"In the last 20 years, we're living longer, medical care and access to healthcare is better, and we've made an enormous amount of discoveries," says Georges C. Benjamin, executive director of the American Public Health Association.

"Immunization adherence, disaster preparedness, and physical and nutritional therapies are all improving," Benjamin says. In addition to tobacco, Benjamin points to lower teen pregnancy rates, sexually transmitted disease (STD) education, and drastically lowered rates of injury from auto accidents as major successes in the past 2 decades.

Since 1995, life expectancy has increased from age 75 to 78 years. Gaining a year is a big deal; three is a lot," Benjamin says. He says that the nation is working to address obesity, which is finally poised to decline in the future, as rates have begun to level off for some.

Following are some of the landmark public health issues that have been the focus of the past 20 years.

A Decline in Cardiovascular Disease

In recent years, hospitalization rates for acute cardiovascular disease and stroke have declined more rapidly than hospitalization rates for other conditions. Between 1999 and 2011, rates of hospitalization dropped 38% for heart attack, 30.5% for heart failure, and 33.6% for stroke.

Daniel Blumenthal, president of the American College of Preventive Medicine, points out that we have been better at outreach, making an effort to reach people who don't know their blood pressure. "You can get your blood pressure checked at the fire department, in barber shops, pharmacies, and health fairs. We've done a good job at education and outreach."

Declines in the prevalence of such cardiovascular risk factors as uncontrolled hypertension, elevated cholesterol, and smoking; and improvements in treatments, medications, and quality of care all contributed, says Blumenthal. "We have better control of cholesterol because of statins. But we still have a long way to go," he adds, pointing out that heart attack and stroke remain two of the top three leading causes of death and disability.

A Slowing Rise in Obesity

In 2009-2010, the prevalence of obesity was 35.5% among adult men and 35.8% among adult women, with no significant change compared with 2003-2008. Obesity rates seem to be leveling off," says Blumenthal.

Still, no state has a prevalence of obesity less than 20%. "We have become aware of obesity as a public health problem. It will affect gains in cardiovascular disease prevention and cancer prevention."

"My opinion is that cheap calories -- fast food joints -- have played a major role. If you watch TV, there are multiple ads for pizza, hamburgers, tacos -- all bigger for less," says Blumenthal.

"The awareness that exists now is going to help us. We're looking at more public health initiatives and at taxing sugar-sweetened beverages. Under the Affordable Care Act (ACA), we are requiring chain restaurants to post calorie counts."

Benjamin agrees with these initiatives. He says that we have made a great national effort to address obesity, especially by identifying children early on, and that the country is working on changing diets and encouraging kids to be more active. "We are seeing some early signs that the growth of obesity has flattened out."
A Reduction in Tobacco Use

"Tobacco cessation plays a major role in public health and has affected rates of cardiovascular illness, cancer, and kidney disease," said Blumenthal. Since studies documenting the risks associated with smoking in 1950 by Richard Doll,[7] followed by the Surgeon General's Report on Smoking and Health released in 1964,[8] adult smoking rates have gradually decreased. In 1964, the smoking rate was 42% among American adults. By 1995, the smoking rate was down to 24.7%[9]; and 10 years later (2005), 20% of Americans were still lighting up.

Federal laws that put a tax on cigarettes, a ban on flavored cigarettes, restrictions on youth access, education campaigns, and smoking bans in public places have all had an effect. As of 2013, the overall prevalence of US adult smoking is approximately 18%, less than half of what it was in 1964.[10]

Blumenthal notes that only small improvements have been made since the early years following the Surgeon General's Report, and there is no evidence that smoking cessation is on the rise.

"E-cigarettes could put us at a stalemate," he says, "but we don't know yet. One school of thought says that e-cigarettes are a gateway to tobacco use. The other school says that they are an aid for quitting."

Centers for Disease Control and Prevention (CDC) Director Tom Frieden has one clear message about nicotine use following a recent survey that revealed that e-cigarette use had increased among middle and high school students in just 1 year. "We want parents to know that nicotine is dangerous for kids at any age, whether it's an e-cigarette, hookah, cigarette, or cigar." He says, "Adolescence is a critical time for brain development. Nicotine exposure at a young age may cause lasting harm to brain development, promote addiction, and lead to sustained tobacco use."[11]

Cancer Prevention

"We've done a good job of improving cancer screening and ridding ourselves of some of the disparity in screening of visible minorities through education and public programs," says Benjamin.

The cancer death rate (per 100,000 population) has been continuously declining for 2 decades, from a peak of 215.1 in 1991 to 171.8 in 2010. This 20% decline translates to the avoidance of approximately 1,340,400 cancer deaths (952,700 among men and 387,700 among women) during this time period.[12]

Reductions in tobacco use, overall better screening for breast and colon cancer over the past 2 decades, pap tests, and the human papillomavirus (HPV) vaccine—preventing the leading cause of cervical cancer—have all contributed to the reduction.[13]

The National Breast and Cervical Cancer Early Detection Program, implemented in 1990, has reduced disparities by providing breast and cervical cancer screenings to uninsured women, serving 4.7 million women between 1991 and 2013. This program has led to the diagnosis of more than 66,198 breast cancers, 3625 invasive cervical cancers, and 169,598 premalignant cervical lesions.[14]

Although screening has improved in the past 20 years, recent reports suggest that screening targets have not been met since 2010. Some demographic subgroups attained targets; however, screening overall was below target with no improvement from 2010 to 2013 in breast, cervical, or colorectal cancer screening. Cervical cancer screening declined from 2010 to 2013.

"It is concerning to see a stall in colorectal cancer screening rates," says Lisa C. Richardson, director of CDC's Division of Cancer Prevention and Control. "We must find new ways to make people and providers aware that being tested for colorectal cancer could prevent cancer and save their lives."[15]

Despite free access to screening through the Affordable Care Act, the 2013 National Health Interview Survey report found that among adults without insurance or a usual source of healthcare, fewer than one fourth reported recent colorectal cancer screening, compared with more than 60% of adults who have private insurance or a usual source of healthcare.[16]
Maternal and Infant Health

"We have had real success in the prevention of neural tube defects (NTDs) by adding folic acid to cereal products and encouraging women to take folic acid," says Blumenthal. "A real difference has been made in cases of spina bifida."

Mandatory folic acid fortification of cereal grain products labeled as enriched in the United States beginning in 1998 contributed to a 36% reduction in NTDs from 1996 to 2006 and prevented an estimated 10,000 NTD-affected pregnancies in the past decade, resulting in a savings of $4.7 billion in direct costs.[17-19]

The success story is consumer education and related efforts by the food industry. The proportion of women reporting having heard or read about the benefits of folic acid steadily increased from 52% in 1995 to 84% in 2005. A 2005 survey of women found that 19% knew that folic acid prevented birth defects, an increase from 4% in 1995. The proportion of women who reported learning about folic acid from healthcare providers increased from 13% in 1995 to 26% in 2005.[20]

Another notable achievement in childhood public health was the result of the Lead Contamination Control Act of 1988, which, by 2008, reduced the proportion of children aged 1-5 years with elevated blood lead levels, from 88.2% in 1976-1980 to 1% in 2003-2008.[21,22]

Leveling the Field

As the only industrialized nation that does not provide health coverage to all of its citizens, the Patient Protection and Affordable Care Act is definitively one of the biggest reforms in America's healthcare in the past 20 years.

It has been 5 years since the Act was passed. "It's too early to have data, but we know that people die because of no health insurance,"[23] says Benjamin. "It should have an impact on health. We're seeing attitudes and feelings change about how people are doing medically."

"Probably the most profound impact on public health has been recognition of social determinants of health. The Affordable Care Act was huge. It changed the conversation," says Omar Khan, associate vice-chair of the Department of Family and Community Medicine and medical director for Community Health and the Eugene duPont Preventive Medicine and Rehabilitation Institute. Khan believes that in addition to reform, the change in healthcare access in the past 20 years has been largely due to social change.

"We now know that social justice, inclusion, and health do not exist in isolation," says Khan. "Where we are born, who we are, what we look like, our race, our sexual orientation, and whether we live in poverty all go into the discussion on health."

Benjamin agrees, saying, "If you look at mortality rates for lung cancer, there has been a reduction in disparity and a reduction in smoking among African Americans. But we still have a long way to go."

"One of our core tenets is health equity. What can we do to give people an equal chance at health? With the Affordable Care Act, we should be able to get data by ethnicity." Benjamin says that research programs are woefully short on ethnic minorities. "The vast majority of studies are done on white males," he says.

"African Americans have higher death rates than any other group. A lot of it is due to poverty, education, income, and jobs." Benjamin says that there are big gaps in preventive services, which must be closed.

Unintentional Injuries

Motor Vehicle Accidents

Motor vehicle fatalities per 100,000 population from 1995 to 2013 declined from approximately 16% to 10%. Seat belt laws, safer vehicles, and improved safety of roadways and regulations all played a part.[25]

"The car used to be a death trap," says Benjamin. "Now we have better designs with side air bags and wheels that don't
lock up." He also points to new telescopic steering wheels that retract in the case of a crash, minimizing potential injury to the driver.

Blumenthal agrees that we have made progress but notes that new problems are always arising. "When I first heard 'Don't text and drive,' I thought, are you kidding me? I can't even walk and text at the same time. I keep bumping into stuff!"

But a downward trend on motor vehicle safety has not been secured. According to the National Highway Traffic Safety Administration, in 2012, a total of 33,561 people died in motor vehicle crashes in the United States—a 3.3% increase, the first increase in fatalities since 2005, when there were 43,510 fatalities.[25]

US Transportation Secretary Anthony Foxx responded to the increase, saying, "As we look to the future, we must focus our efforts to tackle persistent and emerging issues that threaten the safety of motorists, cyclists, and pedestrians across the nation."[26]

Violence

"In the past 20 years, we have come to be aware of violence as a public health issue. It used to be seen as only a police issue," says Blumenthal.

"We have seen that we can help some of those people engaged in violence. Educational programs keep young people busy after school and during the summers. The thing we haven't achieved is gun control. I'm not optimistic about that, but it's an important challenge," he adds.

Khan agrees. "There has been no effective conversation about deaths from firearms. The Brady bill[27] is more than 20 years old. We need stricter background checks. Children still die daily, and we have done little about it."

Gun deaths since 1999 are on the rise. Firearm fatalities outpaced motor vehicle deaths in 14 states and the District of Columbia in 2011, according to the Violence Policy Center (VPC). "Gun violence is a public health crisis with an unacceptable toll on human life," says VPC Legislative Director Kristen Rand. "To reduce gun death and injury, firearms must be regulated for health and safety just as we regulate motor vehicles and all other consumer products."[28]

Substance Use and Addiction

In 2013, an estimated 24.6 million Americans aged 12 years or older—9.4% of the population—had used an illicit drug in the past month. This number is up from 8.3% in 2002.[29] The increase mostly reflects the recent rise in the use of marijuana, the most commonly used illicit drug.

"Drugs and alcohol continue to be a challenge," Benjamin laments, "And the problem is increasing, with inadequate resources to address it."

Rates of heroin use have more than doubled since 2002 in the United States. In 2013, an estimated 517,000 persons reported past-year heroin use or dependence.[30,31] The substances reported to be used prior to heroin included alcohol, marijuana, cocaine, or opioid pain relievers.

Benjamin says, "We are seeing a lot of overdoses. We have an epidemic of opiate use and are seeing that opiates lead to people using heroin and other drugs." He said that people end up with a lot of prescription drugs in their medicine cabinets. "There are programs now in which people can give unused prescription drugs back. We need to do a better job at educating the public about the risks associated with drugs and perhaps prescribe less medication."

Infectious and Vaccine-Preventable Disease

"We now have 17 diseases that are routinely prevented through immunization, saving $14 billion a year in direct costs," says Blumenthal.

New vaccines since 2001 include rotavirus, quadrivalent meningococcal conjugate, herpes zoster, pneumococcal
conjugate, and HPV vaccines, as well as the tetanus, diphtheria, and acellular pertussis vaccine for adults and adolescents.[22]

Following the introduction of pneumococcal conjugate vaccine, an estimated 211,000 serious pneumococcal infections and 13,000 deaths were prevented during 2000-2008 in the United States.[32] Routine rotavirus vaccination, implemented in 2006, now prevents an estimated 40,000-60,000 hospitalizations a year.[33]

Dr William G. Powderly, director of the Institute for Public Health and past chair of the HIV Medicine Association, says that one of the great stories of infectious disease in the past 20 years is hepatitis C, a virus discovered in 1989. "Thanks to the power of molecular biology and drug development, hepatitis C viral infection can be completely cured in 12 weeks. If that's not a remarkable story, I don't know what is."

Powderly calls HIV a landmark disease of the past 2 decades. "We went from a fatal disease to something chronic and manageable," he said. "Life expectancy is almost normal—but nobody is cured. I remain optimistic that we will have a vaccine for HIV," he says, whether fully or partially effective; at least it will be a preventive vaccine.

Dr Powderly says that the HIV era has been very important in reminding us of the significance of public health and that traditional approaches to protection against infectious disease are still valid. "Identification, understanding the epidemiology, rendering those with HIV noninfectious, and developing prevention strategies around the spread of HIV are extremely important."

Global Public Health

"We have made big advances in vaccination, safe water sanitation, and recognition of maternal education as key pieces of improving public health," says Omar Khan, who has authored four books in the area of global health. "Much of the work we have done in global health is founded on work that was done in the last 50 plus years."

"We have also been able to provide antiretroviral therapy for HIV. In these big areas, we have been able to make a big impact."

He says that maternal and infant mortality have been reduced. From 1990 to 2014, maternal deaths worldwide have dropped by 45%. "We are better at resuscitation and managing postpartum hemorrhage and have made improvements in prenatal healthcare," says Khan.

Following a 1995 World Health Organization (WHO) strategy for tuberculosis control, the world is on track to reduce tuberculosis mortality to 50% of 1990 levels by 2015.[35]

"We also eradicated polio from all but four countries in the world as a result of the Global Polio Eradication Initiative," Khan says. Thanks to the international Roll Back Malaria program in sub-Saharan Africa, household ownership of insecticide-treated bed nets increased from 3% in 2000 to 42% in 2009, protecting approximately 75% of the at-risk population and reducing incidence rates by 25% globally and by 31% in the WHO African region.[36]

Khan says that one of the most profound societal changes in global health is increased global philanthropic interest in it. "Why would Bill Gates be talking about global health?" he asks.

As of March 2015, the Bill and Melinda Gates Foundation has granted $33.5 billion in grant payments in large part to improve global health.[37] In November 2014, $500 million were committed to reduce malaria, pneumonia, diarrheal diseases, and parasitic infections, plus an additional $50 million to fight the Ebola epidemic.

"We saw the Clinton global initiative, the Jimmy Carter initiative, and the Hewlett Packard foundation," says Khan. "Information sharing and information transfer are changing the game."

Electronic Health Records
"With electronic health records (EHRs), we have a window on health to predict and gain control over infectious diseases before they become a big problem. We can be more proactive instead of reactive," says Laura Rosas, US Department of Health and Human Services (DHHS) lead public health advisor.

"We are beginning to see a little bit of that on the obesity issue. Obesity peaked and has leveled out. H1N1 is another disease we were able to watch," Rosas said.

The Health Insurance Portability and Accountability Act of 1996 (HIPAA) required the DHHS to adopt national standards for electronic healthcare transactions to further the use of electronic data and health records, providing identifiers for providers, health plans, and employers. With the introduction of the Affordable Care Act, additional provisions were made, improving interoperability between providers, laboratories, and local departments of public health. "The payoff of EHRs is huge," Rosas says. "That's the upside."

The downside, Rosas says, is that privacy and consent are juxtaposed against the big data movement. "Everyone wants access to the data." Big technology like Apple, Google, and others are already lobbying Congress.

"This will be the story of technology over the next 10 years. We are only at the beginning," she says.

"We have a lot to do to change the culture of healthcare. I would like to see a world where patients have access to their own data and can pay for their own healthcare without insurance companies making decisions," Rosas says. "For that, having access to your own data is incredibly important."

References


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