COVID-19: CDC Museum Closed to the Public

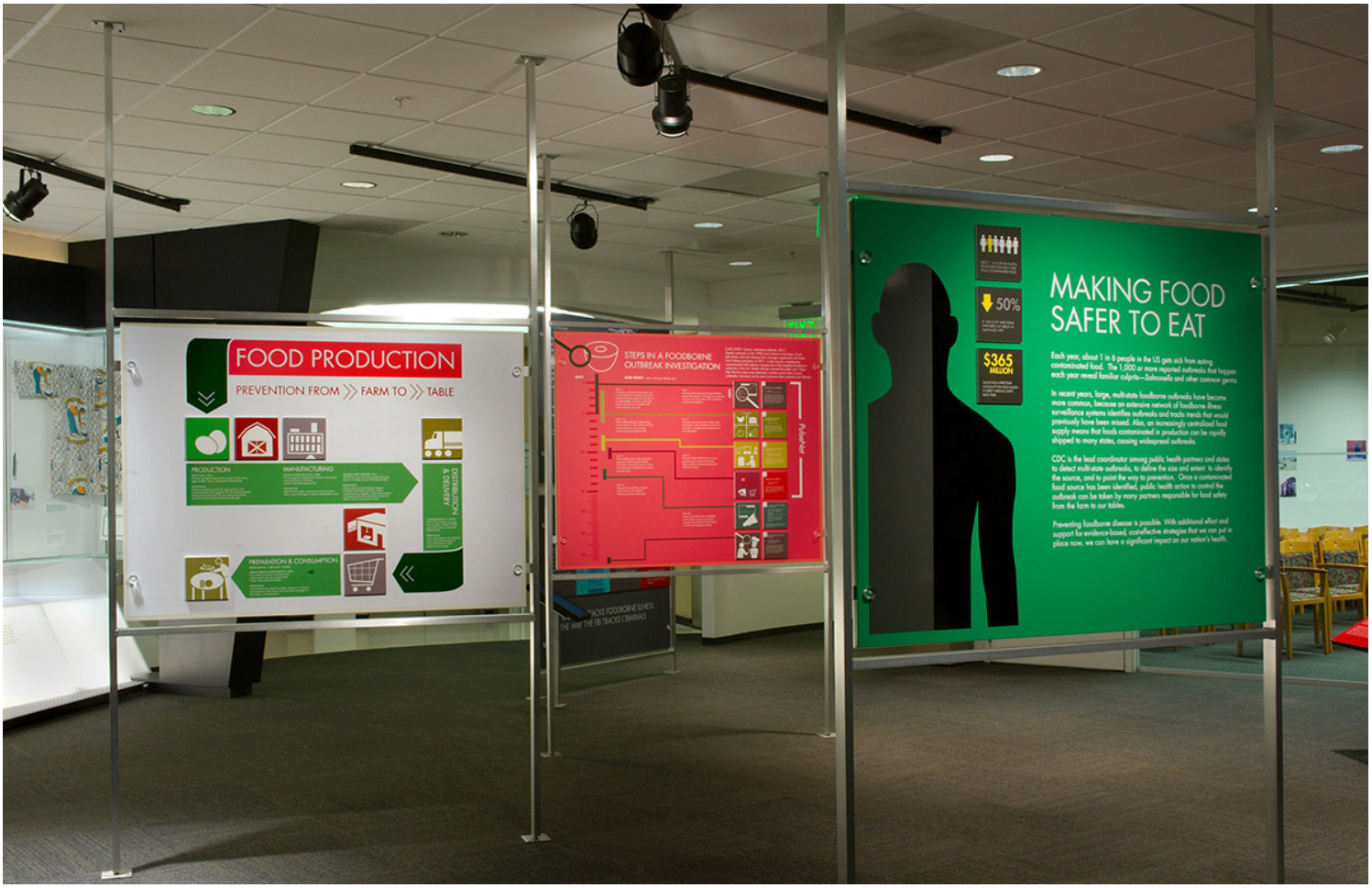
Due to ongoing concerns about the novel coronavirus (COVID-19), the David J. Sencer CDC Museum is closed to the public and will remain closed as we continue to assess and monitor developments. All CDC Museum tours are canceled until further notice.

This decision is being made out of an abundance of caution and based upon the guidance of the CDC regarding social distancing and the elimination of large gatherings.

Please continue to check our website and social media accounts for additional updates.

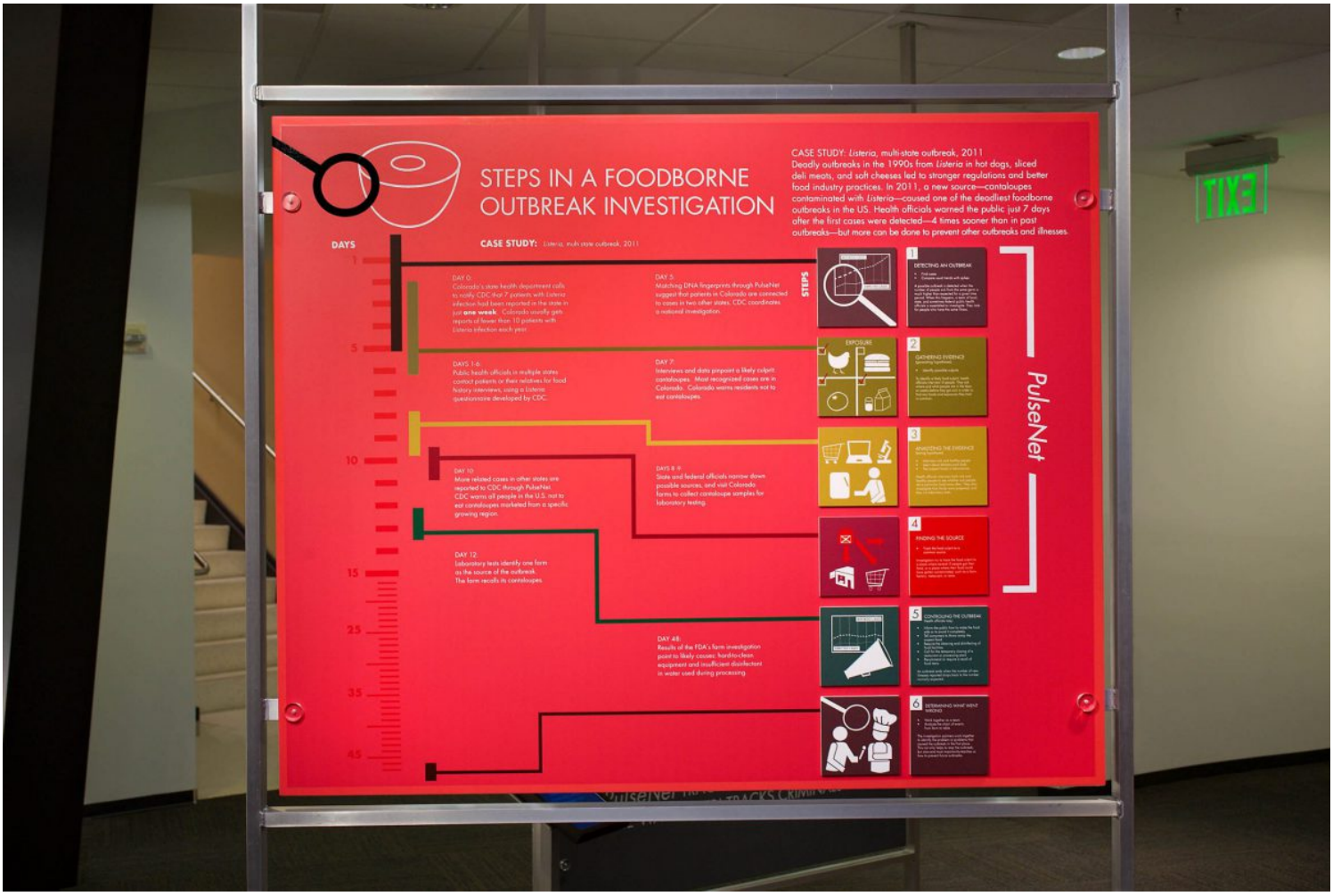
Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

Making Food Safer to Eat



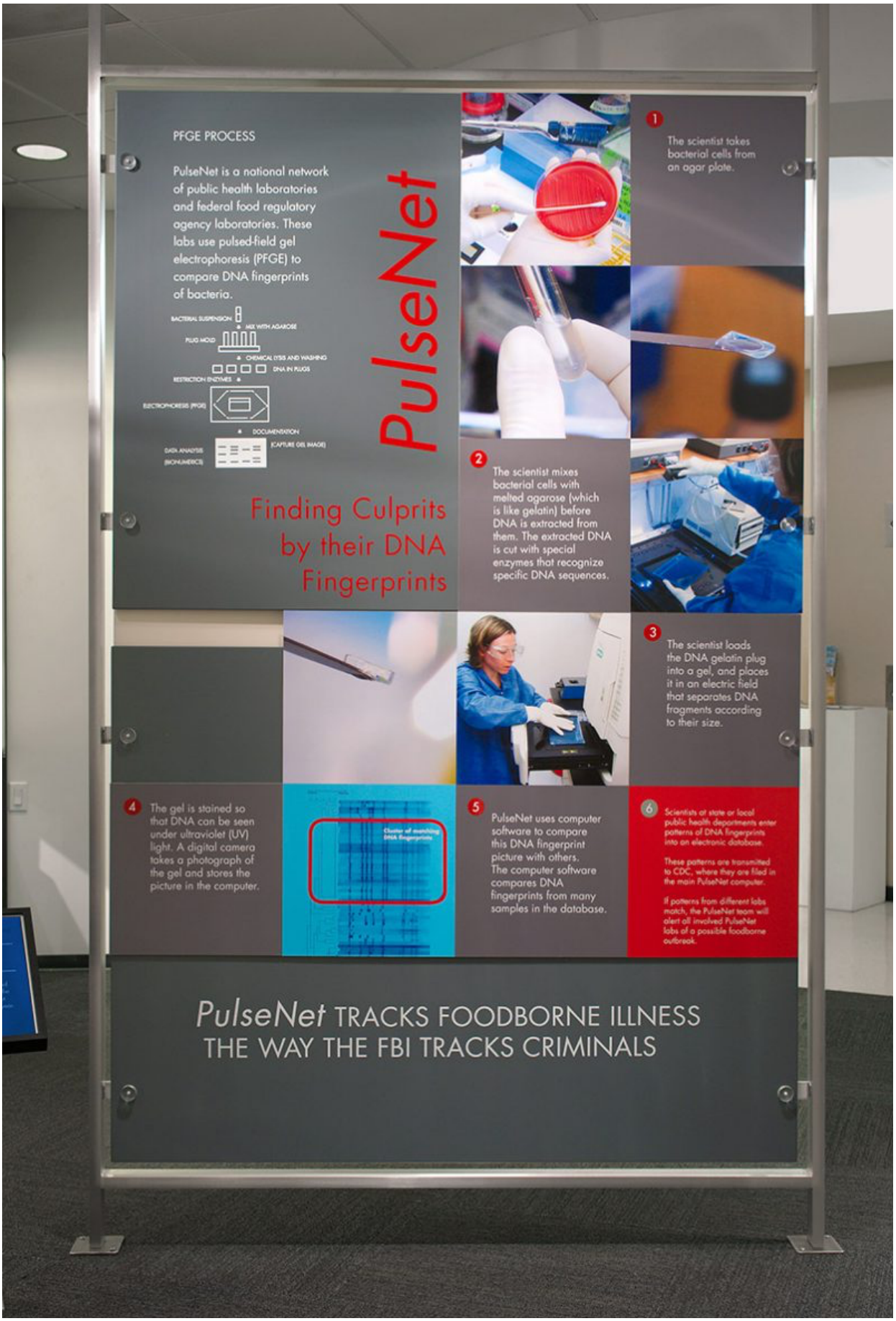
Each year, about 1 in 6 people in the U.S. gets sick from eating contaminated food. The 1,000 or more reported outbreaks that happen each year reveal familiar culprits – *Salmonella* and other common germs. In recent years, large, multistate foodborne outbreaks have become more common because an extensive network of foodborne illness surveillance systems identifies outbreaks and tracks trends that would previously have been missed. Also, an increasingly centralized food supply means that food contaminated during production can be rapidly shipped to many states, causing widespread outbreaks.

CDC is the lead coordinator among public health partners in states to detect multistate outbreaks, to define the size and extent, to identify the source, and to point the way to prevention once a contaminated food source has been identified. Public health action to control the outbreak then can be taken by partners responsible for food safety from the farm to our tables. Preventing foodborne disease is possible with additional effort and support for evidence-based, cost effective strategies that we can put in place now. These strategies can have significant impact on our nation's health.



Investigating Food-Borne Outbreaks

On display are the steps typically used to investigate a food-borne outbreak, shown using a multi-state outbreak of Listeria in 2011. From detecting the outbreak to gathering and analyzing the data, the outbreak investigation highlights the importance of public health disciplines working together to solve an outbreak.


PFGE PROCESS
PulseNet is a national network of public health laboratories and federal food regulatory agency laboratories. These labs use pulsed-field gel electrophoresis (PFGE) to compare DNA fingerprints of bacteria.
BACTERIAL SUSPENSION
MIX WITH AGAROSE
PLUG MOLD
CHEMICAL LYSIS AND WASHING
DNA IN PLUGS
RESTRICTION ENZYMES
ELECTROPHORESIS (PFGE)
DOCUMENTATION
DATA ANALYSIS (BIONUMERICS)
(CAPTURE GEL IMAGE)
PulseNet
Finding Culprits by their DNA Fingerprints
1 The scientist takes bacterial cells from an agar plate.
2 The scientist mixes bacterial cells with melted agarose (which is like gelatin) before DNA is extracted from them. The extracted DNA is cut with special enzymes that recognize specific DNA sequences.
3 The scientist loads the DNA gelatin plug into a gel, and places it in an electric field that separates DNA fragments according to their size.
4 The gel is stained so that DNA can be seen under ultraviolet (UV) light. A digital camera takes a photograph of the gel and stores the picture in the computer.
Cluster of matching DNA fingerprints
5 PulseNet uses computer software to compare this DNA fingerprint picture with others. The computer software compares DNA fingerprints from many samples in the database.
6 Scientists at state or local public health departments enter patterns of DNA fingerprints into an electronic database.
These patterns are transmitted to CDC, where they are filed in the main PulseNet computer.
If patterns from different labs match, the PulseNet team will alert all involved PulseNet labs of a possible foodborne outbreak.
PulseNet TRACKS FOODBORNE ILLNESS THE WAY THE FBI TRACKS CRIMINALS

PulseNet

PulseNet is a national laboratory network used to detect foodborne outbreaks. The program initially used laboratory tests such as pulsed-field gel electrophoresis (PFGE) but has transitioned to whole genome sequencing. Scientists at state or local public health departments process samples from local food-borne illness cases and enter the results into the electronic PulseNet database. Database managers at CDC can detect related cases and can notify food-borne epidemiologists to begin an investigation.

Enrichment Modules

SEE

Take a closer look:

- Learn the four steps to food safety to prevent food poisoning at home and about CDC's role in food safety.
- Take a deep dive into foodborne germs and illnesses and challenges that CDC faces in food safety.
- Learn how CDC handles multistate foodborne outbreak investigations.
- View CDC food safety infographics and animations/videos.
- Explore CDC's foodborne diseases active surveillance network, FoodNet.
- Learn everything you need to know about *Salmonella*, *coli*, and *Listeria*.
- How does whole genome sequencing, or WGS, work? Learn more in this infographic . Then, explore whole genome sequencing as a foodborne illness response tool with CDC's initiative, PulseNet International .
- Take a look at Enteric Diseases Laboratory Branch scientists in action: a public health scientist determining the "DNA fingerprint" of a specific bacterium and bioinformatician developing computer codes to analyze foodborne outbreak data.

HEAR

From the source:

- Learn how CDC actively works to prevent foodborne disease outbreaks or solve them as they occur.
- View a snapshot of food markets in the 16th century with this EID story, featuring artwork by Pieter Cornelisz van Rijck.

REFLECT

Then and now:

- Check out this infographic covering the history of PulseNet .
- Read about agriculture-related innovation and the evolution of foodborne diseases in this Emerging Infectious Diseases cover story.
- Read MMWR reports on foodborne illness and outbreak investigations of the past and present.
- Explore interactive graphs and charts of foodborne outbreaks with CDC's FoodNet Fast online data tool.
- Read reports from *Salmonella* outbreak investigations from 2006 to present day.

DO

Give it a try:

- How much do you know about foodborne diseases? Explore prevention tips, key facts, and more with CDC's Disease of the Week foodborne diseases feature, then try your hand at a short quiz.
- Learn more about the importance of keeping food safe from microorganisms such as *Salmonella* and *E. coli* with CDCM's hands-on Public Health Academy STEM Lesson – Keeping Food Healthy.

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