Reverse Quality Management: Developing Evidence-based Best Practices in Health Emergency Management

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The British Columbia Ministry of Health's Framework for Core Functions in Public Health was the catalyst that inspired this review of best practices in health emergency management. The fieldwork was conducted in the fall of 2005 between hurricane Katrina and the South Asia earthquake. These tragedies, shown on 24/7 television news channels, provided an eyewitness account of disaster management, or lack of it, in our global village world. It is not enough to just have best practices in place. There has to be a governance structure that can be held accountable. This review of best practices lists actions in support of an emergency preparedness culture at the management, executive, and corporate/governance levels of the organization. The methodology adopted a future quality management approach of the emergency management process to identify the corresponding performance indictors that correlated with practices or sets of practices. Identifying best practice performance indictors needed to conduct a future quality management audit is described as reverse quality management. *Best practices cannot be assessed as stand-alone criteria; they are influenced by organizational culture. The defining of best practices was influenced by doubt about defining a practice it is hoped will never be performed, medical staff involvement, leadership, and an appreciation of the resources required and how they need to be managed. Best practice benchmarks are seen as being related more to "measures" of performance defined locally and agreed on by 2 or more parties rather than to achieving industrial standards. Relating practices to performance indicators and then to benchmarks resulted in the development of a Health Emergency Management Best Practices Matrix that lists specific practice in the different phases of emergency management.*

The British Columbia (BC) Ministry of Health's Framework for Core Functions in Public Health states that Health Emergency Management (HEM) is a core program within public health.[1] In order to facilitate discussion among a working group on defining HEM as a core public health function, the Population and Public Health Department of the ministry sponsored this

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review of best practices in HEM in BC. In addition to this fieldwork, a companion literature review of evidence-based best practices was conducted.

Most of the fieldwork on this project was conducted between August 29, 2005 (the day hurricane Katrina slammed into New Orleans), and October 7, 2005 (the day an earthquake caused so much devastation in South Asia), as well as against the background of the landslides in Guatemala and the bomb blasts by terrorists in New Delhi. All of these events were broadcasted on the 24/7 television news channels, providing a real-time account of disaster management, or lack of it, in our global village world.

Witnessing all of these naturally occurring and man-made tragedies, the need for best practices in emergency management was most evident if lives are to be saved and property losses reduced. As the companion literature review documents, it is not enough to just have best practices in place. There has to be governance and accountability mechanisms that can be held accountable for due processes needed to support their sustainability and implementation. In accordance with these observations, this review of best practices includes responsibilities for taking actions in support of an emergency preparedness culture at the management, executive, and corporate/governance levels of the organization.

HEALTH SERVICES ORGANIZATION IN BC

Canadian provincial governments are responsible for the delivery of health services within their provinces. All the 10 provinces and the 3 territories that make up Canada are required to provide Canadian citizens and landed immigrants resident in, or visiting, their jurisdiction access to medical care and in-patient hospital care at time of need. Providing such access is a condition of the Canada Health Act through which the provinces receive funding from the Government of Canada to supplement their health care costs. All provincial programs cover the cost of most prescription medicines and other outpatient services for persons older than 65 and residents receiving social assistance. Other Canadians purchase supplemental insurance from private insurance companies, with the majority receiving such coverage through their employer. The way provincial health services are administered differs among provinces, reflecting the historical and cultural mores of each province.

In BC, health services are administered through a regional structure of 5 health authorities that are accountable to the province's Minister of Health for the organization and funding of all health services within their regions. These arrangements do not include physician and prescription drug reimbursement, which are managed by the Ministry of Health. In addition, a provincial health authority oversees the management of such provincial programs as communicable diseases, cancer, transplantation, etc. Each health authority has at least one full-time person dedicated to coordinating and managing emergency preparedness and response within the organization. A critical part of public Health Emergency Management in BC is the role of the British Columbia Center for Disease Control in providing leadership and direction in the management of communicable diseases.[2]

A FRAMEWORK FOR CORE FUNCTIONS IN PUBLIC HEALTH

Against the background of severe acute respiratory syndrome,[3] West Nile virus, and the possibility of an influenza pandemic,[4] public health in Canada has been redefining its role in health care.[5,6] The BC Ministry of Health's Framework for Core Functions in Public Health identifies the key set of public health services that health authorities will provide and will strengthen the link between public health, primary care, and chronic disease management. Health emergency management is seen as complementing and expanding the traditional emergency response role of public health in controlling the spread of communicable diseases' outbreaks. The framework states that

Public health can be threatened by all manner of natural and human-generated emergencies, from explosions, fires, and industrial accidents involving hazardous materials, to

storms and earthquakes. As well, there is the potential for terrorist acts to occur, which could involve highly toxic or infectious agents. Public health plays an important role in the process of comprehensive health emergency management, while the powers granted to medical health officers are important in managing the consequences of community emergencies.

From a population and public health perspective, disaster, vulnerability, and mitigation are seen as components of the public health roles in health promotion, health protection, and personal health services, thus placing HEM squarely within the Core Public Health Function that BC health authorities need to perform. In this context, the review considers emergency management practices that apply to the health sector. A comprehensive HEM program includes hazard identification, prevention and mitigation, preparedness, response, and recovery. The expectation that health authorities identify and monitor vulnerable populations at risk further supports emergency health management being allied with public health.[7]

METHODOLOGY OF APPROACH

For the purpose of this review, *best practices* were defined as activities that HEM personnel have witnessed, taken part in, or have reliable reports on, that have a proven track record in terms of improving the situation, and that can be described in terms of the effectiveness they had on consequences during and following an emergency situation.

The fundamental questions this review sought to answer are as follows:

What functions/practices/activities/roles should health authorities and their personnel—including public health staff—perform in seeking to prevent, prepare for, and manage an emergency that might result in mass casualties?

How should public health and health authority personnel respond, in collaboration with their colleagues in other programs and first response

emergency stakeholder agencies external to the health system, to a disaster and the resulting mass casualties, damage to health system infrastructure capacity, and disruption of business continuity?

In order to explore these questions, a study population of health emergency professionals working in the BC health system was identified. The members of this group were selected on the basis of their understanding of how the emergency incident command system functions within the context of the BC Emergency Response Management System (BCERMS), their understanding of the health authority structure, and their experience in managing an emergency situation in BC. A structured interview schedule was developed from a preliminary review of the literature and in consultation with ministry staff.

The term *mass casualties* in the question above was defined as the number of fatalities (F) and the number of injuries (I) resulting from a catastrophic event. The number of injured (I) can be categorized into the number of critically injured requiring immediate medical attention (C), the number of non–life-threatening but seriously injured (N), the number of walking wounded (W), and the number of traumatized/worried well (T). Health emergency managers were asked to speculate on the relative numbers attributed to F, I, C, N, W, and T and what practices were needed so that their organization could react accordingly.

The practices that unfold when the decision to constitute an Incident Commander and/or an Emergency Operations Centre (EOC) is taken have to relate to the corporate/governance structures. The interview schedule inquired about corporate/governance practices that need to be acknowledged prior to an emergency. The role and responsibility of the Ministry of Health relative to the health authority was also reviewed in this context.

Emergency management is about preparing for an emergency. The management of an emergency incident occurs with a clearly identified beginning and an end. The development of best practices within these environments requires a process that

can verify that specific practices were performed in managing the preparation and execution phases. By considering how it would be possible to conduct a future quality management review of these phases, it was possible to identify the corresponding performance indictors that could be correlated with individual practices or sets of practices. This process of identifying best practice performance indictors needed to conduct a future quality management audit is described as *reverse quality management.*

In the majority of situations, it is expected that a performance indicator will result in some form of routine documentation, minutes, e-mails, newsletters, etc, confirming that the practice has been performed. Lists of practices and related performance indicators need to be correlated to a standard of performance that forms an acceptable benchmark among the parties involved. Relating practices to performance indicators and then to benchmarks resulted in the development of an HEM Best Practices Matrix.

BENCHMARKS

Interview responses about identifying benchmarks in emergency management revolved around the assessment/evaluation/outcomes process involved in meeting some form of industrial standards that are adapted to a health program. The 2005 Accreditation Recognition Guidelines of the Canadian Council on Health Services Accreditation,[8] the F/P/T National Framework for Health Emergency Management Guideline,[9] and the National Fire Protection Association (NFPA) 1600 Standard on Disaster/Emergency Management[10] were identified as standards more from the perspective of "health industry standards." Industrial standards generally, such as those of the Canadian Standards Association,[11] the Office of Economic Cooperation and Development,[12] and the International Labour Organization[13] along with ISO 14001,* were said to

provide recognized standards for industrial environmental emergency management systems. These standards could provide a basis upon which to compare locally derived and customized benchmarks that are based on recognized local best practices.

In this review, benchmarks are seen as being related more to "measures" of performance defined locally and agreed on by 2 or more parties within an organization or system of organizations rather than to set standards that should be achieved. These performance measures can vary over time. The overall credibility of this process, particularly in the context of a public health system, is seen as being dependent on its transparency, such as publication on health authorities' Web sites. Transparency is needed to ensure a standard of excellence and that each part of the system learns from the other parts as well as shares its learning experience.[14]

THE HEM BEST PRACTICE MATRIX

Table 1 presents a sample of the kinds of practices listed in the HEM Best Practices Matrix. Practices are identified alongside a column listing the corresponding Performance Indicators and a blank column headed "Benchmarks." The blank column allows for dialogue by the working group, which will facilitate ministry and health authority staff and others to review and complete the Core Program Best Practices Paper for Emergency Management. It is the mutual recognition of best practices established among all stakeholders—health emergency managers, corporate-level administration, governing bodies, and the Ministry of Health—that will establish the benchmark for each practice or set of practices.

During interviews for this review, it became apparent that each health authority would identify practices unique to its local modus operandi. The practices listed in the prototype HEM Best Practices Matrix are the kinds of practices that are universal to most HEM programs. The extent to which differences occur will be a reflection of the way programs are organized and managed in different health authorities.

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*ISO 14001 provides guidance on how to manage the environmental aspects of your activities, products and services more effectively, taking into consideration environmental protection, pollution prevention and socioeconomic needs.

Table 1

SAMPLE HEALTH EMERGENCY MANAGEMENT BEST PRACTICES MATRIX*,†

Best Practices Matrix		
Practice	Performance Indicator	Benchmark(s)
Prevention (4)		
All public health prevention programs are recognized as being part of managing unexpected, possibly catastrophic, hazards occurring in the community	Public Health Program vision articulates that HEM is a critical component of its healthy communities objectives	
HA staff who are involved in outreach practices, such as public health inspectors and home care providers, to report on potential hazardous situations they perceive in the community	Public Health Inspectors trained to note and report on potential hazards observed while on routine duties. All community outreach staff trained to note and report on potential hazards observed	
Risk assessment and mitigation (9)		
HEM personnel identify local threats and hazards that may cause harm and document what actions could be taken, to alleviate consequences of worst-possible scenario	HEM personnel identify vulnerable populations, institutionalized and in community at risk and develop exit strategies in the event of a need to evacuate	
Risk assessment of typology of the environment: heavily wooded area, flooded plains, mountain (landslide threats), etc	Publish articles on Web site and in community newsletters about local potential hazardous situations	
Establish backup facilities for power and communications that may go down during an emergency situation	Catalogue availability and location of power backup sources of private and public power sources in community	
Preparedness (21)		
Definitive corporate leadership and commitment	Recognition throughout the organization that the Executive fully supports the HEM program	
Sustainable funding allocation so that program incorporates the vision of the organization	Program costs built into budgetary cycle of the organization	
Have a plan in place on how an identified potential hazards scenario may be managed	Defined actions that can be expected with most likely emergencies to occur locally	
Have a plan in place on how an identified unexpected situation may be managed	A generic approach toward disaster planning developed in collaboration with outside stakeholder interests	
Routinely rehearse practice drills on how to manage foreseeable and unexpected crises that may occur	Fully documented tabletop and real-time simulated exercises involving all strata of the organization	
Create an inventory of key supplies needed during an emergency situation	Discuss with materials management staff about extra quantities needed in budget	
Make sure that sufficient key supplies are available for emergency situations	Designate areas where supplies can be stored and checked out frequently	
Identify location(s) for establishing EOC	Backup location in case initial location threatened or power is down	
Have backup communications at location(s) where EOC may be constituted	Battery-operated handheld walkie-talkies and a satellite phone backup	
Response/constitute EOC (5)		
Stress management for the EOC staff should be available in groups at meetings or one on one as required during the EOC	Recognized protocols in place	

Table 1

SAMPLE HEALTH EMERGENCY MANAGEMENT BEST PRACTICES MATRIX*,†*(Continued)*

Best Practices Matrix		
Practice	**Performance Indicator**	**Benchmark(s)**
Step-down process should be layered with designated staff being relieved of their EOC duties as appropriate	Recognized protocols in place	
EOC management (15)		
Designated Incident Commander chairs conference of key decision makers	Simulation exercises and at least tabletop exercises	
Report made to senior authority with request for additional resources and support as needed	Simulation exercises and at least tabletop exercises	
Personnel assigned to task and given best available resource for completing them	Scenario testing with simulation exercises and at least table top exercises	
Management style adopted within the EOC is flat, flexible, and informal—nonhierarchical	Preferred management culture discussed openly	
All personnel need to be prepared to provide backup in whatever way necessary if they are underutilized	Multitask roleplaying incorporated into training program	
The EOC staff understand that their duties are covered off when they need to leave their post to attend meetings or for other purpose	Three deep coverage a critical part of plan at all levels so that replacement is possible—critical for time-out planning of key individuals	
Arrangements made for the EOC staff to be provided with food, toiletry needs, and the opportunity to communicate with their families	Designate responsibility to individual in plan	
Recovery (5)		
Stress management for the EOC staff should be available in groups at meetings or one on one as required during the EOC	Recognized protocols in place	
Step-down process should be layered with designated staff being relieved of their EOC duties as appropriate	Recognized protocols in place	
Main debriefing session seen as a learning opportunity and to be open to HA personnel who can arrange to attend	Recognized protocols in place	
Corporate/governance (7)		
Board of governors establishes clear protocol for relationship between corporate and HSAs when Incident Command situations and EOC(s) established	Board policy statement to be referenced during all training programs	
Board of governors establish policies on the need for members of the medical staff to be actively involved in HEM planning	Formulate suitable reimbursement scheme	
Board of governors receive a full account of HEM activities at least annually	HEM director reports to the board and is prepared to answer questions	
Minister of Health encourages a culture of emergency preparedness in the province	Referenced in speeches whenever appropriate	

*HEM indicates Health Emergency Management; EOC, Emergency Operations Center; HA, XXX; and HSA, XXX.
†Numbers along side practice headings are the number of practices listed in original table.

Practice categories

From analysis of responses provided to the interview questions, the practices identified were categorized as follows.

Prevention practices (if you can)

This category attempts to relate HEM to the interventionist role of the public health mission in promoting community health well-being and secure lifestyles, which include assuring employees and patients that they are in a safe environment.

Risk assessment and mitigation practices (if you cannot prevent)

Practices listed describe how HEM staff members are expected to identify risks both to the business continuity of the health authority and to the health of the community; assess the extent to which there is a threat to the community, health region, and/or province; and document their concerns in terms of the cost of doing something to alleviate the threat or assuming the risk of a mitigation. It is expected that this work will be performed in collaboration with municipal, provincial, and community-based non-government organizations.

Preparedness practices (cannot prevent or mitigate)

Based on the number of practices listed, most of the time of the HEM staff will be dedicated to preparedness. Well-defined leadership at the executive level was identified as an essential practice in HEM. Planning is the primary practice associated with preparedness.

Response/constitution of an EOC practice

There was agreement that in most situations there is a period of uncertainty as to whether a situation ranks as an emergency. Under such circumstances, key people have to be notified and arrangements have to be made to meet. Information gathering in as systematic a format as possible and as quickly as possible is essential in deciding on actions required and the degree to which people are informed.

EOC management practices

Second to preparation, the EOC management phase identifies the next highest number of stand-alone practices. Understanding leadership following constitution of the EOC was essential. A reliable backup, with family responsibilities understood and in place, was described as critical to a well-functioning EOC. The well-being and safety of EOC staff is a critical practice in managing an EOC.

Recovery practices

Planning for recovery practices begins in the preparation phase and continues on in the EOC management phase of the HEM. It is necessary to establish that the threat no longer exists before the all clear is acknowledged. Providing support to EOC staff during the step-down phase and follow-up support in those instances where severe stress has been experienced is critical.

Corporate/governance practices

Best practices, once they have been defined and accepted by an organization as to what is expected of staff members in performing their duties, get included in the responsibilities of the governing body. The consequences of these practices are part of the accountability of the governing body.

Best practices and benchmarks cannot be assessed as stand-alone criteria; they will be influenced by the culture of the industry and the organization. It became apparent during the interviews that HEM in the context of BC was influenced by such factors as relevance of defining a practice it is hoped will never be performed, physician involvement, leadership, and an appreciation of resources requirements. These matters are discussed in order to provide an account of the organizational culture determinants that need to be considered in implementing best practices in the HEM.

DISCUSSION ABOUT BEST PRACTICES IN THE HEM

Responses to the questions asked during interviews varied from general statements to specific

examples. There was a tendency to describe practices that should happen rather than practices witnessed. Practices to assess potential emergencies and actions to be taken to ameliorate the consequences were easy to account for. The most common examples were the seismic upgradation of buildings and the promotion of fire prevention strategies. Practices for establishing working relationships with community partners such as police, fire, and municipal authorities were integral parts of prevention and preparation phases. Passing from the prevention phase to the preparedness, response, and recovery phases and defining what constitute best practices became challenging. The uniqueness of each event inferred that defining best practices in the management of an emergency was of limited value.

Emergency managers were said to have limited opportunities to practice their knowledge, skills, and theories in real emergencies. For this reason, health emergency managers strongly advocate mock exercises and are frequently quick to volunteer and participate in postevent debriefings. Volunteering to participate and share in each other's experiences was frequently referred to as a practice through which health emergency managers evaluate each other's ability to perform under stressful situations. Effective emergency management practices were said to be a function of an individual's ability to perform under stress for a period of time. Ensuring that backup is available is a critical practice in emergency management. Having confidence in one's colleague's ability to deputize for oneself when called upon was seen as the "criterion standard" among emergency managers in assessing each other's best practices.

The institution of procedural protocols was described as being the critical first step to establishing good practices. Such protocols are usually the result of extensive deliberation by experienced practitioners at the institutional level, and also through external accreditation and regulatory bodies. Their transparency among peers who can evaluate and comment on their applicability was said to add further to their application. The modifications of these protocols following exercise scenarios, or from a debriefing following an incident, were identified as "evidence-based best practices."

The critical practice everyone stressed was having a plan. While customized plans dealing with foreseeable local hazards were to be expected, it was stressed that plans had to be in place to fit all possible scenarios, including the unexpected. A concern expressed frequently was that the BC health system, while confronted with the severe acute respiratory syndrome and wildland-urban interface fires, has not been fully tested in managing a major disaster involving mass casualties. Assessing practices involved in setting up a plan and keeping it current were seen as worthy performance indicators. The hope always is that there will not be a need to assess actual emergency practices.

Considering the transition from preparedness to an EOC practice was described as changing from being strategic to being tactical. Strategic practices involve decisions taken in the prevention/mitigation and preparedness phases and in planning for recovery. The decision to constitute an EOC and managing the EOC were said to be of a tactical nature. Developing best practices for the strategic phase was seen as easier than it would be for the tactical phase. Having in place strategic practices is conditional to knowing what tactical practices need implementing.

PHYSICIAN INVOLVEMENT IN EMERGENCY MANAGEMENT

The successful implementation of an emergency plan that is designed to address the impact of a mass casualty incident is dependent on medical expertise being available and properly organized. There was agreement that in the event of a mass casualty situation medical expertise would respond. The concern expressed revolved around the optimum management of resources in the event that the physicians had not been trained for their roles and expectations under such circumstances. Three categories of physicians were identified as being recognized in planning for a mass casualty incident: emergency physician leaders, rank-and-file practicing physicians, and physician administrators.

In discussing strategies that would motivate physicians to train for their duties during a mass casualty incident, the need for a carrot-and-stick approach was identified. Physicians willing to assume a leadership role during an emergency were seen as a valuable part of emergency management preparedness and planning teams. In recognition of the time commitment required in order to assume such a leadership role it was said that compensation arrangements were required.

In discussion about motivating members of the medical community to participate in emergency preparedness training, generally the role of health authority boards was discussed. Physicians are granted privileges to use health authority resources in practicing their specialty. Consequently, under the direction of the health authority boards all members of the medical staff should have some obligation to participate in emergency management planning. The consensus was that health authority boards have responsibility for directing, and perhaps making it conditional, that their medical staff members participate in HEM planning as part of their being granted privileges.

The role of senior medical administrators was recognized as being critical in communicating with, and directing, medical personnel during an emergency. In the wake of severe acute respiratory syndrome, concerns about air quality during fires, water and food contamination, and the potential of a pandemic, public health physicians were increasingly being seen as having a significant leadership role in emergency management. It was acknowledged that physicians who are involved in the management process do tend to be more receptive to, and champions of, the emergency management planning process.

LEADERSHIP IN EMERGENCY MANAGEMENT

The topic of leadership was raised repeatedly during interviews. Cool heads that know the best practices to implement are essential to achieving success in the implementation of emergency plans.

Unless they have been specifically trained for the task, it was recommended that corporate leaders assume a backroom policy role that deals with the big picture, ensuring that resources are available as requested.

People who know what to do, and are able to professionally relate to external stakeholder groups like police, fire, and emergency social services, as well as the Provincial Emergency Program, need to be recognized as leaders during an emergency situation. Achieving best practices in emergency management was said to be dependent on the organization adopting an emergency management culture. The primary duty of emergency managers was seen as nurturing a culture of organization-wide contingency planning for when something unexpected happens.

Health facilities are vulnerable when an emergency is declared. As was evident during hurricane Katrina, police is overwhelmed. Crowd control becomes a concern at emergency departments as people inquire about relatives and premises need to be locked down. Leadership practices ensuring security and civility during an emergency are critical.

THE DYNAMICS OF HEM

The dynamics of HEM arose from discussion about the need for health administrators at all levels to incorporate the process into their routine activities and the need to ensure that the process is adequately resourced. Health emergency management is about being able to deal with emergencies on a daily, and sometimes an hourly, basis. There has to be accommodation within the resources allocated in the daily management of the system to managing the "routine and normal" emergencies/crises that occur. When such events happen, they require schedules to be changed and resources to be redirected.

The ability of a health program/system to handle such situations on a "business as usual" basis will depend on the resources allocated in "normal times." This allocation of resources will include time spent and effort made in training managers to acquire the skills necessary for handling "normal"
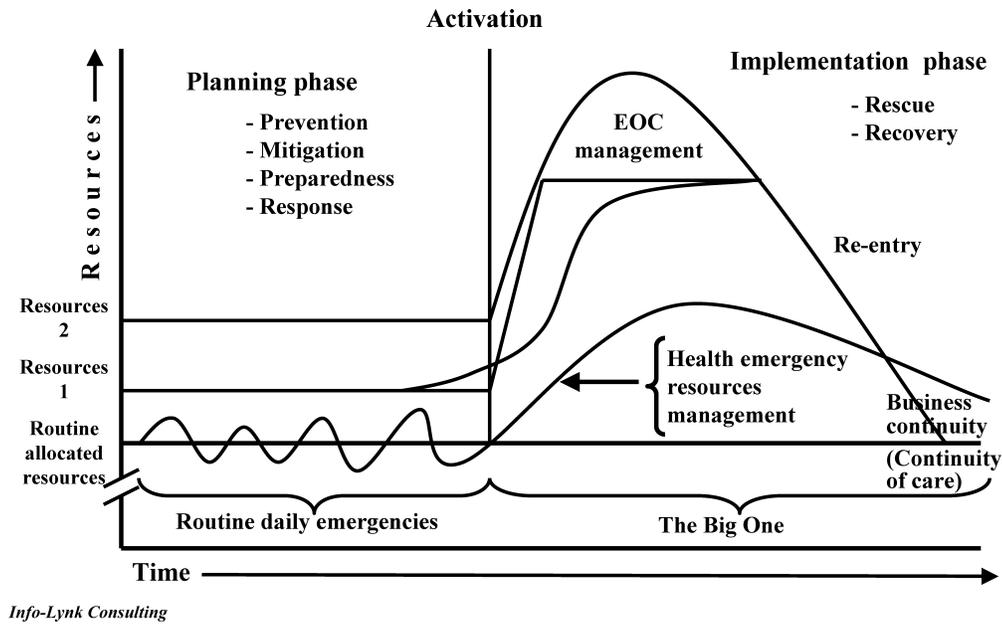
Figure 1. The dynamics of Health Emergency Management. EOC indicates Emergency Operations Center.

emergency situations. Health managers are required to know how to handle their day-to-day emergencies and when to call on their supervisor for assistance. Senior health executives are expected to manage the unexpected with a degree of professional judgment in accordance with established policies and procedures.

In the course of discussing the practices required in the management of an HEM program, several references were made to the need for senior management recognition and commitment. It was stressed that senior management needs to adopt practices that ensure their ability to comprehend the short-term multitasking that is expected from them when an emergency management plan is activated.

Figure 1, which was developed from discussion of these dynamics, illustrates the sequence of events that have to be planned for in managing major health emergencies. The management of an HEM involves having available resources that support prevention, mitigation, and preparedness activities. Figure 1 shows 2 levels of resources allocation, R1 and R2. The resources allocated to R2 indicate a faster response time in the event of an unexpected situ-

ation relative to those of R1. Several interviewees commented on how thinly stretched resources are in the health system generally and their programs in particular.

Figure 1 illustrates the intensity of practices required when activating the implementation phase of an emergency management plan. These practices were described as making the decision to activate an EOC quickly and managing the situation as it become increasingly complex. Alongside the activation and management process, having a plan ready for recovery was identified as a required practice that needs to be considered during the preparedness stage of planning. The recovery plan was seen as being implemented during the EOC management phase and facilitated return to "normal business" as quickly as possible.

The HEM resources curve is composed of 2 parts. The "curvy line" illustrates that some degree of flexibility of resources is required in the routine management of a health care organization given the frequency with which "routine" emergencies occur. When a major emergency, "The Big One," happens, the resource curve expands, as resources need to be

redirected. Having in place a system for accounting of resources required in order to manage an emergency was frequently identified as a first practice to consider in planning for an emergency. With the establishment of cost centers and reporting protocols in place, the cost should be of little concern during the operation phase. Managing the situation becomes the priority. Having recovery practices in place was critical to influencing the speed by which patient care services are returned to normal.

CONCLUSIONS

In answering the questions posed earlier in the article, the emergency management best practices listed in the HEM Best Practices Matrix provide some of the more generic elements of the HEM job function. The interpretation of answers, comments, and explanations presented in the body of this article supports an indication of the complexities around the establishment of emergency management evidence-based best practices within the BC health authority system.

This review has focused on the best practices expected of emergency management professionals within the context of BC health authorities. Clearly, public health provides leadership in emergency management for communicable diseases, contamination of the environment or the food chain, or when a biohazard material threatens society. These kinds of emergencies require knowledge workers to take the lead in assessing the threat and defining a suitable course of action. Further work is called for in defining the optimum relationship in an increasingly complex society between emergency response knowledge workers and first response uniform emergency workers such as fire, police, or ambulance personnel.[15]

The interview responses raised questions about the appropriateness of considering best practices in emergency management highlighting the unique attributes of the discipline. The reality is that when emergencies happen every emergency situation is different. Some fundamental practices around establishing an EOC can be looked for and task delegation procedures among the different players ought to

be understood. The relationship between the strategic decisions (practices) made in the preparatory phase and the tactical decisions (practices) required in the operation phase is critical in assessing the need for best practices during an emergency. The role of debriefing exercises following an emergency incident was identified as critical. By definition, the debriefing process creates evidence-based best practices given that the practices adopted would be based on eyewitness accounts for the most part.

When mass casualty situations occur, the availability of medical expertise is critical.[16] The challenge seems to be persuading physicians that it is in their own interest to move beyond the "Good Samaritan" role most physicians assume when called upon to respond to an emergency, and to recognize the need for a professionally managed environment. Medical triage is a critical practice that needs to be in place during mass causality situations if lives are to be saved. Only suitably qualified personnel can perform such tasks. There is a need to encourage and motivate physicians to acquire these practices with other members of the health emergency team.

Emergencies are multitasking situations. Executive personnel need to be familiar with their role under such circumstances. Resources that have been allocated to being prepared will influence the dynamics surrounding the management of such events. Being able to handle crises is part of the job function for health administrators. There is some suggestion that the state of crisis management that characterizes health care contributes to a feeling of immunity in having to train and prepare for the "Big One." The inference from the study population is that the success of the appropriate dynamics evolving when the Big One does happen will depend on the culture of preparedness that has been integrated into the organization and resourced appropriately.

In defining best practices, the emphasis was on witnessing a practice either firsthand or secondhand via reports. This definition of best practices resulted in a list of activities that were identified as having to be performed, individually or in combination, within the context of managing prevention/mitigation, response, and recovery. The adoption of reverse

quality management reasoning in defining practice performance indicators was an attempt to operationalize the practices so that accountability is demonstrated in a total quality system event during an emergency.[17,18] Lists of stand-alone practices and performance indicators need to relate to benchmarks that provide some assurance that the actions being performed were appropriate/satisfactory. A major point emphasized during interviews was a need to correlate emergency management best practices with resources allocated in support of an organization-wide response capability. While health emergency managers can claim ownership of specific practices, emergency management is not a job for one person or one department. Business continuity in other industries is a transitory process. In health care, the emphasis has to be on continuity of care. All members of the health care team need to be familiar with critical emergency management best practices. It is through this familiarity that continuous quality can be assured in the delivery of patient care under stressful situations.

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