

# Clinical Response through Emerging Technology (CRET)

Using Health IT to Respond to Public Health Hazards

The Clinical Response through Emerging Technology (CRET) is a U.S. Department of Health and Human Services (HHS) initiative created to improve the clinician's response to emerging public health hazards using existing electronic health records (EHRs) and other information technology (IT) tools and infrastructure. CRET's goal is to provide clinicians with near-real-time updates to information and best practices to improve their medical response to a broad range of natural and manmade hazards.

## Informed, Effective and Immediate Medical Response

**A wide range of new hazards to human health arise all the time. No matter the source of the hazard, many require a swift and targeted medical response.**

Public health agencies carefully investigate each new hazard to the public's health to develop response protocols and mitigation best practices which they share with healthcare providers as it becomes available. However, simply sharing information is not a guarantee that the information is understood and used appropriately.

Effective medical response requires that clinicians to have access to clear, up-to-the-moment guidance about how to address each specific hazard. Keeping track of all the possible scenarios and treatment protocols recommended by the CDC and other organizations is more than a full-time job, and a major burden for clinicians.

CRET aims to assist clinicians by transforming clinical and response guidance into computer-readable information that can be shared with information technology, including EHRs and clinical decision support systems, to deliver the latest information to doctors, nurses and pharmacists at the exact moment it's needed.

*CRET provides clinicians with the latest science and response protocols from federal, state, tribal, local, and territorial public health communities by delivering critical knowledge to clinical decision support tools within existing clinical workflows.*

## Examples of Common Hazards Requiring Medical Response



- Infectious diseases
- Environmental, chemical, and biological hazards
- Events based on (intentional or unintentional) human behavior
- Natural events such as extreme weather

## Risk Identification and Mitigation at the Point of Care

CRET is an informatics-based approach that is adaptable for different audiences (e.g., clinicians, clinical software vendors, average citizens). It addresses:



**Risk Identification:** Exposures (e.g., travel, residence, occupation, recreational activities), symptoms, physical findings, and diagnostic tests (e.g., laboratory, imaging and pathology)

**Risk Reduction and Mitigation:** Isolation, personal protective equipment, exposure avoidance, treatment and supportive care



**Education:** Recommendations for individuals at risk (patients, caregivers, employment sites)

CRET is based on recent public health efforts to address hazards such as the Ebola and Zika viruses. These events underscored the need for better dissemination of public health and clinical information during rapidly evolving emergencies. CRET seeks to improve the sharing of new knowledge by incorporating information factors, common to all hazards, into a common framework. This framework encourages the consistent sharing and use of recommendations, particularly in the form of workflow-appropriate clinical decision support, for any public health hazard.

## A Technology Forward Approach to Public Health Response

CRET provides an approach to share information at the appropriate level of detail required for effective implementation at clinical sites. CRET enables re-use of previously developed methods to address challenging data such as active pregnancy status, exposure history (e.g., travel, vocation, recreational activities, human contacts), and hazard-specific prevention strategies for patients and healthcare workers. The framework also provides a standard structure for sharing this information quickly and easily for use in clinical settings.

### Contacts for Additional Information

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## Automating Medical Response Information Distribution

The current processes for distributing clinical guidelines are labor intensive and redundant. When rapid information distribution is critical, those processes are particularly problematic.

The CRET Parent Algorithm depicted below illustrates a generic clinical workflow, starting with an initiating event (trigger) and ending with recommended clinical actions. The figure references components that specify details for each evaluation step. The diagram also includes icons that automated workflow engines can interpret using business process modeling (BPMN) standards. Software developers and implementers can use this detail with existing clinical interoperability standards to express and retrieve the data required, avoiding ambiguous interpretations and unnecessary provider burden.

Once translated into standardized electronic format, the clinical information is, the same information packet can be shared with EHRs and clinical decision support tools without any specialized formatting or coding based upon the recipient system's structure. This allows for much more rapid information distribution, and it promotes better information sharing among the many constituents responsible for public health hazards.

### CRET PARENT ALGORITHM

