

IPHA History

Public Health Science Heroes

By Dr. Ron Eckoff

I recently learned about a fascinating website: [Science Heroes](#). The self-description of the website is: "A Community of Rambunctious Scholars Celebrating People Who Have Made Lifesaving Discoveries and Encouraging Students and Politicians to Read 1,000 Science Stories!"

At a time when science seems to be under attack, this site provides great stories about scientific advances that have saved billions of lives. A great many of these are in the area of public health. Think smallpox vaccine, chlorination of water, polio vaccine, cervical cancer screening, diphtheria antitoxin, mammography, measles vaccine and all the other vaccines. Not quite in the public health group, but Norman Borlaug and the Green Revolution is on the list.

The list starts with discoveries that were estimated to save one **billion** or more lives and continues with a list of 100. For each scientist and discovery you can then go to stories about the scientist and their work. For example, I learned that Bill Foege's surveillance and containment strategy for eliminating smallpox was at least partially based on his experience in fighting forest fires.

The numbers were determined by Dr. Amy Pearce of Arkansas State University. Here is a part of her explanation. "Whenever possible, I employed a consistent and logical process. Both aggregated and disaggregated world population figures from the 20th century and beyond were used to gather the potential beneficiaries from each discovery and a timeline was established from its invention and first widespread use through 2008. I calculated lives saved based on published data from the most reputable, corroborative, and accessible evidence and resources (WHO, CDC, NIH, UNICEF and

medical databases such as Medline, Lexus Nexus and PubMed)...I found population data for countries with ready access to a "new" cure, and also mortality and morbidity statistics for the targeted illnesses, then determined a percentage of the population that would logically have died without the intervention."

A sample of some of the discoveries on the list and the estimated number of lives saved:

Edward Jenner - *Smallpox vaccination* - 530,000,000

Linn Enslow and Abel Wolman -

Chlorination of Water - 177,000,000

William Foege - *Smallpox Vaccination Method* - 131,000,000

John Enders - *Polio and Measles Vaccine* - 120,000,000

Gaston Ramon -

Diphtheria and Tetanus Vaccine - 60,000,000

Pearl Kendrick and Grace Eldering -

Whooping Cough Vaccine - 13,700,000

The top discovery listed is for synthetic fertilizer. The Haber-Bosch Process for producing ammonia fertilizer enabled greater food production. The site credits Fritz Haber and Carl Bosch with 2,720,000,000 lives saved.

The fact that Norman Borlaug's Green Revolution is only credited with 259,000,000 lives saved, rather than the 1,000,000,000 we frequently hear quoted in Iowa may indicate how conservative the estimates are.

You may quibble with the numbers, but I think you can find a treasure trove of interesting stories about public health advancements on this site. I would encourage you to browse [this site](#).

Join Us for "Iowa's Water Quality: A Public Health Perspective"

Public health is increasingly called upon to understand and speak to water quality issues nationally and in Iowa. This IPHA convening will establish a foundation for a public health perspective on water quality.

M., 4.10.17 | 11:30 AM - 4:30 PM | Holiday Inn - Des Moines Airport

IPHA intends to bring together a diverse array of professionals to consider the array of challenges to Iowa's water quality through the lens of public health.

Target audience: public and environmental health officials, laboratory professionals, water utilities and water operators, drinking water and water quality advocates, municipalities and legislators

This interactive workshop will include presentations and panels Q&A.

[Click here](#) for more information including the agenda.

IPHA thanks the following sponsors for investing in this convening. Additional sponsorship opportunities are available; please contact IPHA to learn more.

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