# A CDC Framework for Preventing Infectious Diseases:
Sustaining the Essentials and Innovating for the Future

- **To provide a roadmap for improving our ability to prevent infectious diseases through a strengthened, adaptable, and multi-purpose U.S. public health system**

- **To guide collective public health action at a time of resource constraints, while advancing opportunities to improve the nation's health through**
  - **new ideas**
  - **partnerships**
  - **technical innovations**
  - **validated tools**
  - **evidence-based policies**

A CDC FRAMEWORK FOR PREVENTING **INFECTIOUS DISEASES**

Sustaining the Essentials and Innovating for the Future

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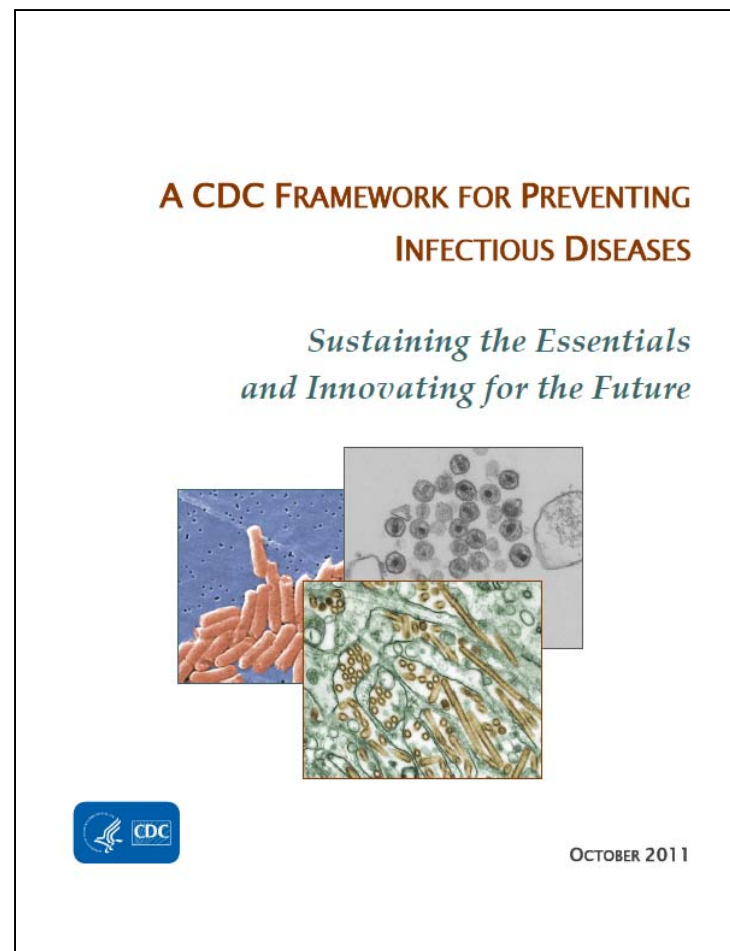
CDC's ID FRAMEWORK
Three Overarching Elements

Element 1. Strengthen public health fundamentals, including infectious disease surveillance, laboratory detection, and epidemiologic investigation

Element 2. Identify and implement high-impact public health interventions to reduce infectious diseases

Element 3. Develop and advance policies to prevent, detect, and control infectious diseases

Priorities for Element 1

Element 1. Strengthen **public health fundamentals,** including infectious disease surveillance, laboratory detection, and epidemiologic investigation

- Modernize **infectious disease surveillance** to drive public health action

- Expand the role of **public health and clinical laboratories** in disease control and prevention

- Improve capacity for **epidemiologic investigations and public health response**

- Advance **workforce development** and training to sustain and strengthen public health practice

Examples of Key Activities to Meet Element 1 Priorities
Modernize infectious disease surveillance

- **Improving collection and communication of timely, accurate, and complete surveillance data**

- **Advancing meaningful public health use of electronic health records**

- **Advancing partnerships, policies and incentives, and training that enhance capacity of clinical laboratories to test for microbes of public health concern**

- **Intensifying surveillance for unusual health events**

- **Using evolving health IT tools to provide rapid feedback and alerts to hospitals, clinicians, patients, and public health practitioners**

  - **Providing feedback to hospital administrators and public health officials on the efficacy (and cost-effectiveness) of infectious disease prevention practices**

Examples of Key Activities to Meet Element 1 Priorities
Expand laboratory detection and reporting

- **Developing, validating, and disseminating diagnostic innovations**
  - **multi-pathogen and point-of-care tests**
  - **new tools and assays for detecting and characterizing emerging threats**
  - **tools and techniques for analyzing large amounts of protein or nucleic acid data**
- **Improving information flow among clinicians, clinical labs, public health labs, and CDC**
- **Conducting long-range planning to ensure continued capacity at CDC to serve as a national and global reference center for all infectious diseases**
- **Developing new and advancing existing standards and protocols for safe and rapid transfer of patient specimens to clinical and public health laboratories**

Examples of Key Activities to Meet Element 1 Priorities

Improve epidemiologic investigations and public health response

- **Developing innovative tools for outbreak investigations—incorporating new technologies such as bioinformatics, portable digital devices, and high-performance computing to improve information exchange across jurisdictions**

- **Developing pre-event investigative performance measures and protocols (e.g., protocols for collecting data on risk factors, disease severity, and other clinical information)**

- **Using lessons learned from outbreak responses to strengthen overall preparedness, including distribution and use of emergency medical countermeasures and diagnostics development**

- **Coordinating across CDC and with external partners to facilitate collaborative efforts for rapid response to infectious disease outbreaks of unknown etiology**

Examples of Key Activities to Meet Element 1 Priorities
Advance workforce development and training

- **Expanding access to high-quality public health e-learning products and training**

- **Providing guidance and training for public health workers on integrating IT health tools into all aspects of public health practice and "e-health"**

- **Assisting public health departments in transitioning to expanded roles in healthcare quality assurance, assessment, and policy development**

- **Engaging partners to extend the reach of public health messages through the use of new communication tools and channels, such as working with medical/nursing schools and professional organizations to develop public health messages for use by healthcare providers**

Priorities for Element 2

Element 2. Identify and implement high-impact public health interventions to reduce infectious diseases

- **Identify and validate high-impact tools for disease reduction**

- **Use proven tools and interventions to reduce high-burden infectious diseases**

Box 3.1 Infectious disease issues of special concern

- Antimicrobial resistance
- Chronic viral hepatitis
- Food safety
- Healthcare-associated infections
- HIV/AIDS
- Respiratory infections
- Safe water
- Vaccine-preventable diseases
- Zoonotic and vectorborne diseases

Priorities for Element 3

Element 3. Develop and advance policies to prevent, detect, and control infectious diseases

- **Ensure the availability of sound scientific data to support the development of evidence-based and cost-effective policies**

- **Advance policies to improve prevention, detection, and control of infectious diseases**

Examples of Key Activities to Meet Element 3 Priorities

Ensure availability of sound scientific data to support development of evidence-based, cost-effective policies

- **Assessing the national burdens of high-mortality infectious diseases**

- **Identifying public health activities with high return on investments**

- **Developing strategies for sustaining and expanding public/private collaborations to improve healthcare quality**

- **Creating predictive models for disease emergence, disease spread, outbreak response, and disease elimination**

- **Monitoring rates of and risk factors for foodborne illness to inform food safety policy and regulatory action**

- **Monitoring the effectiveness of strategies to reduce behaviors that increase individual risk for infectious diseases**

Examples of Key Activities to Meet Element 3 Priorities
Advance policies to improve prevention, detection, and control of infectious diseases

- **Activities that help make disease prevention a standardized, routine part of healthcare, including policies designed to improve**

    - ↑ **Healthcare delivery to encourage early disease detection and treatment**

    - ↑ **Healthcare practices to prevent HAIs and other healthcare adverse events**

    - ↑ **Secure exchange of health information**

    - ↑ **Protection of both patients and healthcare workers**

    - ↑ **Incentives (e.g., medical reimbursement) for preventive services and practices**

Examples of Key Activities to Meet Element 3 Priorities
Advance policies to improve prevention, detection, and control of infectious diseases (cont.)

- **Efforts to increase community/individual action to prevent infectious disease, including policies and initiatives designed to enhance**
    - ↑ **Availability of public health information through new communication channels**
    - ↑ **Community resilience during outbreaks and unusual public health events**
    - ↑ **Delivery of preventive services to vulnerable and marginalized populations**
    - ↑ **Utilization of clinical and preventive services by persons with or at risk for infectious diseases**
    - ↑ **Judicious use of antibiotics through messages targeted to patients, parents, and healthcare providers**
    - ↑ **Understanding of the benefits of vaccination and the risks and dangers of vaccine-preventable diseases**
    - ↑ **Health literacy and the understanding of social practices and behaviors that facilitate or prevent disease spread**