

# Probabilistic Analysis of National Threats Hazards and Risks



Homeland Security

Science and Technology

## MISSION

The Department of Homeland Security (DHS) Science and Technology Directorate's (S&T) Probabilistic Analysis of National Threats Hazards and Risks (PANTHR) strategic program provides accurate, useful, and defensible knowledge and tools to stakeholders to enable aggregated, risk-informed decision making for defense against weapon of mass destruction (WMD) threats to the homeland.

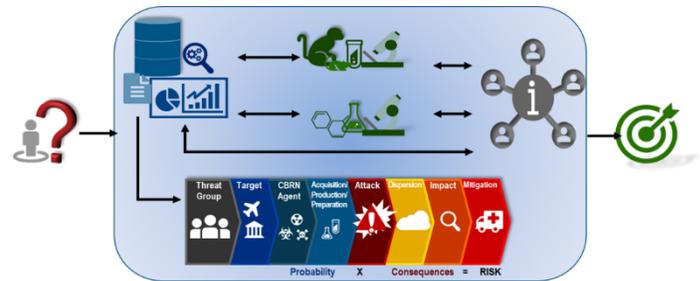
## OVERVIEW

The Homeland Security Enterprise (HSE) is required to prevent, protect, mitigate, respond, and recover from Chemical, Biological, Radiological, and Nuclear (CBRN) events. The quantity of potential CBRN attack scenarios and their possible consequences makes defensive planning challenging, as it is infeasible to be prepared for every scenario.

To enable HSE decision-making for CBRN defense, it is critical to have useful information about potential CBRN hazards and a way to assess their potential harm. The PANTHR program provides this through a portfolio of risk assessments, analytic tool developments, and laboratory and field threat characterization activities. PANTHR is unique in its programmatic design, novel products, and—most importantly—the support capabilities it can provide to the HSE to enable CBRN risk awareness and decision making.

## CORE ACTIVITIES

- **Analysis:**  
Tools for Integrated Evaluation of Risk (TIGER)
- **Characterization:**  
Biological Threat Characterization (BTC)  
Chemical Threat Characterization (CTC)
- **Knowledge Management:**  
Hazard Knowledge Center (HKC)



## STRATEGIC GOALS

- Execute CBRN risk analysis capabilities to support national assessments
- Characterize biological & chemical hazards to support HSE chemical and biological defense
- Provide a knowledge management system to archive and communicate CBRN hazard information
- Coordinate hazard awareness and characterization activities across S&T, DHS Components, and the HSE

## IMPACT

PANTHR establishes and leverages innovative science-based capabilities to provide expertise, data, knowledge, and technologies to increase awareness, improve understanding, and enable effective decision-making regarding current and future CBRN hazards through tailored products, tools, technologies, and information.

Critical data and insights generated by PANTHR ensure DHS S&T and CB-defense communities (1) have a clear understanding of traditional and emerging threats to prioritize requirements for detection, protection, and medical response; (2) recognize impactful and sensitive data gaps for further analysis and experimentation; and (3) have a scientific and traceable basis for rational and consistent implementation of the DHS strategic goals.

PANTHR data can help to improve operating procedures and protocols, provide indicators and warnings for component and law enforcement agencies, inform further R&D investment decisions, and enable effective policy-making to secure the homeland against CB hazards.

