Emissions

In June 1998, the Executive Body of the United Nations Economic Commission for Europe Conventions on Long-Range Transboundary Air Pollution adopted the Protocol on Heavy Metals. The United States is a party to this legally binding agreement, which went into effect in December 2003. The protocol targets three heavy metals: cadmium, lead, and mercury emissions from industrial sources (iron and steel industry, non-ferrous metal industry), combustion processes (power generation, road transport), and waste incineration. It largely commits the United States to stabilize emissions, but not reduce them, inasmuch as the reference year for the protocol is 1990, and Hg emissions have declined substantially in this country since that benchmark year.

At the twenty-third session of the United Nations Environment Program (UNEP) Governing Council in February 2005, attempts were made to move toward a legally binding global treaty to reduce mercury pollution. This approach was opposed by the United States, which instead advocated that governments agree to develop and implement partnerships as the preferred approach to reducing the risks to human health and the environment from the release of mercury and its compounds. This approach was eventually agreed upon. Subsequently, the United States has been involved with four global partnerships, three of which have begun joint activities, including: (1) mercury reductions in the chlor-alkali sector; (2) mercury reductions in products; and (3) mercury management in artisanal and small-scale gold mining. A fourth initiative is intended to generate research to achieve a better understanding of the global cycling of mercury. The estimated amount of mercury coming into, and being transported from, individual countries is uncertain. This factor, together with a limited number of country-specific release inventories, and lack of standard measurement methods, limits the accuracy of modeling predictions and, therefore, the ability to quantify the effects of emission and use reductions.

SUMMARY AND CONCLUSION

Mercury is a global pollutant, a major contaminant in the marine food supply, a serious neurotoxin, particularly in the developing fetus, and possibly a promoter of cardiovascular disease. Man-made emissions and manufacturing processes account for more than half of the annual global mercury burden, with significant variation among countries and continents of the world. The United States is the first country to regulate the major remaining source of uncontrolled mercury emissions; namely, coal-fired electricity-generating plants, although some states have gone substantially further in moving to reduce Hg emissions.

While the market-driven approach taken by the EPA will significantly reduce mercury emission over the next three decades, there is general agreement that more could be done sooner by using existing control technology, and without the potential for local and regional citizenry to continue to bear a disproportionate exposure burden (ie, generation of hot spots) that may continue to occur under a national cap-and-trade approach. The United States opposed a binding international treaty on mercury, but is cooperating in a voluntary manner with other countries to address several aspects of the mercury burden. It is also a member of one binding agreement intended to reduce mercury emissions on an international basis, although this agreement will not affect U.S. emissions.

Further progress is needed in reducing the use of mercury in manufacturing and other devices, using the alternatives that are already available. Furthermore, the development of economically feasible mercury control technologies should help accelerate regulatory and voluntary reductions in sources of Hg emissions.

RECOMMENDATIONS

The Council on Science and Public Health recommends that the following statements be adopted in lieu of Resolution 411 (A-05) and the remainder of this report be filed:

1. That our American Medical Association recognize that the trading of air pollutants is potentially harmful for vulnerable populations, and that the Clean Air Mercury Rule is inconsistent with our AMA's health-protective approach to air pollution.

2. That our AMA encourage state governments to be proactive in protecting citizens from harmful mercury emissions.

3. That our AMA encourage reduction in mercury use in manufacturing wherever possible, and recognize that more must be done using available and emerging technology to reduce mercury emissions.

4. That our AMA recommends increased vigilance, monitoring and tracking of mercury use and emissions in chlor-alkali facilities that use mercury in manufacturing processes.

5. That our AMA encourage the U.S. government to assume a leadership role in reducing the global mercury burden and work toward promoting binding, health-protective international standards.

(References for Report 1 of the Council on Science and Public Health are available from the Group on Science, Quality and Public Health.)

2. IMPROVING ACCESS TO RAPID HIV TESTING: AN UPDATE

HOUSE ACTION: RECOMMENDATIONS ADOPTED AS FOLLOWS AND REMAINDER OF REPORT FILED

Resolution 511 (A-05), introduced by the Medical Student Section and adopted as amended, calls for our American Medical Association (AMA) to work with any and all local and state medical societies, and other interested US and international organizations, to increase access to and utilization of Food and Drug Administration (FDA)-approved rapid human immunodeficiency virus (HIV) testing in accordance with the quality assurance guidelines for rapid HIV testing developed by the Centers for Disease Control and Prevention (CDC). Additionally, the resolution encourages that pre- and post-test counseling be performed in accordance with guidelines established by the CDC. Finally, the resolution asked for a progress report at the 2006 Interim Meeting on efforts to increase access to FDA-approved rapid HIV testing.

This Council report describes current AMA efforts on HIV testing, particularly with respect to rapid HIV testing. It also briefly updates national efforts to increase utilization of this testing.

DATA SOURCES

- The CDC's November 1-2, 2005, national stakeholders' consultation on HIV screening recommendations for adults, adolescents and pregnant women.

- The CDC's revised recommendations for HIV testing of adults, adolescents and pregnant women in health care settings.

INTRODUCTION

Following adoption of amended Resolution 511 (A-05), our AMA participated in a national stakeholders' consultation on revising the CDC's existing guidelines for HIV testing in adults, adolescents and pregnant women. It became clear that with these revised recommendations, the use of rapid HIV testing would likely increase dramatically. Accordingly, our AMA has been working with the CDC on the revised recommendations; this collaboration serves as the basis for part of this report.

Update on HIV Testing

At the end of 2003, approximately one-fourth of the estimated one million HIV-positive people living in the United States were believed to be unaware of their HIV status. These individuals may unknowingly transmit their infections to others, thus contributing to the incidence of new HIV infections in the United States (currently 40,000 new cases annually), and they also do not receive the benefits of treatment to reduce morbidity and mortality. As a result of these and other factors, the CDC has revised its recommendations on HIV testing of adults, adolescents, and pregnant women in health care settings, moving from a risk-based screening methodology to recommendations for routine testing. These recommendations advocate that screening for HIV infection be routinely performed for all persons aged 13 to 64 years who present to a health care setting. The availability and use of rapid HIV tests is expected to be a critical component in ensuring successful implementation of the new recommendations.

There are now six FDA-approved rapid HIV tests, utilizing either whole blood/serum obtained from a blood draw or a fingerstick, or fluids obtained from the oral cavity. These tests provide a result within 15 to 20 minutes. Demonstration projects have shown that 99.7% of patients subjected to a rapid HIV test receive their results and undergo post-test counseling. This success rate is explained by the fact that the average time between sampling and receiving the test result is 28 minutes, instead of the two weeks typically associated with conventional HIV tests. As with the enzyme-linked immunosorbent assays, it is important to note that confirmatory testing of positive results from rapid HIV tests is essential because of the potential for false-positives, combined with higher testing rates. Also, rapid HIV tests using oral fluids may have a higher rate of false-positives.

THE CDC'S RAPID HIV TEST DISTRIBUTION PROGRAM

In 2003, the CDC implemented a new initiative, "Advancing HIV Prevention," which was intended to reduce the prevalence of undiagnosed HIV infection by expanding HIV testing and by taking advantage of rapid HIV tests, enabling individuals to receive results within 30 minutes. From September 2003 through December 2005, within a project called the Rapid HIV-Test Distribution Program (RTDP), the CDC purchased and distributed rapid HIV tests in order to expand testing and to assess the feasibility of using these tests in new environments, such as emergency departments. Data from this program will provide valuable insight into the role of rapid HIV testing in implementation of the revised recommendations discussed above.

During the RTDP period, 790,310 rapid HIV tests were distributed to 107 coordinators representing 230 organizations in 37 states, the District of Columbia, Puerto Rico, and the Virgin Islands. Of these, 372,960 were administered for diagnostic purposes, 60,294 were used for external quality control, and 25,378 were used for training. The remainder either had not yet been used or were returned to the CDC. Among tests administered, results from 5,385 samples were preliminarily positive for HIV infection, and 4,650 were confirmed as HIV positive.

These results indicate that HIV testing can be successfully increased by the use of rapid HIV testing, and that the RTDP enabled the diagnosis of HIV infection in persons who otherwise may not have known their status. Previous research has shown that the majority of persons who learn their HIV status take steps to prevent transmission of infection to others and also to obtain health care that will improve the quality and duration of their lives. Significantly, many of the participating organizations continue to offer rapid HIV testing even after the RTDP concluded.

CURRENT AMA EFFORTS

Our AMA participated in all consultations for the revision of the HIV testing recommendations for adults, adolescents, and pregnant women; submitted comments in response to the final draft; and continues to work with the CDC to address implementation issues associated with the new recommendations. The AMA has supported these revised testing recommendations publicly.

Our AMA and the CDC have agreed to collaborate on the best ways to promote the use of rapid HIV testing in primary care physicians' offices. One option under consideration is the creation of a toolkit for the primary care setting to help implement the revised CDC recommendations for HIV testing, as well as provide information on the different rapid HIV tests, details on appropriate quality assurance, and guidance on obtaining reimbursement following administration of the test.

Recently, our AMA helped the CDC clarify Current Procedural Technology (CPT) coding issues with respect to the different specimen sources that are used for the different rapid HIV tests. While CPT code 86701 refers to HIV-1 antibody testing, it does not distinguish the source of the specimen (oral fluids versus blood/serum). Thus, an additional code (S3645) was created for an HIV-1 antibody test performed on an oral fluid specimen. However, this has created some confusion because CPT code 86701 can still also be used for coding an HIV-1 test performed on an oral fluid specimen. The AMA has offered to work with the CDC to create two separate CPT codes for HIV-1 antibody testing (one for blood/serum and the other for oral fluids) to simplify reporting for rapid HIV testing and is currently awaiting a CPT application from the CDC.

RECOMMENDATIONS

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

1. That our American Medical Association support the Centers for Disease Control and Prevention's (CDC) 2006 Revised Recommendations for HIV Testing of Adults, Adolescents and Pregnant Women in Health Care Settings.

2. That our AMA continue to work with the CDC to implement the revised recommendations for HIV testing of adults, adolescents and pregnant women in health care settings, including exploring the publication of a guide on the use of rapid HIV testing in primary care settings.

3. That our AMA identify legal and funding barriers to the implementation of the CDC's HIV testing recommendations and develop strategies to overcome these barriers.

(References for Report 2 of the Council on Science and Public Health are available from the Group on Science, Quality and Public Health.)

3. RESOURCES TO COMBAT TEEN AND YOUNG ADULT SUICIDE IN THE UNITED STATES

HOUSE ACTION: RECOMMENDATION ADOPTED AND REMAINDER OF REPORT FILED

Resolution 424 (A-05), introduced by the Medical Student Section at the 2005 Annual Meeting and adopted as amended, asks that our American Medical Association (AMA) recognize teen and young-adult suicide as a serious health concern in the United States and work with appropriate federal agencies, national organizations, and medical specialty societies to compile resources to reduce teen and young-adult suicide, including but not limited to continuing medical education (CME) classes, patient education programs, and other appropriate educational and interventional programs for health care providers.

METHODS

Google Scholar and PubMed were searched for English-language articles published between 1996-2006 using the search terms "youth suicide," "youth suicide resources," and "suicide resources for professionals." Web sites of various medical specialty organizations, including psychiatry, family medicine, pediatrics, and gynecology, and relevant governmental, mental health, and child health entities were reviewed to identify resources on adolescent suicide. Family support, advocacy, and suicide prevention Web sites also were reviewed.

BACKGROUND

Suicide is the third leading cause of death for U.S. residents aged 10 to 24 years. The overall rate of suicide among youth has declined slowly since 1992. However, according to the 2005 Youth Risk Behavior Survey (YRBS), among students in grades 9 to 12 during the 12 months preceding the survey, 28.5% of students nationwide had felt so sad or helpless almost every day for $\geq$2 consecutive weeks that they stopped performing some of their usual activities. Nationwide, 16.9% of students had seriously considered attempting suicide during the 12 months preceding the survey. In 1998 dollars, completed and medically treated suicides involving youth up to 20 years of age, totaled $945,000,000 for medical costs and $2,853,000,000 in lost future earnings. More teenagers and young adults die from suicide than from heart disease, cancer, stroke, respiratory diseases, AIDS, and birth defects combined.

Healthy People 2010 objectives include reducing the rate of suicide attempts by adolescents and increasing the proportion of children with mental health disorders who receive treatment. Preventing suicide and suicidal behavior requires the support and contributions of many partners, including federal agencies, state and local health departments, nonprofit organizations, academic institutions, and private industry. These groups assist in highlighting risk factors, developing strategies for prevention, and ensuring that appropriate interventions reach those at risk.

Relevant AMA Policy

Council on Science and Public Health Report 8 (A-06) reviewed the scientific data on the efficacy of prevention programs aimed at reducing the incidence of depression, substance abuse, and suicide on college campuses, as well as information on the access to, and utilization of, college mental health services. Policy emanating from this report (Policy D-345.995, AMA Policy Database) contains directives designed to reduce suicide in this young adult population, including increased availability and quality of on-site college and university-based mental health services and treatment coupled with appropriate community support, and the elimination of policies that discriminate against students who disclose or seek treatment for depression, substance use disorders, or other mental health disorders. Our AMA also opposes media presentations that directly or indirectly encourage suicide in young children and adolescents (Policy H-60.980).

Preliminary Findings

Although hundreds of published articles and reports address adolescent suicide, few specifically discuss resources for the prevention of suicide and treatment for adolescents who are at risk or who have attempted suicide. However, most primary care medical specialty societies have developed policy and created fact sheets or other resources for their members. Other initiatives sponsor Web sites containing a variety of resources on youth suicide prevention, including fact sheets, training programs, and tool kits for professionals, patients, and families. Additionally, many states have developed initiatives to address suicide and some have created youth suicide prevention programs. Many organizations work exclusively on suicide prevention, either in general or specifically for youths at risk. Some organizations offer support for families whose children have committed suicide, while others support survivors of suicide attempts and their families. Unfortunately, despite the number of organizations devoted to suicide prevention and the volume of materials that have been developed, evidence that these materials have significant beneficial effects is limited.

Specific Resources

Materials that address suicide were identified from the following professional medical specialty associations: American Academy of Child and Adolescent Psychiatry (AACAP), American Academy of Family Physicians (AAFP), American Academy of Pediatrics (AAP), American College of Obstetrics and Gynecology (ACOG), American Psychiatric Association (APA), American Society for Adolescent Psychiatry (ASAP), and the Society for Adolescent Medicine (SAM). Materials included fact sheets, CME programs, practice guidelines, and policy statements. The psychiatric associations have more in-depth materials and a broader range of information and educational options for their members.

Numerous governmental agencies have made a commitment to developing and distributing materials that address youth suicide. These agencies include, but are not limited to, the Centers for Disease Control and Prevention (CDC), Health Resources and Services Administration's (HRSA) Maternal and Child Health Bureau (MCHB), National Institute on Drug Abuse (NIDA), National Institute of Mental Health (NIMH), Substance Abuse and Mental Health Services Administration (SAMHSA), the Surgeon General's office, and the U.S. Preventive Services Task Force.

Each governmental agency has a specific focus. For example, approximately one year ago SAMHSA awarded 37 grants to address national suicide prevention efforts, including support for a suicide prevention resource center, suicide prevention efforts for college-age youth, state and tribal youth suicide prevention, and early intervention programs across the country. NIMH offers information about mental illnesses that carry an increased risk for suicide, as well as fact sheets, statistics, and links to related resources. The MCHB addresses suicide as part of its commitment to meeting the comprehensive physical, psychological, and social needs of the maternal and child population, and links to numerous other organizations that offer youth suicide materials. NIDA addresses youth suicide because of its relationship with depression and drug abuse. The CDC sponsors the national Youth Risk Behavior Surveillance Survey, which asks high school aged youth about mental health issues. The CDC also provides suicide statistics in the Morbidity and Mortality Weekly Report.

Concerns about youth suicide are shared by mental health organizations, advocacy and policy organizations, certain foundations, and organizations that focus on young people or on families that have lost a child to suicide. Examples of the latter include the National Suicide Prevention Lifeline, The Jason Foundation, Inc., National Alliance for the Mentally Ill, National Mental Health Association, The Jed Foundation, and the American Foundation for Suicide Prevention. The Jed Foundation was started in 2000 after the suicide of a college sophomore named Jed whose family understood the impact that his death had on the entire campus community. The Jed Foundation describes itself as the "leading organization focusing exclusively on college student mental health and suicide prevention." The Foundation has developed a framework that is designed to help institutions reach acutely distressed or suicidal college students, in addition to other materials.

APPROACH TO IMPLEMENTING RESOLUTION 424 (A-05)

Medical specialty societies (pediatrics, family practice, internal medicine, gynecology, and various psychiatric specialties) offer numerous resources to address youth suicide, including fact sheets, policy statements, training workshops, CME programs, and physician tool kits. The federal government has made a commitment to developing and distributing resources that address youth suicide; many of these are available through various Web sites. Non-medical professional organizations, private foundations, advocacy organizations, and others offer resources as well.

Categorizing or classifying these materials in a meaningful, accessible manner for physicians and other health care professionals is challenging due to their volume, quality, and disparate target audiences. Consequently, a process and strategy is required to assess the usefulness, evidence base, and value of these resources for physicians.

Therefore, Resolution 424 (A-05) will be implemented through the creation of an AMA-led task force convened with the following objectives: (1) review youth suicide prevention and treatment resource materials; (2) develop inclusion criteria for materials that will be included in an on-line database; (3) recommend a strategy for categorizing the materials to enhance accessibility; (4) outline a plan for making the resources available to interested physicians and other health care professionals who treat adolescents and young adults, especially those who may be at risk for suicide; (5) identify potential support for developing the database; and (6) propose an evaluation strategy to determine utilization of the database over time.

The teen and young adult population will be considered in three groupings based on National Center for Health Statistics-defined age categories: 10-14 years, 15-19 years, and 20-24 years. The task force will comprise selected members of the Council on Science and Public Health, physician representatives and/or staff members of several medical specialty associations (the AAFP, AAP, APA, AACAP, ASAP), a representative from the American Association of Suicidology (AAS), a representative of SAMHSA, and selected state mental health department directors.

The task force will review materials, establish inclusion and categorization criteria for resource materials, and recommend a process to make the resource materials publicly available. Initially, materials to be considered will include evidence-based practice guidelines, best practices, promising programs, public health and medical resources, CME programs, active programs with consensus evaluations, and enduring resources. A sample categorization scheme is attached (Table). It is anticipated that the validated resources will be hosted on the AMA Adolescent Health Web site.

RECOMMENDATION

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

> That our American Medical Association convene a time-limited work group to meet through conference call to identify and evaluate appropriate resources for physicians intended to prevent and reduce teen and young adult suicide, and that such resources be maintained on a publicly accessible Web page hosted by our AMA.

(References for Report 3 of the Council on Science and Public Health are available from the Group on Science, Quality and Public Health.)

Table. Preliminary Categorization of Suicide Resources

Source	Type(s) of Resources	Web Sites
GOVERNMENTAL		
CDC - National Center for Injury Prevention and Control	Suicide statistics by year, region, race, gender, age	*www.cdc.gov/ncipc* *http://webapp.cdc/gov.sasweb/ncipc/mortrate.html*
CDC - MMWR	Methods of youth suicide	*http://www.cdc.gov/mmwr/PDF/wk/mm5322.pdf*
CDC - MMWR	Suicide and attempted suicide 6/11/04	*http://www.cdc.mmwr/preview/mmwrhtml/mm5322a1.htm*
CDC - MMWR	Suicide among children, adolescents, and young adults –U.S., 1980-1992	*http://www.cdc.gov/mmwr/preview/mmwrhtml/00036818.htm*
Maternal and Child Health Bureau	Information resource center	*http://www.hrsa.gov/mchirc/dataspeak/events/feb_06/resource.htm*
National Institute on Drug Abuse	Drug use and depression information	*http://www.drugabuse.gov*
National Institute of Mental Health	Report of youth depression	*http://www.nimh.nih.gov/healthinformation/depchildmenu.cfm*

National Institute of Mental Health	Suicide prevention	*http://www.nimh.nih.gov/suicideprevention/index.cfm*
National Institute of Mental Health	Antidepressant medications for youth	*http://www.nimh.nih.gov/healthinformation/antidepressant_child.cfm*
White House	President's New Freedom initiative on Mental Health	*http://www.mentalhealthcommission/gov/reports/reports.htm*
Surgeon General	1999 mental health report	*www.surgeongeneral/gov/library/mentalhealth/chapter3/sec5.html*
Surgeon General	National Strategy for Suicide Prevention: Goals and Objectives for Action. 2001	*http://www.surgeongeneral.gov/library*
Substance Abuse and Mental Health Services Administration	National Suicide Prevention Lifeline	*http://www.suicidepreventionlifeline.org/*
Substance Abuse and Mental Health Services Administration	Evidence-based practices	*http://www.mentalhealth.samhsa.gov/cmhs/communitysupport/toolkits.about.asp*
Substance Abuse and Mental Health Services Administration	Suicide grant awards	*http://www.samhsa.gov/news/newsreleases/050920_grants.html*
U.S. Preventive Services Task Force	Recommendations and evidence	*Annals of Internal Medicine*. 2004.140;820-821. Annals of Internal Medicine. 2004. 140;822-835.
MEDICAL SPECIALTIES OR ASSOCIATIONS		
AAP	Articles from *Pediatrics*	*http://pediatrics.aappublications.org/cgi/content/abstract/107/3/485* *http://pediatrics.aappublications.org/cgi/content/abstract/99/6/791*
AAP	Suicide policy statements	*http://aappolicy.aappublications.org/cgi.content/full/pediatrics;105/4/871* *http://aappolicy.aappublications.org/cgi/content/abstract/pediatrics;105/4/871*
AACAP	Practice parameters 2001	*http://www.jaacap/com/pt/re/jaacap/abstract.00004583-2001070001-00003.htm;jsession*
ACOG	Various teen resources	*http://www.acog.org/navbar.current/publications.cfm*
AAFP	Position paper on youth and access to care	*www.aafp.org/online/en/home/policy/policies/a/adolescentsprotect.htm*
AAFP	Youth homicide 2001	*www.aafp.org/fpr/20010200/all.html*
APA	Fact sheets	*http://www.psych.org*
ASAP	Links and resources	*http://www.adolpsych.org*
Society for Adolescent Medicine (SAM)	Resources	*http://www.adolescenthealth.org/youthgmb.htm*
SAM	Position paper	JAH 36 (2005) 92-93
SPECIFIC ORGANIZATIONS		
American Association of Suicidology	Education and resources	*http://www.suicidology.org*
Suicide Awareness Voices of Education	Community action kit and other resources	*http://www.save.org/resources*

SCHOOL-BASED INFORMATION		
Center for Health and Health Care in Schools	General mental health information	*http://www.healthinschools.org/mentalhealth.asp*
UCLA Center for Mental Health in Schools	Reports	The Important Role of Primary Care Health Professionals. 2004 *http://www.smhp.psych.ucla.edu/pdfdocs/primarycare/primarycarehealth.pdf* Suicide Prevention in Schools *http://smhp.psych.ucla.edu/pdfdocs/policyissues/suicide.pdf*
Center for School Mental Health Analysis and Action	Suicide Prevention Resource Packet, 2003	*http://csmha.umaryland.edu/resources.html/resource_packet/download_files/suicide_prevention_2003.pdf*
Suicide Prevention Resource Center	State information	*http://www.sprc.org/stateinformation/index.asp*
AWARENESS AND SUPPORT		
National Adolescent Health Information Center	Fact sheet on suicide, 2004	*http://nahic.ucsf.edu/downloads/Suicide.pdf*
American Foundation for Suicide Prevention	Awards grants; Clinical and research information	*http://www.afsp.org*
National Suicide Prevention Lifeline	Crisis line	*http://www.suicidepreventionlifeline.org*
National Alliance on Mental Illness	Child and adolescent information	*http://www.nami.org/Templace.cfm?Section=Child_and_Adolescent_Action_Center*
National Mental Health Association	Fact sheets and other resources	*http://www.nmha.org/suicide/youngPeople.cfm*
The Jed Foundation	Reducing young adult suicide rate	*http://www.jedfoundation.org*
The Trevor Project	Gay/questioning teens' suicide prevention information	*http://www.thetrevorproject.org*
TRAINING AND EDUCATION		
American Association of Directors of Psychiatric Residency Training	Training requirements	*http://www.aadprt.org*
The Jed Foundation, Inc	Curriculums and training programs for students, educators, youth workers, parents	*http://www.jasonfoundation.com*
National Center for Suicide Prevention Training	Training programs	*http://www.ncspt.org.workshops.default.asp* (administered by HRSA)
National Organization for People of Color Against Suicide	Resources and workshops	*http://www.nopas.com/resources*
PREVENT	Am J Prev Med. 2005;29(5S2)	Article describes the Preventing Violence Through Education, Networking, and Technical Assistance program which addresses youth violence and suicide in community settings
Suicide Prevention & Resource Center Training Institute	Local programs	*http://www.sprc.org/featured_resorces/trainingandevents/training/clincomp.asp*

Youth Suicide Prevention Program	Washington state program; offers fact sheets, training	*http://www.yspp.org/resources-Links/factFacts.htm*
RELATED ORGANIZATIONS		
Association of State and Territorial Health Officials	Fact sheet and resource guide: Mental Health Integration into Primary Care Settings. 2005	*http://www.astho.org/pubs/MentalHealthIntegration.pdf*
Association of Maternal and Child Health Programs	Promising Practices to Prevent Adolescent Suicide. 2004	*http://amchp/org/policy/suicideprevention.pdf*
Depression and Bipolar Support Alliance	State chapters Support groups	*http://www.dbsalliance.org/info/aboutdbsa.html*
Families for Depression Awareness	Family coping resources	*http://www.familyaware.org*