

Improving National-Level Guidance to Local Nuclear Safety Programs

Our paper examines how local variations in policies, procedures, and regulations affect the value of national-level guidance and programs for local jurisdictions developing nuclear and radiological security capabilities. It also suggests a framework for additional research into these variations.

Efficient prevention, detection, and management of radiological and nuclear threats requires the formal inclusion of local jurisdictions within a nation-state's nuclear security framework. This tenet is well-established, with many examples of international and national guidance and programs featuring the important role of local jurisdictions in nuclear and radiological security, such as:

☒ Proceedings from The Safety of Radiation Sources and Security of Radioactive Materials—a 1998 conference organized by the IAEA, the European Commission, INTERPOL, and the World Customs Organization—address how local jurisdictions, especially local law enforcement agencies, help safeguard radiation sources both inside and outside of regulatory control, dating back more than 20 years.

☒ The United States Department of Homeland Security (DHS) offers a variety of technical assistance and funding programs that support local jurisdictions' efforts to prevent, detect, and manage nuclear and radiological threats, including the Securing the Cities program, which offers grants to major cities to support nuclear detection architectures.

☒ The Japan Atomic Energy Agency's (JAEA's) Nuclear Emergency Assistance and Training Center (NEAT) provides training for national and local-level emergency responders and officials involved in nuclear emergency preparedness and response.

Although thoughtfully developed, current national guidance and programs for nuclear and radiological security (such as those above) tend to treat local jurisdictions uniformly. Within the United States, however, a closer examination of state and local nuclear and radiological prevention and detection programs reveals important variations in relevant policies, procedures, and regulations that affect how these jurisdictions execute their security operations. These variations lead to challenges that are not yet addressed by most national guidance or programs.

Through our work with more than 15 state and local nuclear and radiological security programs in the United States, we have identified more than 10 areas of variation across jurisdictions that can impact local operations, including the following two examples:

☒ Secondary screening for radiation sources outside of regulatory control: Local jurisdictions typically exercise broad authority to conduct primary screening, which may include radiation detectors placed in major transportation hubs or police officers carrying personal radiation detectors during special events. If a radiation detector is alerted, however, what actions are public safety officers authorized to take? What if members of the general public are not cooperative? State and local interpretation of relevant law varies significantly, creating inconsistency and ambiguity for secondary screening operations. Much national-level guidance in the United States either does not address this issue, or addresses it very generally.

☒ Transportation of radioactive materials: Although the U.S. Nuclear Regulatory Commission and the U.S. Department of Transportation are largely responsible for the control of radioactive material transport, states decide on when and how to provide escorts for many types of radioactive materials traveling on their highways. These varying procedures among states challenge the sharing of best practices and the utility of uniform national-level guidance.

Our initial research underscores how nationwide variability across local jurisdictions in the United States is affecting the effectiveness of existing national guidance and programs. We recommend applying a framework to comprehensively identify additional areas of variation. DHS created a taxonomy of 32 core capabilities to assist the realization of the U.S. National Preparedness Goal. While this taxonomy is intended to support the management of all-hazards—natural disaster, intentional threats, and technological accidents—it also provides a convenient organizing construct to understand how local jurisdictions pursue radiological and nuclear management differently and how their challenges vary. It has worked well to guide our research efforts.

Although based on observations made in the United States, our findings likely apply to other nation-states as well. Moreover, we assert that the core capability framework provides a generalizable means of structuring facilitated discussions and further research to identify variations with important ramifications. Ultimately, we believe that systematically applying this framework will help guide opportunities for national and international agencies to better support radiological and nuclear security operations in a more comprehensive yet customized manner.

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