

# Improving health in the USA: progress and challenges



The health of Americans continues to improve. Life expectancy at birth, 78·7 years (76·2 years for men and 81·0 years for women), has never been higher.<sup>1</sup> Age-adjusted death rates for the four leading causes of death—heart disease, cancer, chronic lower respiratory diseases, and stroke—are all falling.<sup>1</sup> Immunisation rates for young children are high, racial and ethnic disparities in childhood vaccinations have largely been eliminated, and most vaccine-preventable diseases of childhood are now at historically low levels.<sup>2,3</sup> Deaths from motor vehicle crashes are at their lowest levels since 1950, and teen pregnancies have fallen to their lowest rate in seven decades.<sup>4,5</sup> What's wrong with this picture?

Although increases in US health-care costs have recently slowed, health spending reached US\$2·8 trillion in 2012, or \$8915 per person, and accounted for 17·2% of gross domestic product.<sup>6</sup> These expenditures exceed those of other high-income countries in Europe, Asia, and North America, but a recent report found US life expectancy and other health outcomes generally poorer than in other high-income countries.<sup>7</sup> A fragmented health-care delivery system, physical and social environments, and individual risk behaviours all play a part.

Differences in health outcomes as great as those found between the USA and peer countries also occur among populations and geographical areas within the USA. For example, life expectancy at birth is 3·8 years greater for whites than for blacks, and the infant mortality rate for blacks is double that for whites.<sup>1</sup> The age-adjusted death rate of people living in Mississippi is 59% higher than for people living in Hawaii.<sup>1</sup> Educational level and its socioeconomic correlates also play a powerful part in longevity; in all racial and ethnic groups in the USA, individuals with 4 years of education beyond high school live longer than those without this educational achievement.<sup>8</sup>

In this *Lancet* Series on the health of Americans,<sup>9–13</sup> authors, including those from the Centers for Disease Control and Prevention (CDC) and colleagues from other parts of the US Department of Health and Human Services, describe some of the major health challenges facing the country. In terms of infectious diseases, continuing challenges include increasing the uptake of human papillomavirus vaccine, reducing health-care-associated and foodborne infections,

promoting screening and treatment of hepatitis C and HIV infections, and addressing the increasing problem of antimicrobial resistance.<sup>10</sup> With high rates of obesity and an ageing American population, the burden of cardiovascular disease, cancer, and diabetes accounts for the largest portion of suffering and health costs.<sup>9</sup> For younger Americans, injuries and violence are the leading causes of death; an emerging problem is overdose with prescription opioid analgesics.<sup>11</sup>

Accompanying the *Lancet* Series are two viewpoints that explore CDC's global health role and the intersection of public health and health security.<sup>14,15</sup> The interconnections between the health of Americans and the health of people living in other countries require that CDC has strong global health commitments and partnerships. Activities to improve influenza pandemic preparedness and response serve as current examples. Response to the 2010 Haitian earthquake and the US President's Emergency Plan for AIDS Relief also illustrate the humanitarian and economic development goals of global health assistance. The terrorist attacks of Sept 11, 2001, and the anthrax attacks that followed, sensitised Americans to the risks of terrorism and bioterrorism within the USA. As a result, major investments were made to improve health security, including the development of enhanced surveillance systems, medical countermeasures, and laboratory networks—all designed to improve the overall capacities of public health agencies to respond to both everyday and emerging health problems.

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For Million Hearts see  
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Although not topics of this *Lancet* Series, environmental health, occupational health, and developmental disabilities also pose challenges for the USA. While US air quality has improved substantially, fine-particulate air pollution (particles with an aerodynamic diameter of  $\leq 2.5 \mu\text{m}$  or  $\text{PM}_{2.5}$ ) remains a problem in some states, such as California, and is associated with cardiovascular disease and a decrease in life expectancy.<sup>16,17</sup> To reduce the health effects of  $\text{PM}_{2.5}$ , the US Environmental Protection Agency has recently taken several actions, including strengthening its primary annual fine particle national ambient air quality standard.<sup>18</sup> Emerging manufacturing technologies, such as those used to produce nanomaterials, raise new occupational health questions, including whether manufactured nanomaterials present occupational health risks and, if so, how these risks can be minimised. In the area of childhood neurodevelopmental disorders, much attention has been focused on increases over the past decade in diagnoses of autism and attention deficit hyperactivity disorder.<sup>19</sup>

Health in the USA can be improved by policies that protect health in the broadest segments of the population; by better access to, and improved quality of, health care; by increasing the delivery of preventive services within health-care settings; and by individual behavioural change. Federal, state, and local governments have important roles in establishing policies to promote public health.<sup>20</sup> State governments have helped reduce smoking rates by increasing excise taxes on tobacco products and creating smoke-free workplaces and other public spaces. Laws mandating use of seat belts and child safety seats, as well as the establishment of legal driving limits for blood alcohol concentration, have reduced deaths from car crashes.

As described in this Series, the Affordable Care Act of 2010 will make health insurance available to tens of millions of previously uninsured individuals, and also includes provisions to improve the quality and the efficiency of health care.<sup>12</sup> Evidence-based preventive services, such as screening for blood pressure, cholesterol, and colorectal cancer, will be covered without patient copayment for people in appropriate age or risk groups, and yearly wellness visits will now be covered for Medicare recipients. Accountable Care Organizations, which comprise doctors, hospitals, and other providers, will create incentives to coordinate and improve patient management across care settings.

Some health problems are best addressed by combining both public health and clinical practice approaches. A good example is Million Hearts™, a national initiative with the goal of preventing 1 million heart attacks and strokes in 5 years. The clinical approaches include increasing aspirin use in high-risk individuals, improving blood pressure control and cholesterol management, and providing more support for smokers to quit, while public health approaches are being taken to decrease smoking and reduce intake of artificial trans fat and sodium.

Americans deserve better health, particularly given the amount of money that they spend on health care. We have made progress, but can do much better.

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## Improving livebirth rates: a role for preconception aspirin?



Failed implantation, fetal death, pre-eclampsia, fetal growth restriction, preterm birth, and placental abruption have all been linked to abnormal early placental development. Thus, the potential to affect placental development and function to decrease such adverse pregnancy outcomes is an exciting focus of research in preconception and early pregnancy care.

Daily low-dose aspirin given before 16 weeks' gestation to women at high risk of adverse pregnancy outcomes mitigates that risk, whereas starting treatment after 16 weeks does not.<sup>1–3</sup> In a meta-analysis,<sup>4</sup> Villa and colleagues reported that low-dose aspirin started before 16 weeks' gestation reduced the frequency of pre-eclampsia in high-risk women.<sup>4</sup> Jim Thornton<sup>5</sup> asserts that there is no further question about the effectiveness of low-dose aspirin started during pregnancy in decreasing some adverse outcomes in high-risk women.

In *The Lancet*, Enrique Schisterman and colleagues<sup>6</sup> report the results of the EAGeR trial of preconception-initiated aspirin to reduce the risk of pregnancy loss in women with one to two previous losses. This multicentre, block-randomised, placebo-controlled study compared preconception-initiated low-dose aspirin plus folic acid to placebo plus folic acid, and was originally designed to assess the effects of low-dose aspirin on implantation and placentation.<sup>7</sup> The original study cohort was restricted to women with one previous pregnancy loss before 20 weeks' gestation and within 1 year of enrolment. However, because of poor recruitment, the study was expanded to include women with one or two previous losses at any gestational age and at any time relative to enrolment. The investigators suggested that this expanded cohort allowed for the assessment of preconception-initiated low-dose aspirin in a "more pathologically heterogeneous population".<sup>7</sup>

In the overall study population (ie, the original and expanded eligibility cohorts combined), no improvement was seen in livebirth rate—309 (58%) of 535 in the low-dose aspirin group had livebirths, compared with 286 (53%) of 543 in the placebo group (absolute difference in livebirth rate 5.09% [95% CI –0.84 to 11.02]). In the original cohort, however, a significant improvement in livebirth rate was seen (62% [151/242] vs 53% [133/250], absolute difference 9.20% [0.51 to 17.89]). Secondly, for the overall study population, more women taking low-dose aspirin than those taking placebo had a positive pregnancy test, a difference that was more pronounced in the original cohort. The investigators propose that a higher implantation rate, as shown by positive pregnancy tests, was the driver of the higher livebirth rate in the original cohort. However, they conclude that their data do not support the general use of low-dose aspirin to reduce the risk of pregnancy loss.

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