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Million Hearts—Where Population Health and Clinical Practice Intersect

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Burden of Cardiovascular Disease

More than 2 million heart attacks and strokes occur each year, resulting in > 800 000 cardiovascular deaths. Despite declining trends in mortality, cardiovascular disease is still the leading cause of death in the United States, and the prevalence of hypertension, dyslipidemia, and tobacco use can still be greatly improved.¹ Of US adults aged 18 years, 31% have hypertension, and this prevalence has shown little improvement in the past decade. Of these adults, 70% receive pharmacological treatment, but only 46% are controlled.² We see similar trends in hypercholesterolemia.³ Although there has been a long-term trend toward declining cardiovascular disease mortality because of both improvements in risk factors and treatments,⁴ much additional progress is needed in both clinics and communities.

The Million Hearts Initiative

Million Hearts is a population-health initiative, jointly led by the Centers for Disease Control and Prevention and the Centers for Medicare and Medicaid Services. Million Hearts is committed to improving the cardiovascular health of the nation through policy and systems-level changes that impact both community and clinical practice interventions. Doing so will require a common agenda from which all partners can work and focused outcomes by which all progress can be measured. It is a time-limited, concerted effort from public health, clinical, community, and advocacy stakeholders to improve risk factors for and subsequent outcomes of cardiovascular disease.

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Disclosures

None.

Million Hearts complements a number of existing public and private initiatives, including Healthy People 2020,⁵ Let's Move!⁶ and Life's Simple 7.⁷ The initiatives' community-based interventions will focus on tobacco cessation, sodium reduction, and artificial trans fat elimination. These community interventions will be carried out in conjunction with a network of public health practitioners, including state and local departments of health, advocacy groups, and community-based organizations. Clinical practice policy and systems changes will improve performance on the delivery of underused clinical preventive services, specifically, aspirin use for those at risk for cardiovascular events, blood pressure control, cholesterol management, and smoking cessation, which will in turn improve cardiovascular health. It is our intention to present here the rationale behind the clinical intervention focus areas of Million Hearts and to outline the value of this integrated approach of public health and clinical practice.

Population Health Supports Clinical Practice

Challenges arise in clinical practice that clinicians and the healthcare system alone cannot control. These include aspects of patient self-management, health literacy, and social determinants of health. Public health efforts, like Million Hearts, can assist with broad-reaching policy and systems changes that complement health care—efforts like payment models that align reimbursement with outcomes, full deployment of health information technology, team-based care, and accessible community services. Such overarching solutions can result in the provision of much-needed counseling or therapeutic services, help generate culturally and linguistically tailored health education materials, bring a skilled team together to help meet patient and caregiver needs, and give providers and patients tools to better manage risk factors or chronic conditions. Additional community-based population health efforts, such as sodium reduction in processed and restaurant foods, smoke-free laws, or public education, can make the communities in which we live, work, and play more supportive of health for all.

Only collective and complementary action will successfully tackle the big problem of preventing a million heart attacks and strokes. In these early months of Million Hearts, we are witnessing the formation of a network of networks as state and local partners, professional societies, advocacy organizations, organizations focused on quality improvement, and health information technology experts extend their work to develop synergies with others. Many are beginning to partner with each other in creative and effective ways. Million Hearts serves as a stimulus, a forum, and a celebrant of this work: a conduit for identifying effective practice-based strategies and evidence-based interventions, scaling solutions to maximize population reach, and translating them into tools and resources tailored to various audiences.

Clinical Quality Measures

Another important component of Million Hearts is clinical quality measurement to monitor and improve care delivery. On behalf of Million Hearts, clinicians and scientists from Centers for Disease Control and Prevention, Centers for Medicare and Medicaid Services, and the Office of the National Coordinator for Health Information Technology, with

significant additional input, selected the focused set of aspirin use for those at risk for cardiovascular events, blood pressure control, cholesterol management, and smoking cessation clinical quality measures (Table), choosing measures that were evidence based, supportive of the initiative's goals, and tightly linked to population health outcomes. Several issues were considered when selecting approaches to measure and track progress in Million Hearts. First, it is important to choose a uniform and simple set of scientifically sound measures.⁸ Whenever possible, measures were selected that had been endorsed by the National Quality Forum (NQF)—this ensured that the selected measures had been extensively evaluated according to criteria including importance to measure and report, scientific acceptability of measure properties, usability, and feasibility. NQF endorsement also ensured broad stakeholder review, which has since been supplemented by additional public comment through the process used by the Centers for Medicare and Medicaid Services Physician Quality Reporting System (PQRS). These efforts are helping to align measurement efforts across public and private sectors, which will streamline and simplify reporting requirements for practitioners in systems such as the Medicare and Medicaid Electronic Health Record Incentive Programs and PQRS.

It is equally important to recognize the value of clinicians' judgment and the enormous challenges of the work they undertake, as well as the importance of incorporating patient preferences in decision making. As noted by Bikdeli and Barreto-Filho,⁹ proper case selection and complex individual risk–benefit analyses are critical and tough decisions that professionals and patients face every day. Furthermore, aspirin, antihypertensives, and statins are not appropriate for every patient, though we believe that effective tobacco cessation therapies should be offered to all smokers. Appropriate and evidence-based treatments must be individualized to improve risk factors and outcomes.⁸ Although there is a potential for unintended consequences of measurement, and the clinical nuances of good decision making need to be recognized, a thoughtful, standard measure set provides great opportunity to more effectively monitor and improve clinical care at a population level. Current performance on Million Hearts–related measures varies widely in clinical systems, from well below 50% to nearly 90%. With this information in mind, the targets for performance on the Million Hearts measures in healthcare settings were set at 70%, rather than at an unrealistic or potentially harmful 100%. However, in general, national performance on measures of aspirin use for those at risk for cardiovascular events, blood pressure control, cholesterol management, and smoking cessation,¹⁰ all under 50%, suggests that it is time to specifically address undertreatment of this population at risk.

Blood pressure control is probably the clinical target of change advocated by Million Hearts with the most potential impact and least controversy. Consequently, a great deal of thought and discussion went into deciding on an appropriate clinical quality measure. Drozda and Holmes¹¹ suggest that Million Hearts should adopt the ACC/AHA/AMA Physician Consortium for Performance Improvement (PCPI) hypertension control measure, percentage of patients 18 years of age with a diagnosis of hypertension seen within a 12-month period who have a blood pressure <140/90 mm Hg, or who have a blood pressure 140/90 mm Hg and were prescribed 2 antihypertensive medications during their most recent office visit.¹² We believe that PQRS 236/NQF 0018, percentage of patients aged 18 through 85 years who had a diagnosis of hypertension and whose blood pressure was adequately controlled

(<140/90) during the measurement year better meets the criteria for measure selection outlined above. This measure is exclusively focused on hypertension control outcomes rather than a complex mixture of outcome and process; it is simple to measure, interpret, and explain and has been endorsed by NQF. Current data suggest that 14 million Americans are unaware that they have hypertension, 6 million are aware but not currently treated, and 17 million are currently treated with medication but do not have their hypertension controlled. It is these gaps in diagnosis, treatment, and control that spur the selection of a measure targeted to address undertreatment.

Although a number of existing measures could, in principle, lead to either over- or undertreatment of blood pressure, we believe that little existing science supports the hypothesis that PQRS 236/NQF 0018 performs less well than existing alternatives in this regard. In fact, we believe that some alternative measures, including the PCPI measure, could lead to substantial undertreatment. Many patients have hypertension that requires treatment with >2 medications. Data from a recently published study found that 1 in every 50 patients with incident hypertension who were started on treatment developed resistant hypertension within a median of 1.5 years from initial treatment and 16% of patients on 3 or more drugs continued to have resistant hypertension.¹³

Although we believe our choices are reasonable, Million Hearts is committed to updating and refining our measures as the science and evidence direct. The Million Hearts cholesterol management measures reflect the risk-stratified treatment goals in the Adult Treatment Panel III clinical guidelines¹⁴ and were intended to allow participation whether or not participating practices currently used electronic health records. We acknowledge that these may need to change to reflect the soon-to-be-released Adult Treatment Panel IV guidelines. We anxiously await those guidelines and will review and adjust the measures as needed to reflect the latest evidence-based care guidance.

Monitoring and Evaluation

As Bikdeli and Barreto-Filho⁹ state, it is challenging to monitor the success of Million Hearts. The measures that have been considered for monitoring and evaluation include policy tracking; social media reach; partner engagement; individual knowledge, behavior, and attitude change; changes in risk factors; disparities; health outcomes; and costs. Related data sources consist of claims, registries, and electronic health records as well as data from public health surveillance efforts like the National Health and Nutrition Examination Survey, the National Ambulatory Medical Care Survey, the Healthcare Cost and Utilization Project, and the National Vital Statistics System.

Conclusions

The burden of cardiovascular disease in the United States is large and expensive, and the opportunity to improve the heart health of the nation is before us. Million Hearts aims to bridge the gap between public health and clinical practice through effective public policy, organizational systems change, focused clinical quality measurement, and the implementation of a wide breadth of complementary evidence- and practice-based

interventions. Clinicians and healthcare systems must play a central role in moving the nation forward toward Million Hearts' audacious goal. We look forward with optimism that together we will prevent a million—or more—heart attacks and strokes by 2017.

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Table

Million Hearts Clinical Quality Measures

Domain	Measures
Aspirin use	IVD: use of aspirin or another antithrombotic Percentage of patients aged 18 y and older with IVD with documented use of aspirin or other antithrombotic (PQRS 204/NQF 0068)*
	Preventive care and screening: HBP Percentage of patients aged 18 y and older who are screened for HBP (PQRS 317)
Blood pressure control	HTN: controlling HBP Percentage of patients aged 18 through 85 y who had a diagnosis of HTN and whose blood pressure was adequately controlled (<140/90) during the measurement year (PQRS 236/NQF 0018)
	Preventive care and screening: cholesterol–fasting low LDL test performed AND risk-stratified fasting LDL Percentage of patients aged 20 through 79 y whose risk factors have been assessed and a fasting LDL test has been performed AND whose risk-stratified fasting LDL is at or below the recommended LDL goal (PQRS 316)
	Diabetes mellitus: LDL control in diabetes mellitus Percentage of patients aged 18 through 75 y with diabetes mellitus who had most recent LDL-C level in control (<100 mg/dL) (PQRS 2/NQF 0064)
Cholesterol management	IVD: complete lipid panel and LDL control Percentage of patients aged 18 y and older with IVD who received at least 1 lipid profile within 12 months and who had most recent LDL-C level in control (<100 mg/dL) (PQRS 241/NQF 0075)
	Preventive care and screening: tobacco use Percentage of patients aged 18 y and older who were screened about tobacco use 1 or more times within 24 months and who received cessation counseling intervention if identified as a tobacco user (PQRS 226/NQF 0028)

PQRS indicates 2012 Physician Quality Reporting System; NQF, National Quality Forum; IVD, ischemic vascular disease; HBP, high blood pressure; HTN, hypertension; and LDL-C, low-density lipoprotein cholesterol.

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