Public Health and Terrorism Preparedness: Cross-Border Issues

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SYNOPSIS

On December 15, 2003, the Centers for Public Health Preparedness at the University of Minnesota and the University of Iowa convened the "Public Health and Terrorism Preparedness: Cross-Border Issues Roundtable." The purpose of the roundtable was to gather public health professionals and government agency representatives at the state, provincial, and local levels to identify unmet crossborder emergency preparedness and response needs and develop strategies for addressing these needs. Representatives from six state and local public health departments and three provincial governments were invited to identify cross-border needs and issues using a nominal group process. The result of the roundtable was identification of the needs considered most important and most doable across all the focus groups. The need to collaborate on and exchange plans and protocols among agencies was identified as most important and most doable across all groups. Development of contact protocols and creation and maintenance of a contact database was also considered important and doable for a majority of groups. Other needs ranked important across the majority of groups included specific isolation and quarantine protocols for multi-state responses; a system for rapid and secure exchange of information; specific protocols for sharing human resources across borders, including emergency credentials for physicians and health care workers; and a specific protocol to coordinate Strategic National Stockpile mechanisms across border communities.

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Evidence of the need to revitalize a coordinated system-wide approach to public health practice probably dated farther back than the historic 1988 Institute of Medicine (IOM) report The Future of Public Health, which charged that the system was "in disarray." But the response to action was slow. In the 1990s, public health experienced partnership demands created in part by the integration of health care delivery systems, which, coupled with the globalization of the economy and political priorities, created considerable challenges in the coordination of public health services. The need for a systems approach to public health was also reported in June 1999 in the Association of Schools of Public Health (ASPH) Council of Public Health Practice Coordinators report, Demonstrating Excellence in Academic Public Health Practice, which stated, ". . . multi-sector linkages are crucial to assuring that communities can effectively deliver services essential to the public's health."2 Without partnerships, the report stated, public health problems cannot effectively be solved with a geographically dispersed and multidisciplinary workforce.

Since the events of September 11, 2001, literature on preparedness alludes to the need for a complex web of systems and partnerships required for an effective response to bioterrorism and other public health emergencies. Each system has its own boundaries and creates a unique set of "border" issues that must be addressed by a prepared and responsive public health workforce. Response to action in the development of a systems approach to public health practice is now urgent.

This article summarizes a systems approach adapted by the Centers for Public Health Preparedness (CPHP) in Minnesota and Iowa that utilized their convening ability to bring together individuals at the state, provincial, and local levels to identify unmet cross-border needs and develop strategies for addressing those needs. The "Public Health and Terrorism Preparedness Cross-Border Issues Roundtable" was held on December 15, 2003.

LITERATURE REVIEW

A literature review in preparation for the roundtable yielded a limited number of articles addressing cross-border needs for preparedness, response, and recovery from terrorist and other public health emergencies. To broaden the scope of our understanding, cross-border issues were redefined to include the multi-system challenges encountered in public health, including geopolitical, jurisdictional, and professional.

The borders of geopolitical systems vary in size and scope from those of small towns, cities, and counties to the larger state, tribal, and national boundaries. Jurisdictional borders include those that encompass the authority or legislated powers of local, state, federal, and international agencies within these political systems; of particular consideration are those applicable in a terrorist event.

Authors agree that whether the disaster is a bioterrorist event or other public health emergency, the initial response is local.³⁻⁵ Yet the capacity of local systems will likely be overwhelmed if the threat is of significant magnitude. The U.S. government has developed a framework by which state and federal agencies will respond with assistance to these local events, especially if a criminal act has taken place. The plan assigns a responsible agency to each of the emergency response functions based on predicted need. Legislation updating capacity and interstate assistance has also been adopted in some states and compacts have been formed to address health care system capacity.^{6–8}

The integration of these systems poses geopolitical and jurisdictional challenges. Clinical care capacity, coordination of epidemiologic investigations, legal implications, use and depletion of physical resources, human rights and civil liberties, and laboratory capacity and capability are all areas of concern that must be addressed on a local level, while integrating with state, national, and even international response plans.^{4,9,10} The financial resources, political cultures, and physical attributes of neighboring communities, states, and nations must also be taken into account as surge capacity is planned.¹¹ Physical borders including rivers, highways, lakes, mountains, and other geographic markers that separate one population or community from direct contact with the other are considered part of the geopolitical challenges, along with such activities as transportation and communication from one jurisdiction to another.

Timely recognition of an abnormal event is critical. Surveillance systems across jurisdictions and agencies have been improving over time but continue to pose a challenge in reliance on confirmed diagnoses or interpretation of data, enforcement of mandatory reporting, and inadequacies in the timeliness of submission and analysis.^{4,12,13} "Data mining" from other sources such as animal disease registries and resource management systems, while potential examples of best sources for early detection, pose unique interpretation and coordination challenges across disciplinary boundaries.^{4,13,14} Establishing partnerships between various health systems can be hampered by the competitive nature of the organizations involved as well as by conflicting priorities.^{15,16}

Based on the limited literature devoted to the topic of cross-border issues, communication is arguably the most cited barrier to reaching and maintaining a high level of preparedness. Pre-event planning requires ongoing communication between sectors and agencies that usually interact on an as-needed basis.¹⁰ Checklists and job duty reports have been proposed to act as guidelines for communications between state and local health officials, as well as for volunteers, to address some of the potential issues across jurisdictions, but to remain effective, these too need care in the form of updating and training on use.^{17,18}

Contact people need to be identified and communication methods shared with other agencies, industries, and organizations with no previous history of interaction (e.g., the agriculture industry and hospital emergency departments). Communication protocols must be developed, and personnel must be trained in their relevant roles.^{17,19}

Rapid communication and surveillance systems that can reach a variety of local and federal agencies and organizations quickly and remain functional in times of emergency are of crucial importance. The Health Alert Network (HAN), Early Aberration Reporting System (EARS), Metropolitan Medical Response Systems (MMRS), and other incident management systems have all been developed to streamline detection and response efforts to address some of the communication issues across borders.^{5,6,12,16} Yet the physical resources for communication continue to need maintenance and standardization, from computer systems to radio broadcast channels. 4,6

In addition to building the infrastructure, a challenge to consistent and efficient communication across systems is strong working relationships. Increased positive interactions between local and federal agency personnel and those in the academic and private sectors is necessary to foster trust and collaboration.¹⁰ Professional border issues exist between and within the various professions and organizations. These issues include competition and differences in occupational and organizational cultures and professional roles. Timing, method, and the content of the message can either help or hinder response.⁴ Finally, developing protocols to handle the coordination and communication of risk and event information to the general public is an important issue and one that is often absent from the preparedness literature.²⁰

THE ROUNDTABLE

Background

The University of Minnesota Center for Public Health Preparedness (UMNCPHP) was created in 2002 as part of the national network of Academic Centers for Public Health Preparedness (ACPHP) within schools of public health. These centers were organized and funded through a cooperative agreement between the Association of Schools of Public Health (ASPH) and the Centers for Disease Control and Prevention (CDC). As of September 2004, the ACPHP joined with specialty centers across the nation to form a coordinated network of Centers for Public Health Preparedness (CPHP) funded by CDC.

The CPHP network is designed to generate new training protocols and proficient deployment of necessary skills and information to prepare state and local public health workers and others to respond to terrorist incidents, infectious disease outbreaks, and emergent public health threats. The mission of the UMNCPHP as part of the network includes providing technical expertise to support state and local health departments in their service region.

In spring 2003, the UMNCPHP Advisory Cooperative Board, including representatives from state and local health departments, requested help to convene a regional meeting to identify unmet cross-border needs in the upper Midwest. UMNCPHP began the planning process for the meeting with an invitation to its network partner, the University of Iowa Center for Public Health Preparedness (ICPHP), to expand the geographic coverage and enhance network relationships. In addition, provincial representation was sought from Canadian border participants.

Planning

In a collaborative research model such as that encouraged through the CPHP, academics and the community work together to identify research issues, develop the research design, collect data, analyze data, document results, and even work with policy makers and practitioners to design programs and policies to address the issues identified.²¹ In keeping with this model, development of the roundtable involved all parties from the onset of the process.

Invitee categories were identified through a two-step process beginning with preliminary identification of a list by the UMNCPHP Advisory Cooperative Board. The list was reviewed and finalized by a planning committee comprised of representatives from ICPHP and the six U.S. jurisdictions under consideration for inclusion. States and provinces that bordered the home states of sponsoring CPHPs were recognized as key invitees. Representatives from state and local public health departments, tribal governments, and federal agencies that address cross-border issues in the Midwest were also invited. The CPHPs made contact with the various state/ provincial programs to gather specific contact information for the potential participants. The planning group determined that based on the purpose and goals of the meeting, individuals representing the following groups should be invited to attend:

- Focus Area A: Preparedness, Planning and Readiness Assessment;
- Focus Area B: Surveillance and Epidemiology;
- Focus Areas C: Laboratory Capacity-Biologic Agents;
- Focus Areas D: Laboratory Capacity-Chemical Agents;
- Focus Area E: Health Alert Network (HAN)/Communication Information Technology;
- Focus Area F: Communicating Health Risks and Health Information Dissemination;
- Focus Area G: Education and Training;
- Health Resources and Services Administration (HRSA)/ Hospital Preparedness program for each state health department;
- Division of Emergency Management for each state;
- State Health Department legal counsel for each state;
- Tribal governments;
- Strategic National Stockpile (SNS) for each state health department;
- Smallpox program from each state health department;
- Regional/local bioterrorism coordinators as designated by each state;
- Canadian border provinces;
- Association of Schools of Public Health; and
- Centers for Disease Control and Prevention.

Participation in the roundtable was by invitation only.

The planning group determined that registrants' responses to a common set of scenarios could serve as a basis for discussion of cross-border needs. Two scenarios were produced to stimulate thinking regarding cross-border issues and needs, and prior to the roundtable, invitees were asked three questions about each:

- From your perspective, what are the three most pressing "border issues" illustrated by this scenario?
- Do you believe that your state is adequately prepared to address these issues?
- If not, what additional planning, policies, procedures, or resources are needed?

Responses to the scenarios were compiled, and the list generated through this process was distributed to all participants.

Meeting

The day-long roundtable was held on December 15, 2003. A winter storm impeded the travel of some potential participants, resulting in 97 people (90% participation from 110 registrations) from six Midwestern states and three Canadian provinces attending. Participants included local, provincial, and tribal public health representatives and state level representatives from all focus areas, emergency management, HRSA, hospital preparedness, legal counsel, and the CDC.

Responses to the scenarios were discussed and attendees were given the opportunity to review and add to the list. The morning session focused on generating a list of cross-border needs that had not yet been addressed. Several facilitated group sessions were conducted. Participants were placed in small groups (5–10 people) according to the preparedness and response focus area they most closely work with on a regular basis.

Ten groups were formed:

- Focus Area A: Preparedness, Planning and Readiness Assessment (two groups because of size);
- Focus Area B: Surveillance and Epidemiology;
- Focus Areas C and D: Labs (biologic and chemical agents);
- Focus Area E: HAN/Communication Information;
- Focus Area F: Communication and Information Dissemination;
- Focus Area G: Education and Training;
- HRSA/Hospital Preparedness Program (2 groups because of size); and
- Regional/Local Bioterrorism Coordinators.

Using a facilitated focus group process, group members voted for the five needs they considered the highest priorities. These were added to the list generated prior to the roundtable for use in the remaining sessions. Using the new expanded list of needs, the group was tasked with choosing the needs they felt were the most important. The facilitator allowed the group to discuss needs as they were presented, then asked for their votes on a scale of 1 to 4, with 1 being low and 4 being high. Needs identified as the most important (3 or 4) were kept for use in the next session.

The purpose of the third session was to determine the "doability" of each of the needs identified as most important during the previous workshop. Doability was defined as the ability or likelihood of being successful in meeting this need. Group members ranked the needs according to their doability on a scale of 1 to 4 and created a list of those needs considered to be highly doable (3 or 4). The final group session allowed participants to identify and share the successes they had experienced in addressing cross-border issues at their home agencies or departments. Finally, participants were asked to note their suggestions on possible steps to be taken after the roundtable ended.

Results

Distribution of the two scenarios prior to the roundtable stimulated invitees' thinking about cross-border issues and needs. Responses to the scenarios were compiled and a list was generated (Table 1). Responses were sorted into general categories of cross-border issues:

- Information exchange;
- Resource sharing;
- Consistency of messages;
- SNS and mass distribution sites;
- Regional planning/pre-event decision-making;
- Notification protocols and key contact database;
- Coordination among epidemiologists and with law enforcement;
- Command and control; and
- Responder credentialing.

These general categories allowed for focused discussion during the roundtable but were not meant to be exhaustive. Groups added additional needs during the session specific to their areas of responsibility. None of the additional needs, however, were duplicated across focus areas, so application and discussion of these were limited to the small group that originated the need. For instance, Focus Area B added a specific need to identify strategies for "interstate access to state Health Alert Networks," which is consistent with their responsibility. This will be shared with all participants as an important and doable need for this focus area, but was not considered across all groups for next steps in program or policy formation.

Table 1 summarizes the percentage of focus groups that ranked the identified needs as most important and most doable. There was a consensus across all groups that there is a need in regional planning/pre-event decision-making to exchange plans and protocols and possibly develop additional plans collaboratively. All groups, with the exception of one of the Focus Area A groups, rated the need for a database of key state and county contacts and the need for a policy regarding the use of the database and maintenance of current data as important. All but Focus Area E found this need to be highly doable.

The need for specific methods to ensure consistency and accuracy of communication to health care providers (including emergency responders), the media, and the public across jurisdictions was identified as an important need by all groups, with the exception of Focus Area F. However, the doability of this need varied across the groups, with Focus Areas A, C, D, and E ranking doability low.

Other needs that were ranked important (3 or 4) across the majority of groups include:

- Specific isolation and quarantine protocols for multistate responses. Focus Areas E and F did not find this important; Focus Area G and one of the HRSA/Hospital Preparedness groups found this to be more doable than the remaining groups.
- System for rapid and secure exchange of information with decision-makers at CDC, other states, and Canada

Category of need	Need	Percent of groups
Command and control	Multi-state/province command and control of public health response (volunteer coordination, assistance, closing of borders, etc.)	10%
Consistency of messages	Specific methods to ensure consistency and accuracy of communication to health care providers (including emergency responders), the media, and the public across jurisdictions	50%
Coordination among epidemiologists and with law enforcement	A plan to coordinate investigations and share results with bordering states/ provinces	60%
	A plan to approach the investigation from not only a public health stance, but also as a criminal investigation	40%
Information exchange	A specific mechanism for the sharing of surveillance and epidemiological findings early on to coordinate plans that may include a declaration of emergency	30%
	A system for rapid and secure exchange of information with decision-makers at CDC, other states, and Canada to have a consistent approach to response activities	40%
	Guidelines for declaring a state-of-emergency when a public health situation occurs on tribal lands	10%
	System and plan (including triggers) for notification of and communication among all players (epidemiology, lab, local public health, law enforcement, etc.) within the region including bordering states and provinces	30%
Notification protocols and key contact database	Database of key state and county contacts; policy for use of database; policy for maintenance of current data	80%
	Protocols to determine who gets contacted in a border state in the event of a public health emergency (state level? local level?); inclusion of information in individual preparedness plans	90%
Regional planning/pre-event decision-making	Development of exchange agreements for state assets; pre-negotiated mutual aid contracts	10%
	Policies for guidelines for closure of borders	10%
	Pre-existing clearance procedures so public information can be disseminated guickl	v 50%
	Specific isolation and guarantine protocols for multi-state responses	20%
	Collaborative development and exchange of plans and protocol	100%
Resource sharing	Shared plan for dealing with traffic/mass exodus on highways and roads	10%
	Specific protocol for sharing of human resources across borders	50%
	Specific protocol for sharing of written materials, equipment, supplies and facilities across borders	30%
Responder credentialing	Emergency credentials for physicians and health care workers that allows practice across jurisdictions	50%
SNS and mass distribution sites	A specific mechanism to coordinate SNS mechanisms between states, working across border communities	60%
	Plans for establishing mass distribution sites in bordering states in order to serve border residents	50%

Table 1. Percent of focus groups identifying needs as most important and most doable

CDC = Centers for Disease Control and Prevention

SNS = Strategic National Stockpile

in order to have a consistent approach to response activities. All but Focus Areas B and F believed this need was important. Focus Area A, one of the HRSA/ Hospital Preparedness groups, and the Regional/ Local Bioterrorism Coordinators ranked doability higher than the other groups.

• Specific protocol for sharing human resources across borders. All groups, excluding Regional/Local Bioter-

rorism Coordinators and Focus Area E, found this to be important, with one Focus Area A group and Focus Areas F and G groups ranking doability lower than the other groups.

• Emergency credentials for physicians and health care workers allowing practice across jurisdictions was also found to be important across the majority of groups (excluding Focus Areas C and D and Regional/Local Bioterrorism Coordinators). The ranking of doability varied among the groups.

• A specific protocol to coordinate SNS mechanisms across border communities was found to be important by all groups but Focus Areas C and D and one of the HRSA/Hospital Preparedness groups. Doability was ranked low by Focus Area F and the other HRSA/ Hospital Preparedness group.

The needs that were not consistently ranked of high importance across the groups include:

- Guidelines for declaring a state-of-emergency when a public health situation occurs on tribal lands. Focus Area E ranked this important and doable and Regional/Local Bioterrorism Coordinators ranked it important, but not as doable.
- Policies for closure of borders. One of the Focus Area A groups found this to be important and doable. One of the HRSA/Hospital Preparedness groups ranked this as an important need, but not very doable.
- Shared plan for dealing with traffic or mass exodus on roadways. Focus Area B ranked this important and doable, while Focus Area F also ranked it important, but not very doable.
- Development of pre-negotiated mutual aid contracts. Focus Areas B and E found this to be important and somewhat doable, while one of the Focus Area A groups found this to be both important and highly doable.

DISCUSSION

Results of the roundtable suggest that the answer to the question, "Are the states prepared to respond to bioterrorism or other emergency public health threats?" is best answered by, "We have a good start but there is more work to be done." The issues that need to be addressed to "get the work done" are realized through interpretation and implementation within areas of specific responsibility (e.g., focus areas) and across systems. Geopolitical, jurisdictional, and professional system needs and priorities influence the use of the roundtable results.

Needs

For example, the need to collaborate on and exchange emergency preparedness and response plans and protocols among agencies was the only need identified as most important and most doable across all groups. This exchange of documents does not require a change in the geopolitical system but rather a change in decision-making about partnership in the exchange of information, a condition of professional systems. The lack of partner contact and exchange of the plans/ protocols is determined traditionally by the duties or roles of professional groups rather than by the geopolitical boundaries themselves.

Thus, it is also not surprising that all but one small group identified the need to develop "protocols to determine who gets contacted in a border state in the event of a public health emergency..." as important and doable. The only other cross-cutting need within the general category of "notification protocols and key contact database"—a database of key state and county contacts and a policy of use for such a database, as well as a policy for maintenance of current data-was also important and doable for a majority of groups. Identification of contacts and establishing protocols for contact list maintenance and exchange would meet important and doable needs for communication across borders. This is identified as the primary cross-border need for all respondents and is recommended as an important first step to be addressed for this region. Ten out of 22 needs identified through the scenario exercise were ranked as important and doable by at least half of the groups. These needs cross several systems boundaries. Credentials, while profession dependent, are often determined by jurisdictional boundaries, as license to practice rules are state and provincial specific and demand a change in law. This change has in some states been established through professional compacts (e.g., amendments to the nurse practice acts in some states to allow cross-border practice with certain restrictions) or revision of emergency powers of the jurisdiction. Each of these issues needs careful consideration by the appropriate system participants to enhance cross-border preparedness.

Because of the large number of participants who chose the HRSA/Hospital Preparedness Program as the area they most closely identified working with on a regular basis, two small groups representing this area were formed at the roundtable. Out of the 21 needs (Table 1), 80% were ranked the same for importance (levels 3 and 4) and doability by both HRSA/Hospital Preparedness groups, suggesting that for HRSA/Hospital Preparedness participants, the rating of needs was highly reliable.

Differences in needs identified as most important and doable were not predictive as a function of the group responsibilities. This could be due to several factors including that the majority of a group might have already met the need prior to the roundtable. For instance, Focus Area E: HAN/Communication Information Technology, identified "consistency of message" as only moderately important and doable. However, this need was rated as highly important and doable by 50% of the other groups, including Focus B: Surveillance and Epidemiology, Focus G: Education and Training, HRSA/Hospital Preparedness, and Regional/Local Bioterrorism Coordinators. While communication is a primary responsibility of Focus Area E, it stands to reason that much work has already been done in the area of consistency of messages, thus resulting in the lower priority for this group at the time of the roundtable.

In addition to the data generated by the nominal group process, the outcomes of the roundtable included increased familiarity with colleagues across the region and a better understanding of the various types of cross-border activities that had taken place. The small groups were asked to identify successes their organizations had working on cross-border or preparedness issues. Group members were asked to describe the successful action, name the assets that allowed the task to be completed, and specify a contact person who could provide additional information regarding the accomplishment. A total of 173 successes were shared by the participants, including:

• Cross-border advisory boards and teams formed at the local level;

- Just-in-time food safety training available for multistate establishments;
- Exercises across states including SNS and SARS;
- Competency-based learning needs assessments shared across borders;
- On-line and satellite trainings accessible with regional coordination;
- Syndromic surveillance system development for health care providers/hospitals across borders;
- Improved lab capacity with neighboring state cooperation;
- Communications system enhancement and consistency across borders; and,
- Multi-system team development across Hazmat, law enforcement, emergency response teams, and others.

Finally, participants were asked to suggest possible steps to be taken after the roundtable ended. Suggestions were wideranging and included cooperation among participants; coordination around specific needs; communication, documentation, and information dissemination; and training.

Next steps

The next steps most consistent with the CPHP mission include those under the broad category of training. The CPHP network is designed to generate new training protocols and proficient deployment of necessary skills and information to prepare state and local public health workers and others to respond to terrorist incidents, infectious disease outbreaks, and emergent public health threats. Thus, as an assessment of need for training across borders, the next steps under consideration include tabletop exercises simulating crossborder incidents; regional SNS training; certification or credentialing in public health preparedness; and certification or credentialing in emergency preparedness.

Evaluation

Other participants with training responsibilities benefited by the identification and clarification of needs. One stated, "I now have a better idea of all the focus groups and their purpose. Also, I am more aware of issues to include in our training and coordination efforts."

When asked, "What was the best thing about today's meeting?" the overwhelming majority of responses (79%) identified networking activities. Sharing the data with all participants allows for next steps to be initiated throughout the network. Some examples of the beginning of next steps were already evident in the evaluations at the end of the roundtable sessions:

- "I will assist in instructing counties that border other states in incorporating some of the issues that were raised today."
- "Our group plans to continue working together to develop plans and guidance for handling, transport, screening, and analysis of environmental samples relating to 'all hazards' events."
- "In our workgroup, the participants agreed to take the 'next steps' toward our 3 most important and

most doable issues. I will be enriched, in my daily responsibilities, through the perspectives and enthusiasm of my colleagues in other geographic regions."

And feedback some months after the event includes comments such as: "We have been able to keep the momentum going by recently having regional conference calls with all my CDC grant coordinator counterparts."

The CPHP assist in this process through their convening power across geopolitical, jurisdictional, and professional borders. An important next step is the continued dissemination of the data from the first roundtable and conversations among partners about a follow-up conference to facilitate networking. As one participant stated, "We must have more of these! We want the same thing (to be prepared) now that we've outlined issues and successes; let's do it! Let's get it done!"

SUMMARY

In the current global economy, interdependence is occurring as a result of the rapid movement of people, values, and products across borders. One consequence of the increased exchange is the greater risk to the public's health. These issues cannot be resolved by geopolitical, jurisdictional, and professional considerations alone; they require the collaboration and cooperation of people functioning without borders.

An important role of the CPHP is to support collaboration and cooperation as a neutral convener with no geopolitical, jurisdictional, or professional boundaries to bring up "turf" or ownership issues. This academic approach to practice issues helps ensure that plans and activities are based on a tested theoretical framework, not just on instinct or anecdotal evidence. Adult learning principles were used to develop a cross-border conference using a nominal group process and facilitated focused group perspective that avoids the content-heavy "talking heads" approach commonly found in conference planning. The CPHP is an important partner in training new or reassigned staff in these challenging areas of cross-border issues. With a history of leadership in public health preparedness and public health workforce development, schools of public health and the CPHP can provide a forum for collaboration and cooperation for local and state public health professionals challenged with preparedness, response, and recovery for all urgent threats to the public's health.

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