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Prepared by:
The Johns Hopkins University Evidence-based Practice Center
The Johns Hopkins University Bloomberg School of Public Health, Baltimore, MD

Investigators
Edbert B. Hsu, M.D., M.P.H .
Mollie W. Jenckes, M.H.Sc., B.S.N.
Christina L. Catlett, M.D.
Karen A. Robinson, M.Sc.
Carolyn J. Feuerstein
Sara E. Cosgrove, M.D., M.S.
Gary Green, M.D., M.P.H.
Otto C. Guedelhoefer
Eric B. Bass, M.D., M.P.H.

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Preface

The Agency for Healthcare Research and Quality (AHRQ), through its Evidence-Based Practice Centers (EPCs), sponsors the development of evidence reports and technology assessments to assist public- and private-sector organizations in their efforts to improve the quality of health care in the United States. This report on *Training of Hospital Staff to Respond to a Mass Casualty Incident* was requested and funded by AHRQ's Center for Primary Care, Prevention, and Clinical Partnerships. The reports and assessments provide organizations with comprehensive, science-based information on common, costly medical conditions and new health care technologies. The EPCs systematically review the relevant scientific literature on topics assigned to them by AHRQ and conduct additional analyses when appropriate prior to developing their reports and assessments.

To bring the broadest range of experts into the development of evidence reports and health technology assessments, AHRQ encourages the EPCs to form partnerships and enter into collaborations with other medical and research organizations. The EPCs work with these partner organizations to ensure that the evidence reports and technology assessments they produce will become building blocks for health care quality improvement projects throughout the Nation. The reports undergo peer review prior to their release.

AHRQ expects that the EPC evidence reports and technology assessments will inform individual health plans, providers, and purchasers as well as the health care system as a whole by providing important information to help improve health care quality.

We welcome written comments on this evidence report. They may be sent to: Director, Center for Outcomes and Evidence, Agency for Healthcare Research and Quality, 540 Gaither Road, Rockville, MD 20850.

Carolyn M. Clancy, M.D.
Director
Agency for Healthcare Research and Quality

Jean Slutsky, P.A., M.S.P.H.
Acting Director, Center for Outcomes and Evidence
Agency for Healthcare Research and Quality

The authors of this report are responsible for its content. Statements in the report should not be construed as endorsement by the Agency for Healthcare Research and Quality or the U.S. Department of Health and Human Services of a particular drug, device, test, treatment, or other clinical service.

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Structured Abstract

Context: Because of recent terrorist attacks, hospitals are devoting increased attention to disaster preparedness by reexamining disaster plans and training hospital staff to respond to a mass casualty incident (MCI). An MCI is defined in this report as an incident that results in multiple casualties that overwhelm local resources and that may involve natural, biological, chemical, nuclear, or other agents.

Objectives: This evidence report identifies and synthesizes evidence on the effectiveness of hospital disaster drills, computer simulations, and tabletop or other exercises in training hospital staff to respond to an MCI, and it reviews the methods or tools that have been used to evaluate these types of training activities.

Data Sources: The Evidence-based Practice Center (EPC) searched for articles published through January 2003 using six electronic databases, including PubMed®, the Cochrane Central Register of Controlled Trials, the Excerpta Medica database (EMBASE), the Educational Research Information Clearinghouse, the specialized Register of Effective Practice and Organization of Care Cochrane Review Group, and the Research and Development Resource Base in Continuing Medical Education. Search terms included *mass casualty*, *disaster*, *disaster planning,* and *drill*. The EPC also conducted a hand search of references and selected journals.

Study Selection: Paired investigators reviewed the titles and abstracts of citations located by the search to identify articles that were written in English, included original human data, and reported on the evaluation of disaster training for hospital staff.

Data Extraction: Paired reviewers evaluated study quality in terms of the representativeness of the targeted hospital staff, potential bias and confounding, description of the intervention, assessment of outcomes, and analysis. The reviewers extracted information on the studies (e.g., geographic location, MCI type, training intervention, hospital staff targeted, other entities involved, objectives, evaluation methods, and results).

Data Synthesis: Sixteen studies addressed hospital disaster drills as a training method for hospital staff to respond to an MCI and indicated lessons learned. The studies had significant limitations in design and evaluation methods. One study addressed computer simulation for training hospital staff to respond to an MCI and identified bottlenecks in patient care, security problems, and other issues. Four studies, covering issues from burn care to a regional coordinated response to a biological attack, addressed the effectiveness of tabletop or other exercises in training hospital staff to respond to an MCI. The reviewed studies used a variety of methods to evaluate the effectiveness of hospital drills, computer simulations, and tabletop and other exercises in training hospital staff to respond to an MCI, and they targeted different groups of hospital staff. Internal and external communications were the key to disaster response (e.g., a well-defined incident command center reduced confusion, conference calls were inefficient, and accurate phone numbers were vital).

Conclusions: We concluded that enough studies were available to suggest that hospital disaster drills were effective in training hospital staff to respond to an MCI; however, weaknesses in study design limit the strength of these conclusions. Although computer simulations and tabletop and other exercises may have a role in identifying problems in disaster preparedness, the evidence is insufficient to judge their effectiveness in training.

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Appendixes are provided electronically at
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