#PublicHealth Matters ALL the time to EVERYONE – Public Health Thank You Day #PHTYD19

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Abstract

Public Health Thank You Day is November 25, 2019. #PHTYD10 is a time to recognize public health professionals who work tirelessly every day to protect the health of all people and all communities. Public health professionals are dedicated to reducing infant mortality, developing and distributing vaccines, tracking infectious outbreaks, curbing antimicrobial resistance, preparing us for natural disasters and so much more.

“The public health workforce is dedicated to assuring our health and the health of our communities. From protecting against disease and preventing injury to addressing the determinants that influence our health, public health professionals work tirelessly with too little recognition for their efforts. Here at APHA, we are proud of and grateful for their service and honored to work alongside them in creating the healthiest nation in one generation," said Georges Benjamin, M.D., executive director of the American Public Health Association (APHA).

Main Article

My career in public health started in 1992 at the Texas Department of State Health Services (DSHS) in the Bureau of Laboratories. Like most people, I really did not know anyone who worked as a public health professional and I certainly did not understand the enormous impact of this critical and global area of work that functions behind the scenes of our day-to-day lives.

Additionally, I served as a Visiting Scientist with the Centers for Disease Control (CDC) during this period. It was at these institutions that I developed an interest in zoonotic disease (transferred from animals or insects to humans), especially with respect to rabies. I spent much of my time performing antigenic and molecular typing of the different variants of rabies virus. The epidemiologic evidence gathered from this testing provided information for the international efforts of the Oral Rabies Vaccination Program (ORVP), which eliminated canine rabies from Texas and led by the Zoonosis Control Division (ZCD) (Texas Department of State Health, 2019). I still try to volunteer for the ORVP team each January and I have continued to collaborate with the DSHS and CDC in zoonotic efforts, especially rabies, Hantavirus, and MRSA.

While at DSHS, I helped build and maintain the first Regional Reference Laboratory for Rabies Virus Variant Typing in collaboration with the CDC. From early in my career, I was mentored how critical it is to be interdisciplinary across institutions, cultures, and mindsets. I was part of the inaugural international public health team that eliminated a deadly and diabolical virus (canine rabies) from the state of Texas. In reflection, this time in my life truly was amazing and set the course for much of my success personally and professionally in regards to public health. These state, national, and international efforts were pivotal in my early career and emphasized how important interdisciplinary research and public health collaboration can be on various levels – including purposeful and directed involvement with all areas of healthcare, including medical laboratory, infection prevention, treatment, pharmacy, and others.

I was working with the DSHS when West Nile Virus (WNV) arrived in the United States, and eventually in Texas (Figure 1). We had so many WNV specimens to test that we had to add additional teams, which is rare in a state agency. Shortly after that, the anthrax scares of 2001 arrived, then SARS, then “bird flu,” then, other ongoing pathogens. Of course, there is more to public health than infectious outbreaks from pathogens. There is clean water,

and chronic diseases like cancer and other health threats. These ongoing threats for humans, animals and the environment have become a global #OneHealth focus for international strategies to prevent public health crises.

One Health recognizes that the health of people is connected to the health of animals and the environment. It is a collaborative, multisector, and cross-disciplinary approach—working at the local, regional, national, and global levels—with the goal of achieving optimal health outcomes recognizing the interconnection between people, animals, plants, and their shared environment. A One Health approach is important because 6 out of every 10 infectious diseases in humans are spread from animals. #OneHealth day is celebrated on November 3 each year.

Figure 1: Dr. Rohde, middle, during a DSHS Rapid Response Team deployment of Hantavirus in Texas. [Photo courtesy, R. Rohde]

Now, as I continue my career in academia, I know we will continue to see deadly new pathogens from the microbial realm (chikungunya, zika, Ebola, etc.), as well as ongoing visits from old foes (like influenza, tuberculosis, measles, healthcare associated infections such as MRSA), regardless of any actions we undertake. This is about as close to certainty as death and taxes. You see, that is what our microbial enemies do. They emerge, disappear, mutate and reemerge. They join forces and recombine when we least expect it. They do not act in a predictable manner! As I teach my Texas State Medical / Clinical Laboratory students my favorite lesson – microbes do not read the books or follow the rules. We must always be prepared.

There are few, but important things that we can control, namely public health support and media perspective! Both of these actually help us to minimize the deadly force that these microbes rain down on us, not to mention the growing number of acute and chronic non-microbial diseases like obesity, diabetes, and cancer.

Public Health Support

First, we as a nation and world must begin to understand the critical and necessary support for public health. When I was working with the DSHS and assisting the CDC, I would look around and see large teams of diverse and highly trained professionals – public health and medical laboratorians, epidemiologists, physicians, nurses, veterinarians, Emerging Infectious Disease Fellows, environmental services, infection prevention, pharmacy, and so many others. Now, when I walk in to a medical laboratory in the hospital or in a public health agency, I see that the practice of “doing more with less” has taken on a completely new meaning.

It is ridiculous how we expect our public health agencies, healthcare, and medical laboratories to handle large-scale outbreaks, much less the daily workload, on a shoestring budget and a skeleton crew.

In The Impact of Chronic Underfunding of America’s Public Health System: Trends, Risks, and Recommendations, 2019 the Trust for America’s Health (TFAH) examined public health funding and key health facts in states around the country [Trust for America’s Health, 2019(1)].

Federal Public Health Funding

Federal funding support a wide range of essential public health programs that aim to improve health, prevent diseases and injuries, and prepare for potential disasters and major health emergencies. Much of this money flows through the U.S. Centers for Disease Control and Prevention (CDC), with additional funds going to other agencies within the U.S. Department of Health and Human Services (HHS), as well as the United States Department of Agriculture (USDA).

CDC Funding Trends

The CDC is the nation’s preeminent public health agency. Its mission is to protect Americans from disease outbreaks,

disasters, unsafe food and water, and to reduce the incidence of preventable deaths. To help accomplish its objectives, the CDC supports states, localities, tribes, territories, and community organizations in addressing leading health threats in their communities. More than half of its program funding is redistributed to these partners.

The CDC's budget has not kept pace with the nation's growing public health needs and emerging threats, particularly the rise in antibiotic resistance and weather-related emergencies. Despite recent increases to funding for public health emergency preparedness, including for weather-related emergencies, there are still fewer resources compared to previous years, leaving relatively little for emerging threats. Finally, the CDC also lacks sufficient funding to adequately support the essential resources that form the backbone of comprehensive public health systems at the federal, state, and local levels.

Fiscal Year (FY) 2019 program funding for the CDC, as enacted in September 2018, is $7.3 billion. After accounting for interagency transfers and one-time funding, this reflects a $143 million (2 percent) increase over FY2018–or flat funding in inflation-adjusted dollars. The CDC's FY2018 budget saw its biggest year-over-year increase ($1.079 billion, including $480 million in one-time funding for laboratory facilities) over the past decade. Looking further back, the CDC's budget fell by 10 percent over the past decade (FY 2010-19), after adjusting for inflation [Trust for America's Health, 2019(2)].

Appropriately comparing funding levels in FY 2018 and FY 2019 requires accounting for the transfer of funding for the Strategic National Stockpile from the CDC to the Assistant Secretary for Preparedness and Response in FY 2019, and excluding one-time lab funding in FY 2018. Data were adjusted for inflation using the Bureau of Economic Analysis's implicit price deflators for gross domestic product.

Tackling these issues requires a strong, well-resourced public health system focused on prevention, preparedness, wellness, and community recovery for all Americans. However, chronic underfunding has presented a consistent obstacle. In 2017, public health represented just 2.5 percent — $274 per person — of all health spending in the country.

Simply put, we are robbing Peter to pay Paul. Further, we may be robbing Peter and NOT paying Paul.

Do you know that today's children are in danger of becoming the first generation in American history to live shorter, less healthy lives than their parents?

Proactive, prevention of disease is much more cost effective and logical for the treatment of disease rather than being reactive. Both are needed, certainly. Simply stated, the nation's (and world) public health system has been underfunded for decades. We can and must do better. Until we get serious about prioritizing public health in an ongoing, logical, purposeful way, we will continue to fight these deadly causes with fewer people in the public health and medical laboratory spaces. In addition, these people will be overworked and perhaps rushed on to the "battlefields" too soon because we are not properly sustaining the pipeline of highly trained professionals in the coming reduction of a changing work population. Cutting funding for new research on vaccines and creative ways of attacking disease will suffer. Cutting educational scholarships and programs for ushering in a new generation of these professionals is shortsighted. Utilizing simulations and modeling to try to prepare better for the next outbreak is critical.

We can and must do better!

Such underfunding flouts overwhelming evidence of the life-saving cost-effectiveness of programs that prevent diseases and injuries and prepare for disasters and health emergencies. Public health interventions, such as childhood vaccinations, school-based violence prevention programs, and indoor smoking bans, have been shown to improve health outcomes and prevent illness and death. Moreover, many such interventions save money; a 2017 systematic review of the return on investment of public health interventions in high-income countries found a median return of 14 to 1 [Trust for America's Health, 2019(2)].

In an age of widening political polarization, public health programs enjoy broad support. A September 2018 poll of U.S. voters found that 89 percent of respondents believed that public health plays an important role in the health of their community. A majority of voters (57 percent) were willing to pay higher taxes to ensure that everyone has access to basic public heath protections [Trust for America's Health, 2019(2)].

Public health, like education, funding is smart and pays dividends. It meets the long standing adage of 'an ounce of prevention is worth a pound of cure.'

Media Perspective

What else can we do that would help? There is a lot of power from the media and public perspective. In addition to the good, solid, cautionary journalism that details and discusses the ongoing threats and new and scary outbreaks, we need that improve the dissemination of information. In fact, social media and the new order of instant information exchange are very powerful weapons in our war on disease.

However, we need to ask and demand perspective. We need the media outlets to report and support the science and data that has been vetted by the experts in the field. Likewise, we need the public to be more careful in how they discern information – especially in the social media environment. This usually means checking the credentials of those experts as well as the scientific rigor and reporting of the sources of information. Yes, you guessed it. Your local (non-scientific, non-medical) layperson may not be the best source to start with on this topic.

When did we stop accepting that science is not to be trusted? Experts base science facts on the careful gathering of data and the reproduction of those findings. Gravity is not an opinion any more than a microbe becoming resistant to an antibiotic. Vaccines save lives. Smoking is bad for you. Riding a motorcycle without a helmet is detrimental to your health.

For example, I have written articles about having perspective in regards to two public health threats – Ebola and zika (Grifith and Rohde, 2014). Indeed, both are very concerning and scary in many ways. However, did you know that Ebola has only killed one person in the U.S.? Meanwhile, ongoing healthcare associated infections (#HAIs) like MRSA kill roughly 270 people per day? EVERYDAY? This means that an airplane goes down every day in this country and we turn the channel to worry about Ebola. Again, Ebola is dangerous and kills thousands abroad, but the media needs to accurately report the scale and perspective in regards to these "latest, greatest, threats" to all humanity. In reality, you and I stand a greater chance of dying from a nasty, antibiotic resistant infection like MRSA, or the flu, or diabetes than from Ebola or zika.

Conclusion

Let us all try to keep our perspective and find ways to work cooperatively and constructively across this country and with others around the globe to strengthen our public health system and support our healthcare professionals.

Public Health Thank You Day is November 25, 2019

These public health and healthcare professionals are often "out of sight / out of mind" and many of us all too often take them for granted until it's easy to criticize an "event" like the recent Ebola or Zika cases in the US. Remember, they/we are doing the very best we can with shoestring budgets, shortages of staff, and a retiring workforce that will not necessarily pass on their years of memory and knowledge of best practices. Sounds like a perfect storm is brewing, or actually, has already arrived!

Perhaps, we should all keep that in perspective.

I hope you will help me share this information with as many colleagues, friends, and strangers as possible. #PublicHealth Matters ALL the time to EVERYONE – Public Health Thank You Day #PHTYD19.

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