

JOINT REPORT OF THE COUNCIL ON MEDICAL SERVICE AND THE COUNCIL ON
SCIENCE AND PUBLIC HEALTH (I-17)
Payment and Coverage for Genetic/Genomic Precision Medicine
(Reference Committee J)

EXECUTIVE SUMMARY

The discovery of thousands of disease-related genes, aided by the mapping of the human genome, has led to medical innovations capable of dramatically improving patient-centered care and outcomes. Tens of thousands of genetic/genomic tests have been developed to screen for and diagnose diseases, tailor disease treatments, predict susceptibility to certain conditions, and inform prevention strategies. The number of targeted therapeutics capable of responding to particular genetic alterations has also increased exponentially, as have “companion diagnostics” tests that delineate which subpopulations will (or will not) benefit from particular therapeutics.

Precision medicine is a tailored approach to health care that accounts for individual variability in the genes, environment and lifestyle of each person. Physicians already practice precision medicine by managing each patient according to his or her unique symptoms, history, and preferences, but recent technological advances have vastly improved the ability to integrate genetic/genomic aspects of precision medicine into clinical practice. At the same time, new health care payment and delivery models are focused on value and require that health care services demonstrate their value to patients and the health care system as a prerequisite for payment and coverage.

Advanced bioinformatics programs are being used to generate scientific evidence of the validity of genetic/genomic tests and therapeutics and also increase understanding of many health conditions. Notably, there is considerable variability among public and private payers with regard to the evidentiary requirements for coverage of genetic/genomic precision medicine. Moreover, different insurers may review the same evidence yet reach conflicting conclusions about medical necessity and coverage of these services. The Councils initiated this joint report to provide an overview of genetic/genomic precision medicine and the current coverage and payment landscape; describe AMA policy and activity in this arena; and present policy recommendations that address inconsistencies in payment and coverage for genetic/genomic precision medicine services.

JOINT REPORT OF THE COUNCIL ON MEDICAL SERVICE
AND THE COUNCIL ON SCIENCE AND PUBLIC HEALTH

CMS/CSAPH Joint Report I-17

Subject: Payment and Coverage for Genetic/Genomic Precision Medicine

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Referred to: Reference Committee J
(Peter C. Amadio, MD, Chair)

1 The discovery of thousands of disease-associated genes, aided by the mapping of the human
2 genome in 2003, has led to medical innovations capable of dramatically improving patient-centered
3 care and outcomes. As of July 2017, the National Institutes of Health’s Genetic Testing Registry
4 (GTR®), which is a central location for voluntary submission of genetic information by providers,
5 included information on more than 52,000 genetic/genomic tests for more than 10,000 conditions.¹
6 These genetic/genomic tests help screen for and diagnose diseases, tailor disease treatments,
7 predict susceptibility to certain conditions, and inform prevention strategies. The number of
8 targeted therapeutics capable of responding to particular genetic alterations has also increased
9 exponentially, as have “companion diagnostics” tests that delineate which subpopulations will
10 (or will not) benefit from particular therapeutics.

11
12 Precision medicine is a tailored approach to health care that accounts for individual variability in
13 the genes, environment and lifestyle of each person. Physicians already practice “precision
14 medicine” by managing each patient according to his or her unique symptoms, medical and family
15 history, and preferences. However, recent technological advances such as the development of
16 large-scale biologic databases (e.g., the human genome sequence), powerful methods for
17 characterizing patients (e.g., proteomics, metabolomics, genomics, cellular assays, and mobile
18 health technologies), and computational tools for analyzing large sets of data have vastly improved
19 the ability to apply precision medicine principles to patient care. Precision medicine tests,
20 technologies and therapeutics are increasingly being adopted into clinical practice as evidence of
21 their effectiveness grows. At the same time, new health care payment and delivery models are
22 focused on value and require that health care services demonstrate their value to patients and the
23 health care system as a prerequisite for payment and coverage.

24
25 The Councils initiated this joint report to provide an overview of coverage and payment for
26 genetic/genomic precision medicine; describe AMA policy and activity in this arena; and make
27 policy recommendations. Genetic/genomic testing is used to analyze an individual’s DNA and can
28 confirm or rule out a suspected genetic condition or help determine an individual’s chance of
29 developing or passing on a genetic disorder. Environmental and behavioral data are also essential
30 components of precision medicine, but unlike genetic/genomic data, their clinical use at this time is
31 less common and coverage options are largely undeveloped. The term “genetic/genomic” is used
32 throughout this report to refer to tests that analyze single genes or variants (genetic tests) as well as

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Action of the AMA House of Delegates 2017 Interim Meeting: Joint Report of the Council on
Medical Service and the Council on Science and Public Health be adopted as amended and the
Remainder of the Report be Filed.

1 those that analyze larger portions of the genome, including multiple variants and/or genes, and
2 whole exome and genome sequencing (genomic tests).

3 BACKGROUND

4

5 Precision medicine is routinely used in several specialties, most notably oncology. Using precision
6 oncology, patients with certain cancers undergo testing that enables physicians to molecularly
7 characterize their tumors, and tailor chemotherapy or other targeted therapeutics based on the
8 genetic profile of their tumors. One common example is multi-variant panel tests that determine
9 recurrence risk and potential response to chemotherapy in certain breast cancer patients. Outside of
10 oncology, newborn screening, a state-based program in which every newborn is tested for dozens
11 of genetic diseases that must be treated to avoid serious morbidity, is an example of precision
12 medicine being applied on a large scale. Revolutionary advances in precision medicine have also
13 enabled the diagnosis of rare and difficult-to-diagnose diseases, as well as the treatment of
14 advanced-stage cancers and rare diseases that once were not treatable.

15

16 The potential exists for genetic/genomic precision medicine to be adopted more broadly into
17 clinical practice because of advances in the technology used to collect and analyze huge sets of
18 data, which has enabled enhanced research into genomic causes of disease and applications to
19 clinical practice. The amount of data created with just one genome sequence is vast, and advanced
20 bioinformatics programs are required to glean meaningful results from it. These data are being used
21 to generate scientific evidence of the validity of genetic/genomic tests and therapeutics and also
22 increase understanding of many health conditions. Despite these advances and initial evidence of
23 improved health outcomes downstream, most patients do not have access to precision medicine
24 because most public and private health insurers do not offer coverage for genetic/genomic services
25 unless certain clinical criteria and evidentiary standards are met. As a result, access to this next
26 generation of clinical testing services is often limited to individuals who can and choose to pay for
27 it themselves, which has the potential to increase health disparities. While some consumers are
28 paying for genetic tests on their own and without supervision of their physicians, many of these
29 tests (often referred to as direct-to-consumer tests) have little clinical validity and may not be
30 meaningful for physicians and patients. In April 2017, the Food and Drug Administration (FDA)
31 approved marketing of certain direct-to-consumer genetic tests. Assuring the analytical and clinical
32 validity of all clinical tests is critical to delivering optimal care to patients because not all tests are
33 of the same quality and usefulness. Therefore, it is incumbent on physicians as well as payers to
34 pay close attention to evaluations of the evidence supporting their clinical use.

35

36 PAYMENT AND COVERAGE

37

38 There is considerable variability among private and public payers with regard to the evidentiary
39 requirements for coverage of genetic/genomic tests and services. Criteria used to evaluate tests and
40 therapeutics generally include traditional measures such as analytical validity, clinical validity, and
41 clinical utility. Analytical validity is the accuracy of the test in detecting the specific entity it was
42 designed to detect without implying clinical significance such as diagnosis. Clinical validity is the
43 accuracy with which a test identifies association of a specific entity (e.g., genetic variant) with a
44 clinical purpose such as the presence, absence, predisposition to, or risk of a specific clinical
45 condition. "Clinical utility" is a highly subjective term that does not have a universally accepted
46 definition. Provider organizations, including national medical specialty societies, have defined this
47 term to ensure that physicians are able to utilize testing when it is useful to physicians and patients
48 by informing clinical care. Payers each define the term differently, with many adopting narrow
49 definitions that require evidence of improved health outcomes downstream and that do not
50 encompass the full value that a particular test or therapeutic may provide to patients, their families

1 and society as a whole, such as establishing a diagnosis, reducing spending on continued diagnostic
2 testing, and ending uncertainty for patients and their families. Clinical utility should refer to the
3 ability of a test to provide information related to the care of patients and to inform treatment
4 decisions.

5
6 Currently, there is a well-established clinical evidence base to support coverage of a broad range
7 of genetic/genomic tests; however, newer tests, which may be less expensive but for which the
8 clinical evidence base has not yet matured, are rapidly and continuously becoming available.
9 Because most insurers do not have the capability to assess the evidence for each test themselves
10 they may require third-party health technology assessments (HTAs) which are then used in
11 conjunction with other factors to make coverage determinations. HTA companies often look for
12 evidence based on randomized controlled trials (RCTs)—which have historically been considered
13 the gold standard for evidence generation—or comparable studies; however, the usefulness of
14 many new genetic tests and therapeutics cannot feasibly be demonstrated using an RCT approach
15 and may require novel research approaches. New genetic variants are being identified so rapidly
16 that tests may need to be altered before RCTs can be completed. For example, variants that drive
17 tumor growth and can potentially be targeted by a therapeutic are being identified and continually
18 added to tumor testing panels. And for rare genetic diseases, RCTs may present ethical issues, take
19 many years to complete, or never reach sufficient sample numbers.

20
21 HTAs may also require evidence not yet available that correlates genetic/genomic tests and
22 therapies with clinical outcomes. A small study of private-payer challenges to establishing
23 coverage of next-generation tumor sequencing (NGTS), which enables rapid examination of large
24 numbers of genetic tumor alterations, found that most payers understand the potential benefits of
25 NGTS.² However, a majority of payers interviewed for the study also reported that NGTS does not
26 fit into their frameworks for medical necessity and does not meet their evidentiary standards
27 requirements. For example, some NGTS tests identify variants for which a specific therapeutic
28 does not yet exist or for which no clinical trials are underway. Despite the potential usefulness of
29 knowing which variants are driving tumor growth for future clinical trials or new therapies, payers
30 do not view such results as immediately actionable. Concerns among payers regarding
31 implementation of NGTS and care delivery, such as the ability to effectively capture results in
32 electronic health records and the preparedness of physicians to use the results in practice, are
33 additional barriers to coverage.

34
35 Different types and levels of evidence are currently used to assess genetic/genomic tests, and some
36 organizations—including the Agency for Healthcare Research and Quality, the American College
37 of Medical Genetics and Genomics (ACMG), and the American Society of Clinical Oncology
38 (ASCO)—evaluate available evidence and develop guidelines or recommendations for testing.
39 AdvaMedDx—a trade association for diagnostics manufacturers—has developed a comprehensive
40 framework for assessing the value of diagnostic tests and technologies based on four value drivers:
41 clinical impact, non-clinical patient impact, care delivery revenue and cost impact, and population
42 impact.

43 44 *Medicare*

45
46 Certain payers, including Palmetto GBA, a key Medicare contractor in the clinical testing domain,
47 perform both a regulatory function—by requiring and assessing evidence of analytical/clinical
48 validity—and a payer assessment of medical necessity. Medicare local coverage determinations
49 (LCDs) regarding genetic/genomic tests have largely been developed by Palmetto GBA and then
50 routinely adopted by other Medicare contractors in a process that has been lacking in transparency
51 and sufficient stakeholder involvement to ensure that coverage decisions are in the best interests of

1 patients. Several national medical specialty societies representing experts in molecular pathology
2 have expressed serious concerns regarding the credibility of the evidence used by Palmetto GBA in
3 the drafting of LCDs that have denied coverage for certain genetic/genomic tests. Experts have
4 stated that these LCDs lacked sufficient input, contradicted professional society practice guidelines,
5 and encroached on physician clinical decision-making. As a result of the Palmetto GBA LCD
6 process, the Centers for Medicare & Medicaid Services (CMS) does not cover many of the
7 genetic/genomic tests that might be clinically meaningful to Medicare patients. According to the
8 National Academies of Sciences, Engineering, and Medicine, as of April 2016, well over a
9 thousand genetic tests had been excluded from Medicare coverage.³

10
11 Federal legislation (S. 794/H.R. 3635, “Local Coverage Determination Clarification Act”) has been
12 introduced to improve the LCD process and enable more patients to benefit from clinically
13 validated medical innovations. This legislation would require Medicare contractors to establish a
14 timely and open process for developing LCDs that includes open public meetings, meetings with
15 stakeholders, an open comment period in the development of draft coverage policies, and a
16 description of all evidence considered when drafting and finalizing coverage determinations. The
17 LCD legislation would also require Medicare contractors seeking to adopt another contractor’s
18 proposal to independently evaluate the evidence needed to make a coverage determination, and
19 would provide physicians and stakeholders a meaningful reconsideration process and options for
20 appealing a Medicare contractor’s decision to CMS. The AMA—along with the ACMG, ASCO,
21 American Society for Radiation Oncology, American Society for Clinical Pathology, the
22 Association for Molecular Pathology and the College of American Pathologists—supports the LCD
23 legislation, which is consistent with AMA policy on LCDs.

24 25 *Private Insurers*

26
27 Private insurer coverage determination processes are neither transparent nor standardized across
28 payers, and the evidence used by insurers to make coverage determinations regarding
29 genetic/genomic tests and services can be inconsistent and convoluted. Just as coverage policies
30 differ among insurers, their evidentiary standards requirements, interpretations of those standards,
31 and evidence review processes vary as well. As a result, different insurers may review the same
32 evidence of the validity and utility of a particular test or service yet reach conflicting conclusions
33 about its medical necessity and coverage.

34
35 In addition to evidence-based evaluations of a genetic/genomic test’s validity and utility, private
36 payers often seek evidence of the service’s cost-effectiveness, recommendations in professional
37 society consensus statements or clinical practice guidelines, and peer-reviewed studies supporting
38 its use.⁴ One study examined private insurer coverage policies for cell-free DNA prenatal screening
39 tests, which are routinely covered for high-risk pregnant women, to gain insights into payer
40 decision-making for next-generation sequencing-based tests in general.⁵ Most payers in this study
41 used analytical and clinical validity and clinical utility to evaluate the evidence, and there was
42 some variation in how they interpreted the evidence. This study also found that payers kept abreast
43 of new peer-reviewed studies and professional society recommendations, and updated their
44 coverage policies accordingly.⁶

45
46 Research into payer coverage of BRCA1/2 tests and gene panels has found that while nearly all
47 payers covered BRCA1/2-only tests, gene panels that include BRCA1/2 were not likely to be
48 covered because payers sought more evidence demonstrating the panels’ clinical validity and
49 clinical utility.⁷ Gene panels identify more mutations than BRCA1/2-only tests but may also
50 uncover incidental (or secondary) findings and variants of uncertain significance.⁸ A study of
51 payer-perceived challenges to covering hereditary cancer panels (HCPs) found that these panels

1 may not be covered because they include variants or genes that have not been sufficiently studied
2 and, as a consequence, the entire panel is considered investigational or experimental.⁹ The study
3 highlights the complexity and uncertainty of the payment landscape by noting that while insurers
4 generally do not cover HCPs, they may pay for them if, for example, they are billed for elements of
5 the panel they considered medically necessary, or if payment denials are successfully appealed.¹⁰
6 Payer policies may allow coverage of certain genetic/genomic tests and therapeutics under special
7 circumstances or after successful appeal by physicians advocating on a patient's behalf. Physicians
8 routinely advocate for patient access to testing that will inform diagnosis or management of
9 disease, as well as patient access to therapeutics needed to treat disease; however, these efforts can
10 be unduly burdensome.

11
12 On the front end, private insurers employ prior authorization, step therapy, and other forms of
13 utilization management to control their members' access to certain services, including
14 genetic/genomic testing and the treatments indicated by this testing. Utilization management
15 requirements also involve very time-consuming processes that divert physician resources away
16 from patient care. Prior authorization often interferes with patient care by either delaying that care
17 or denying access to certain tests and therapeutics. Several large private insurers have established
18 national prior authorization programs for genetic/genomic testing and will deny payment for
19 services that have not been properly authorized or, in some cases, ordered by a geneticist or genetic
20 counselor or carried out by insurer-approved laboratories. Some of these insurers have launched
21 online, automated prior authorization programs for genetic/genomic testing. Certain insurers have
22 instituted a stepwise approach to genetic/genomic testing, in which a less comprehensive test
23 (assessing only one or a few variants or genes) must be ordered first and have inconclusive results
24 before more comprehensive testing (sequencing of one or more entire genes or multiple variants)
25 can be ordered. Insurers may also enforce limitations on the frequency of genetic testing, including
26 sequencing, which is not appropriate in situations where test results may significantly change over
27 time.

28
29 At least one large insurer requires physicians to use the insurer's own clinical decision support tool,
30 which may not be compatible with physicians' EHRs and which may be viewed as potentially
31 infringing on the clinical judgment of physicians. Certain national insurers have also instituted
32 precertification requirements that require patients to receive pre-test genetic counseling from a
33 board-certified genetic counselor or clinical geneticist before genetic tests can be ordered. These
34 policies effectively reduce access to genetic testing for patients who do not have access to those
35 professionals or are being treated by non-geneticist physicians who are fully capable of providing
36 pre-test counseling. While AMA Policy H-480.944 supports genetic counseling, Policy H-460.902
37 opposes genetic testing restrictions based on specialty. A study of BRCA1/2 test cancellation rates
38 during the periods before and after one national insurer began mandating pre-test counseling by
39 genetic counselors or clinical geneticists found that the mandate significantly reduced patient
40 access to testing.¹¹

41 42 *Cost-effectiveness*

43
44 Health care costs continue to rise despite widespread efforts to insert value into models of care
45 delivery and benefit design. Accordingly, cost-effectiveness, affordability, and value are critical to
46 the Councils' discussion of precision medicine and the growing market of genetic/genomic tests
47 and therapeutics. Although whole genome sequencing has become much more affordable than it
48 once was, most multi-variant tests are expensive, ranging from \$500 to \$5000. Single gene tests
49 may cost as low as about \$100 for targeted mutation analysis (testing for one or a few variants in
50 the gene) and approximately \$500 for sequencing the entire gene.

51

1 For many genetic/genomic tests, there is widespread variability in the test's price as well as
2 payment and coverage for that test, which must be sorted out by ordering physicians who must also
3 take into account patient cost-sharing expenses. In some cases, patients may request
4 genetic/genomic testing that is not covered by insurance and is instead purchased directly from a
5 test company at an entirely different price. Cost comparison tools (e.g., Fair Health) can be used by
6 patients and physicians to estimate the costs of some genetic tests and services.

7
8 More research is needed to demonstrate the cost-effectiveness and economic value of precision
9 medicine. A 2014 study concluded that many genetic tests are cost-effective but fewer are cost
10 saving. Notably, a large number of available tests have not yet been evaluated.¹² A systematic
11 review of economic evaluations of genetic and pharmacogenetics tests found that only 21 percent
12 of pharmacogenetics tests and 12 percent of predictive genetic tests are cost saving. Reporting of
13 incidental/secondary findings using sequencing technologies has been found to be cost-effective in
14 certain circumstances but not necessarily cost saving in healthy populations unless the cost of the
15 sequencing is below a certain threshold.^{13,14}

16 17 *Genetic Discrimination and Privacy*

18
19 In 2008, after 13 years of effort on the part of many advocacy organizations including the AMA,
20 Congress passed the Genetic Information Nondiscrimination Act (GINA) nearly unanimously. Title
21 I of GINA prohibits group and individual health insurers from using a person's genetic information
22 in determining eligibility or premiums and prohibits health insurers from requesting or requiring
23 that a person undergo a genetic test in order to collect genetic information on that person for
24 underwriting decisions. Importantly, GINA does not prohibit health insurance underwriting based
25 on current health status, including manifest disease of a genetic nature. Rather, it is intended to
26 protect individuals with a genetic predisposition to disease that has not manifested, whether or not
27 an individual has knowledge about that predisposition based on his or her own genetic test results
28 or the genetic test results or manifestation of disease in a family member. Since the enactment of
29 GINA, only a modest number of genetic discrimination complaints have been filed under its
30 provisions; in 2016, 238 cases of genetic discrimination were filed out of nearly 100,000 total
31 discrimination cases filed.¹⁵ It is possible that the small number of cases reflects the effectiveness
32 of GINA at discouraging the practice of discrimination on the basis of genetics by health insurers,
33 or alternatively, that discrimination is occurring but is unrecognized or unreported.

34
35 Fears about genetic discrimination have led to refusal by some to undergo genetic testing.^{16,17,18}
36 This can have serious health implications for individuals for whom genetic testing would be
37 beneficial. Even among those who do undergo genetic testing, many withhold test results from
38 their physicians, and some request that their results be placed in a "shadow chart" or withheld
39 entirely from their medical record. Information that is not available to physicians can have
40 detrimental effects on patient care because treating physicians unfamiliar with the patient will have
41 no knowledge of genetic test results unless that information is volunteered by the patient. With
42 more frequent use of technologies that involve analysis of patients' genomic information, the
43 potential for misuse and discrimination grows. A very important additional consideration is how
44 difficult it has become to maintain the privacy and security of genomic information. In October
45 2012, the Presidential Commission for the Study of Bioethical Issues concluded that efforts to
46 de-identify genetic information are exceptionally challenging and will gradually become
47 impossible.¹⁹ In January 2013, a group of scientists demonstrated that the genetic information
48 provided by individuals who had been assured anonymity could in fact be re-identified.^{20,21,22}
49 Therefore, given the rapid uptake of genomic-based technologies in both the clinical setting and
50 outside the clinic, there is a pressing need to remain vigilant on policies that protect the privacy of
51 individuals' genetic information.

1 *Physician Education*

2

3 Educating physicians about precision medicine, including genetic/genomic testing and therapeutics,
 4 presents its own unique challenges, given the rapid pace of discoveries as well as extensively
 5 documented physician time constraints. Physicians must have the knowledge and skills to integrate
 6 precision medicine into their clinical practice for obvious reasons related to professionalism and
 7 patient care, and also to effectively advocate for insurer coverage of valid and meaningful
 8 genetic/genomic tests and targeted therapeutics. From a payment perspective, physicians will likely
 9 need more time for counseling patients and to analyze and explain genetic test results, and they
 10 should be adequately paid for these services. Patients who have paid for direct-to-consumer testing
 11 may also present genetic risk factor findings to their physicians, who are then challenged to
 12 consider how to explain the test results and also justify payment for clinical follow-up.
 13 Additionally, laboratories providing the tests are increasingly requesting large quantities of
 14 documentation from physicians that are needed for retrospective reviews.

15

16 The technical complexity of precision medicine adds to the hurdles faced by physicians interested
 17 in integrating this type of care into their practices. Training and implementation costs associated
 18 with adopting new care practices must be taken into consideration. As in many areas of medicine,
 19 there is also the need for significant health information technology (health IT) improvements that
 20 will enable interoperability, access, and clinical decision support while not creating additional
 21 burdens and usability challenges for physicians.

22

23 **AMA ACTIVITY**

24

25 In recent years, the AMA House of Delegates has established relevant policies recommended by
 26 the councils. The Council on Science and Public Health (CSAPH) has addressed several topics
 27 related to precision medicine including genome editing (CSAPH Report 3-I-16), genomics in
 28 hypertension (CSAPH Report 1-I-14), genomics in type 2 diabetes (CSAPH Report 2-A-14),
 29 genetic discrimination (CSAPH Report 7-A-13), and next-generation genomic sequencing (CSAPH
 30 Report 4-I-12). CSAPH Report 3-A-16 discusses the Precision Medicine Initiative (PMI), now
 31 called the All of Us initiative, which is creating a research cohort of over one million volunteers
 32 who will share their genetic, environmental and lifestyle data.

33

34 The Council on Medical Service developed Report 2-A-13 on value-based insurance design;
 35 Report 7-A-14 on coverage and payment for telemedicine; Report 5-I-16 on incorporating value
 36 into pharmaceutical pricing; and Report 6-I-16 on integrating mobile health applications and
 37 devices into clinical practice.

38

39 *Regulatory Activity*

40

41 Uncertainties in the oversight and regulation of genetic/genomic testing services have the potential
 42 to stifle innovation and impede patient access to what could be transformative, life-altering care.
 43 The AMA, in collaboration with several national medical specialty societies, has developed
 44 legislative principles ([https://www.ama-assn.org/sites/default/files/media-
 45 browser/public/genetics/personalized-medicine-guiding-principles.pdf](https://www.ama-assn.org/sites/default/files/media-browser/public/genetics/personalized-medicine-guiding-principles.pdf)) to guide its advocacy
 46 efforts in this arena. The principles make clear that payment and coverage policies should not
 47 dictate which diagnostic or treatment options are available to physicians and patients, and should
 48 take into account the role of physicians in driving and applying genetic/genomic innovations.
 49 Furthermore, the principles reinforce that testing alone will not dictate treatment. Rather,
 50 physicians' diagnostic impressions and their interpretation of test results in the context of the

1 patient's clinical situation and preferences should guide treatment options. Since regulation of
 2 genetic tests is integral to physician practice and patient care, the AMA is engaged in ongoing
 3 advocacy with policymakers and other stakeholders to preserve the physician's role in all aspects
 4 of patient care, including the oversight of laboratory-developed tests and other components of
 5 precision medicine.

6
 7 The AMA actively supports a Clinical Laboratory Improvement Amendments (CLIA)-based
 8 laboratory oversight system along with appropriate third-party accreditation, and is opposed to
 9 FDA oversight of laboratory-developed testing services in all but the most narrow of
 10 circumstances. Accordingly, the AMA has made public comments and statements opposing FDA
 11 oversight activities that infringe on the practice of medicine, and is engaged with a broad group of
 12 stakeholders to support regulatory reform for genetic tests that promotes innovation and preserves
 13 patient access. The AMA has also urged Congress to pursue modernization of the CLIA oversight
 14 framework for high complexity laboratory testing services that would establish standards for
 15 clinical validity and strengthen established standards related to quality control and quality
 16 assurance, and to personnel standards including regular proficiency testing. Strengthening the
 17 existing CLIA oversight framework will assure patient safety and provide a stronger structure to
 18 prevent laboratory errors while preserving patient access to care.

19
 20 *Protecting Access to Medicare Act (PAMA)*

21
 22 Section 216 of the Protecting Access to Medicare Act (PAMA), which was enacted in 2014,
 23 significantly revised the Medicare payment system for clinical tests by requiring that Medicare
 24 payment for laboratories be based on the weighted median of private payer rates. Regulations
 25 issued by CMS in June 2016 required laboratories that provide clinical testing, including certain
 26 physician office-based laboratories, to collect and report private payer payment and test volume
 27 data to CMS. CMS is using this private payer data to set new payment rates that will become
 28 effective on January 1, 2018.

29
 30 The AMA has urged CMS to implement a number of measures to ensure the accuracy of the new
 31 payment rates, which will be based on a retrospective reporting period for data collection from
 32 2016. The AMA has expressed serious concerns to CMS regarding the integrity of the data that will
 33 be used to calculate the new payment rates, and whether the rates will accurately reflect the
 34 weighted median of private payer payments, as Congress intended. Based on the lack of data
 35 integrity, the AMA and other stakeholders anticipate that the new payment rates could effectively
 36 reduce patient access to clinical lab testing. The AMA also continues to urge CMS to ensure that
 37 implementation of the new payment rates results in as little administrative burden for physicians as
 38 possible.

39
 40 PAMA regulations also required CMS to issue Healthcare Common Procedure Coding System
 41 (HCPCS) codes to identify new advanced diagnostic laboratory tests (ADLTs), and clinical tests
 42 that are cleared or approved by the FDA (referred to as Clinical Diagnostic Laboratory Tests, or
 43 CDLTs), if an applicable Current Procedural Terminology (CPT) code (HCPCS level I) does not
 44 exist; and to provide, upon request, either a HCPCS code or unique identifier for test tracking and
 45 monitoring. In order to address these coding provisions, the CPT Editorial Panel approved in
 46 November 2015, and finalized at its February 2016 panel meeting, the new Proprietary Laboratory
 47 Analyses (PLA) section of the CPT code set. PLA codes include a descriptor for laboratories or
 48 manufacturers that want to more specifically identify their tests. An important part of the
 49 development of this new set of codes is that industry and other stakeholders, including subject
 50 matter experts, actively participate in the PLA process. To that end, the Panel created the
 51 Proprietary Laboratory Analyses Technical Advisory Group (PLA-TAG) to advise the Panel on

1 applications received for codes to be added to the PLA section of CPT. Along with representation
 2 by the Panel and certain Panel workgroups, the PLA-TAG is composed of individuals with
 3 expertise relating to the services covered under the CPT PLA section. These include, but are not
 4 limited to, members from various industry segments such as independent laboratories, private
 5 payers, professional/industry organizations, commercial laboratories, academic medical institutions
 6 and private practitioners. Members of the PLA-TAG will play a crucial role in the PLA code
 7 creation process by reviewing CPT PLA code change applications and making recommendations
 8 regarding these requests for CPT codes that describe ADLTs or CDLTs.

9
 10 *Prior Authorization*

11
 12 Due to its widespread usage and the significant administrative and clinical concerns it can present,
 13 the AMA addresses prior authorization through a multifaceted approach that includes a number of
 14 high-profile activities, including the release of Prior Authorization and Utilization Management
 15 Reform Principles to address priority concerns. The principles were developed by a workgroup of
 16 state and national medical specialty societies, national provider associations and patient
 17 representatives convened by the AMA. The 21 principles ([https://www.ama-](https://www.ama-assn.org/sites/default/files/media-browser/principles-with-signatory-page-for-slsc.pdf)
 18 [assn.org/sites/default/files/media-browser/principles-with-signatory-page-for-slsc.pdf](https://www.ama-assn.org/sites/default/files/media-browser/principles-with-signatory-page-for-slsc.pdf)) seek to
 19 improve prior authorization and utilization management programs by addressing broad categories
 20 of concern including: clinical validity; continuity of care; transparency and fairness; timely access
 21 and administrative efficiency; and alternatives and exemptions. Health plans, benefit managers and
 22 any other parties conducting utilization management, as well as accreditation organizations, have
 23 been urged to apply the principles to both medical and pharmacy benefits. The principles, which
 24 have gained widespread support since their release, with over 100 stakeholder organizations
 25 signing on in support of their objectives, include the following:

- 26
 27 • Any utilization management program applied to a service, device or drug should be based
 28 on accurate and up-to-date clinical criteria and never cost alone. The referenced clinical
 29 information should be readily available to the prescribing/ordering provider and the public.
 30 • Utilization management programs should allow for flexibility, including the timely
 31 overriding of step therapy requirements and appeal of prior authorization denials.
 32 • Utilization review entities should offer an appeals system for their utilization management
 33 programs that allows a prescribing/ordering provider direct access to a provider of the
 34 same training and specialty/subspecialty for discussion of medical necessity.
 35

36 The AMA has also engaged in two research projects to gather data on the impact of prior
 37 authorization on patients and physician practices. A web-based survey of 1000 practicing
 38 physicians conducted with a market research partner in December 2016 found that practices
 39 complete an average of 37 prior authorizations per physician per week, which take the physician
 40 and his/her staff an average of 16 hours—the equivalent of two business days—to process. Ninety
 41 percent of physicians reported that prior authorization delays patients’ access to necessary care.
 42 The survey results ([https://www.ama-](https://www.ama-assn.org/sites/default/files/media-browser/public/government/advocacy/2016-pa-survey-results.pdf)
 43 [assn.org/sites/default/files/media-](https://www.ama-assn.org/sites/default/files/media-browser/public/government/advocacy/2016-pa-survey-results.pdf)
 44 [browser/public/government/advocacy/2016-pa-survey-results.pdf](https://www.ama-assn.org/sites/default/files/media-browser/public/government/advocacy/2016-pa-survey-results.pdf)) serve as a valuable framework
 45 for the aforementioned principles and have provided a strong evidence base for AMA advocacy
 46 efforts related to prior authorization. The AMA is also partnering on an academic research project
 47 seeking to measure the overall impact of prior authorization on health care costs and outcomes.

48 The AMA also works closely with state medical associations and national medical specialty
 49 societies to address prior authorization and other utilization management issues through state
 50 legislation. Several bills passed by state legislatures have been based on the AMA’s model
 51 legislation, the “Ensuring Transparency in Prior Authorization Act” (

1 [assn.org/sites/default/files/media-browser/specialty%20group/arc/model-bill-ensuring-](https://www.ama-assn.org/sites/default/files/media-browser/specialty%20group/arc/model-bill-ensuring-transparency-in-prior-authorization.pdf)
2 [transparency-in-prior-authorization.pdf](https://www.ama-assn.org/sites/default/files/media-browser/specialty%20group/arc/model-bill-ensuring-transparency-in-prior-authorization.pdf)). The AMA's Prior Authorization Toolkit
3 ([https://www.ama-assn.org/system/files/media-browser/premium/psa/prior-authorization-](https://www.ama-assn.org/system/files/media-browser/premium/psa/prior-authorization-toolkit_0.pdf)
4 [toolkit_0.pdf](https://www.ama-assn.org/system/files/media-browser/premium/psa/prior-authorization-toolkit_0.pdf)) provides a useful overview of the current prior authorization landscape and tips for
5 reducing practice burdens related to prior authorization, including implementation of standard
6 electronic processes. In sum, prior authorization and other utilization management programs are
7 high-priority targets for the AMA.

8 *Educating Physicians*

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11 The AMA recognizes the importance of educating physicians and physicians-in-training about the
12 clinical uses and ethical considerations of genetic/genomic services. To assist physicians who are
13 encountering new precision medicine technologies, the AMA has partnered with Scripps
14 Translational Science Institute and The Jackson Laboratory to develop "Precision Medicine for
15 Your Practice" (<http://education.ama-assn.org/precision-medicine.html>), a series of short, online
16 continuing medical educational modules covering specific topics in genomics and precision
17 medicine, including expanded carrier screening in prenatal care, prenatal cell-free DNA screening,
18 somatic cancer panel testing, large scale sequencing in the healthy individual, large scale
19 sequencing as a diagnostic tool, and pharmacogenomics. In the near future, the AMA will be
20 adding modules on sequencing the healthy individual, pharmacogenomics and neurogenomics.

21
22 Additionally, the AMA is carrying out research to identify physicians' educational and resource
23 needs for appropriate implementation of precision medicine into practice. The AMA will continue
24 to develop tools to assist physicians with precision medicine needs.

25 *AMA and All of Us Initiative*

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27 As part of its pledge to assist with the PMI, which includes the All of Us Research Program, the
28 AMA is committed to actively working to improve patient access to personal medical information
29 and helping physicians leverage electronic tools to make health information more readily available;
30 developing and disseminating resources including toolkits, podcasts and fact sheets; and improving
31 awareness of the PMI/All of Us Initiative, and how to enroll in its cohort, among physicians.

32 *Health IT and Digital Health*

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36 Significant improvements in EHR and other health IT capabilities are critically needed for
37 precision medicine to reach its potential. Robust and interoperable health IT systems must be able
38 to access and display longitudinal health data from each patient regardless of where the data is
39 stored. EHRs are rich with biological, behavioral and environmental data; however, impediments to
40 accessing and enabling the secure exchange of data across health care systems must be overcome.
41 Clinical decision support that will enable application of the data to care management is also an
42 essential component; however, many EHR systems in use today do not have such capabilities, and
43 physicians are frustrated with the usability of EHR systems and report that they sometimes hamper
44 safe and effective care. The AMA actively promotes EHRs that can provide clinical decision
45 support and use genetic/genomic data to provide clinically meaningful information to physicians.

46
47 Beyond EHRs, the AMA is committed to understanding and influencing the evolution of health IT
48 and digital health, both of which are integral to the implementation of precision medicine. The
49 AMA provides leadership on digital solutions involving telemedicine and telehealth, mobile health,
50 wearables, and remote monitoring. Using the expertise of physicians and input from partners on the

1 leading edge of health technology, the AMA has developed resources, toolkits and training to help
 2 physicians navigate and maximize technology for improved patient care.

3 AMA POLICY

4

5 Policy H-460.908 acknowledges the increasingly important role of genomic-based personalized
 6 medicine applications in the delivery of care; calls for the development of educational resources
 7 and tools to assist in the clinical implementation of genomic-based personalized medicine; and
 8 directs the AMA to continue to represent physicians' voices and interests in national policy
 9 discussions of issues pertaining to the clinical implementation of genomic-based personalized
 10 medicine, such as genetic test regulation, clinical validity and utility evidence development,
 11 insurance coverage of genetic services, direct-to-consumer genetic testing, and privacy of genetic
 12 information. Policy D-460.968 supports the AMA's work with the PMI and also advocates for
 13 improvements to electronic health record systems that will enable interoperability and access
 14 without creating additional burdens and usability challenges for physicians.

15

16 Policy D-460.976 directs the AMA to maintain a visible presence in genetics and molecular
 17 medicine. Policy H-480.944 supports appropriate use of genetic testing, pre- and post-test
 18 counseling for patients undergoing testing, and physician preparedness in counseling patients or
 19 referring them to qualified genetics specialists, as well as the development of best practice
 20 standards concerning pre- and post-test genetic counseling. Under Policy H-460.902, the AMA
 21 opposes limiting the ordering of genetic testing based solely on physician specialty. The clinical
 22 application of next generation genomic sequencing is addressed by Policy H-460.905, while
 23 genome analysis and variant identification is the subject of Policy D-460.971. Policy D-480.987
 24 focuses on direct-to-consumer marketing and availability of genetic tests, and recommends that
 25 genetic testing be carried out under the supervision of a qualified health professional. Policy
 26 H-65.969 strongly opposes discrimination based on genetic information.

27

28 Policy H-185.939 supports flexibility in the design and implementation of value-based insurance
 29 design (VBID), which explicitly considers the clinical value of a given service or treatment when
 30 determining cost-sharing structures or other benefit design elements. Policy H-185.939 calls for
 31 active involvement of practicing physicians; the use of high-quality, evidence-based data; and
 32 transparency of the methodology and criteria used to determine high- or low-value services or
 33 treatments and coverage and cost-sharing policies. The policy states that VBID should not restrict
 34 access to patient care and must include an appeals process to enable patients to secure care
 35 recommended by their physicians. The policy also calls for plan sponsors to engage in ongoing
 36 evaluation of the plan designs to ensure VBID coverage rules are updated in accordance with
 37 evolving clinical evidence.

38

39 AMA policy promotes price transparency and education regarding cost-sharing by health plans
 40 (Policies D-155.987 and H-165.828). Policy H-320.949 states that utilization management criteria
 41 should be based on sound clinical evidence, permit variation to account for individual patient
 42 differences, and allow physicians to appeal decisions. Policy D-330.908 advocates for
 43 improvements in the LCD process, including increased transparency and a prohibition on Medicare
 44 contractors adopting another contractor's LCD without a full and independent review. Policy
 45 D-330.918 directs the AMA to work with national medical specialty societies and CMS to identify
 46 outdated coverage decisions that create obstacles to clinically appropriate patient care. Policy
 47 H-460.909 outlines principles for comparative effectiveness research, and Policy D-390.961
 48 advocates for adequate investment in this type of research and also better methods of data
 49 collection, development, reporting and dissemination of practical clinical decision-making tools.
 50 Policy H-155.960 promotes value-based decision-making, collection of clinical and cost data, and

1 cost-effectiveness research, while principles to guide value-based decision-making are delineated
2 in Policy H-450.938.

3 DISCUSSION

4

5 The Councils' work on precision medicine is timely given passage of the *21st Century Cures Act*
6 and continued funding of the PMI, including the All of Us Research Program, and the Cancer
7 Moonshot. The speed and volume of advances in genetics and genomics are impacting an array of
8 regulatory, coding and payment processes that remain very fluid and will continue to be closely
9 monitored by the AMA so that the physician perspective is clearly articulated. As with past health
10 care innovations, the initial period of implementation of genetic/genomic precision medicine is
11 complex and costly. Payers, policymakers and other stakeholders are challenged to keep up with
12 the rapid development of new tests and technologies and the generation of evidence supporting
13 their use, which are essential to ensuring patient safety while also preventing delays in payment
14 and coverage for valid and meaningful services. In the long run, the Councils anticipate that
15 genetic/genomic precision medicine services will become more affordable and in the mainstream
16 across a variety of medical specialties.

17

18 The Councils' recommendations build upon existing AMA policy to establish new, foundational
19 policy addressing the inconsistencies in payment and coverage of genetic/genomic precision
20 medicine services. The Councils recommend reaffirmation of seven integral policies: Policy
21 H-460.968, which directs the AMA's work on the PMI; Policy H-460.908, which directs the AMA
22 to continue engaging in policy discussions related to the clinical implementation of
23 genetics/genomics; Policy D-480.987, which focuses on direct-to-consumer marketing and
24 availability of genetic testing; Policy H-185.939, which supports implementation of value-based
25 insurance design, consistent with a series of principles regarding the clinical value of treatments
26 and services; Policy H-329.949, which focuses on utilization management-related barriers to care;
27 Policy H-65.969, which opposes discrimination based on genetic information; and Policy H-
28 460.902, which opposes limitations by payers on the ordering of genetic testing based solely on
29 physician specialty.

30

31 The Councils discussed the importance of sharing genomic variant data and ensuring that patients
32 and physicians are notified of clinical significance changes. The Councils recommend adding a
33 third clause to Policy D-460.971, which would encourage laboratories to establish a process by
34 which patients and their physicians could be notified when interpretation and clinical significance
35 changes for previously reported variants.

36

37 The Councils are concerned by the lack of transparency and standardization across payer coverage
38 determination processes, which may hinder access to valid and meaningful tests and therapeutics as
39 well as future innovations. Accordingly, the Councils recommend that the AMA encourage public
40 and private payers to adopt processes and methodologies for determining coverage and payment for
41 genetic/genomic precision medicine that promote transparency and clarity; involve stakeholders
42 across disciplines, including genetic/genomic medicine experts; describe the evidence being
43 considered and methods for updating the evidence; provide opportunities for comment and
44 meaningful reconsiderations; and incorporate value assessments that consider the value of
45 genetic/genomic tests and therapeutics to patients, families and society as a whole.

46

47 The Councils further recognize that the usefulness of many new genetic tests and therapeutics
48 cannot feasibly be demonstrated using an RCT approach and will require novel research
49 approaches. Accordingly, the Councils recommend that the AMA encourage coverage and payment
50 policies for genetic/genomic precision medicine that are evidence-based and take into account the

1 unique challenges of traditional evidence development through RCTs, and work with test
2 developers to establish clear thresholds for acceptable evidence for coverage.

3 Because patient access to genetic/genomic precision medicine services is largely dependent on
4 public and private insurer decisions to pay for them, the Councils recommend that the AMA work
5 with national medical specialty societies and other stakeholders to encourage the development of a
6 comprehensive payment strategy that facilitates more consistent coverage of genetic/genomic tests
7 and therapeutics.

8
9 As additional steps toward timely and appropriate application of precision medicine into practice,
10 the Councils recommend that the AMA encourage national medical specialty societies to develop
11 clinical practice guidelines incorporating precision medicine approaches that support adoption of
12 appropriate, evidence-based services; and support continued research and evidence generation
13 demonstrating the validity, meaningfulness, cost-effectiveness and value of precision medicine.

14
15 Finally, the Councils recognize that the payment and coverage landscape for precision medicine is
16 evolving, and emphasize that the Councils' work is ongoing. Future studies may be warranted by
17 further innovation and as new technologies—such as artificial intelligence—are adopted into
18 clinical practice.

19
20 **RECOMMENDATIONS**

21
22 The Council on Medical Service and the Council on Science and Public Health recommend that the
23 following be adopted and that the remainder of the report be filed:

- 24
25 1. That our American Medical Association (AMA) reaffirm Policy H-460.968, which directs
26 the AMA to work with the Precision Medicine Initiative, develop resources for physicians
27 on this initiative, and continue to advocate for improvements to electronic health record
28 systems that will enable interoperability and access while not creating additional burdens
29 and usability challenges for physicians. (Reaffirm HOD Policy)
- 30
31 2. That our AMA reaffirm Policy H-460.908, which directs our AMA to continue
32 representing physicians in policy discussions of issues related to the clinical
33 implementation of genomic-based medicine, such as genetic test regulation, clinical
34 validity and utility evidence development, insurance coverage of genetic services, direct-
35 to-consumer genetic testing, and privacy of genetic information. (Reaffirm HOD Policy)
- 36
37 3. That our AMA reaffirm Policy D-480.987, which recommends that genetic testing be
38 carried out under the supervision of a qualified health professional; encourages individuals
39 interested in obtaining genetic testing to contact a qualified health professional; and directs
40 the AMA to educate and inform physicians on the types of genetic tests available directly
41 to consumers. (Reaffirm HOD Policy)
- 42
43 4. That our AMA reaffirm Policy H-185.939, which supports flexibility in the design and
44 implementation of value-based insurance design programs consistent with a series of
45 principles regarding the clinical value of treatments and services. (Reaffirm HOD Policy)
- 46
47 5. That our AMA reaffirm Policy H-329.949, which states that utilization management
48 criteria should be based on sound clinical evidence, permit variation to account for
49 individual patient differences, and allow physicians to appeal decisions. (Reaffirm HOD
50 Policy)

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6. That our AMA reaffirm Policy H-65.969, which strongly opposes discrimination based on an individual's genetic information; support legislation that protects against genetic discrimination and misuse of genetic information; and supports education for health care providers and patients on the protections against genetic discrimination currently afforded by federal and state laws. (Reaffirm HOD Policy)
 7. That our AMA reaffirm Policy H-460.902, which opposes limitations by public and private payers on the ordering of genetic testing that are based solely on physician specialty. (Reaffirm HOD Policy)
 - ~~8. That our AMA modify Policy D-460.971 by addition and deletion to read as follows:

Our AMA: (1) encourages payers, regulators and providers to make clinical variant data and their interpretation publicly available through a system that assures patient and provider privacy protection; and (2) encourages laboratories to place all clinical variants and the clinical data that was used to assess the clinical significance of these results, into the public domain which would allow appropriate interpretation and surveillance for these variations that can impact the public's health.; and (3) encourages laboratories to establish a process by which patients and their physicians could be notified when interpretation and clinical significance changes for previously reported variants. (Modify Current HOD Policy)~~
 9. That our AMA encourage public and private payers to adopt processes and methodologies for determining coverage and payment for genetic/genomic precision medicine that:
 - a. Promote transparency and clarity;
 - b. Involve multidisciplinary stakeholders, including genetic/genomic medicine experts and relevant national medical specialty societies;
 - c. Describe the evidence being considered and methods for updating the evidence;
 - d. Provide opportunities for comment and review as well as meaningful reconsiderations; and
 - e. Incorporate value assessments that consider the value of genetic/genomic tests and therapeutics to patients, families and society as a whole, including the impact on quality of life and survival. (New HOD Policy)
 10. That our AMA encourage coverage and payment policies for genetic/genomic precision medicine that are evidence-based and take into account the unique challenges of traditional evidence development through randomized controlled trials, and work with test developers and appropriate clinical experts to establish clear thresholds for acceptable evidence for coverage. (New HOD Policy)
 11. That our AMA work with interested national medical specialty societies and other stakeholders to encourage the development of a comprehensive payment strategy that facilitates more consistent coverage of genetic/genomic tests and therapeutics that have clinical impact. (New HOD Policy)
 12. That our AMA encourage national medical specialty societies to develop clinical practice guidelines incorporating precision medicine approaches that support adoption of appropriate, evidence-based services. (New HOD Policy)

- 1 13. That our AMA support continued research and evidence generation demonstrating the
- 2 validity, meaningfulness, short-term and long-term cost-effectiveness and value of
- 3 precision medicine. (New HOD Policy)

Fiscal Note: Less than \$500

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