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Risk communication with nurses during infectious disease outbreaks: Learning from SARS

Eileen O'Connor, PhD
Tracey O'Sullivan, PhD
Carol Amaratunga, PhD
Patricia Thille, BSc (PT), PhD (Student)
Karen P. Phillips, PhD
Michelle Carter, MSc (Candidate)
Louise Lemyre, PhD, FRSC

ABSTRACT

Objective: *To identify gaps in risk communication during public health emergencies as identified by nurses who worked in critical and emergency care hospital units during the Severe Acute Respiratory Syndrome (SARS) outbreak in Canada.*

Design: *This research is part of a larger multimethod study of the psychosocial impacts of the SARS outbreak in Canada for healthcare workers. For this qualitative analysis of risk communication, focus groups were conducted in four Canadian cities using purposive sampling to study perspectives of frontline critical care and emergency department nurses. Covello's (2003) model of best practices in risk communication is applied to assess specific areas in which risk communication gaps were identified by nurses interviewed in the focus groups.*

Setting: *Five focus groups held in four Canadian cities: Halifax, Ottawa, Toronto, Vancouver.*

Participant/Data: *n = 100 participated in focus groups in four urban communities.*

Results: *During the SARS outbreak in 2003, high levels of uncertainty, lack of trust, and questions about leadership credibility emerged as important risk communication challenges. Communication problems were compounded by a lack of reliable information, frequent changes in infection control guidelines and risk avoidance messages, as well as contradictory actions of management and senior leaders.*

Conclusions: *Risk communication constitutes an important component of any emergency protocol. This study of nurses working in emergency and critical care hospital settings during the 2003 SARS outbreak indicates key areas in which risk communication could be more efficient to address nurses' concerns related to managing uncertainty, occupational health and safety, and employee quality of life. Recommendations useful for planning of any pandemics including H1N1 are derived.*

Key words: risk communication, occupational support, SARS, nurses, infectious disease, emergency management, pandemic planning, disaster medicine

INTRODUCTION

During an infectious disease outbreak, timely and reliable communication is critical to effectively manage major stakeholders affected by an outbreak. This article will highlight Covello's model of effective risk communication in a healthcare setting and will consider the impacts when risk communication is ineffective. This research will flesh out gaps in accepted best practices in risk communication[1] from the vantage of nurses working in emergency and critical-care hospital settings during the 2003 Severe Acute Respiratory Syndrome (SARS) outbreak with the intended goal to build on their experiences for future risk communication planning in future pandemics.

BACKGROUND

In an infectious disease outbreak, concerns and fears about exposure are to be expected. Good risk communication must respond to the information needs of the general public as well as those who work in healthcare settings during a disaster response. Although the mortality rate from SARS was more than 10 percent in Canada, more than 42 percent of the 251 probable cases were healthcare workers.[2]

The SARS outbreak exemplified how public perceptions of risk can be influenced by more than scientific knowledge about hazards and probability of exposure and/or adverse effects. Literature on risk communication during health crises sheds light on the constructions of meaning of risk.[3,4] Indeed, risk perception is influenced by a myriad of variables including gender, age, ethnicity, socioeconomic status, feelings of uncertainty and sense of control,[3] degree of familiarity with a particular hazard, and the extent to which the exposure is voluntary or controllable.[4-9] National surveys of Canadians indicate that biological hazards are feared worse than inert or environmental risks.[9] In events such as chemical, biological, radiological, and nuclear and explosive accidents and attacks, vivid and disturbing mental imagery evokes high feelings of dread, which is known to amplify fear and public perception of risk.[4,10] This article presents risk communication within the context of nursing in emergency units during the SARS outbreak. Understanding how healthcare workers conceptualize risk communication is essential to sound emergency management planning.[6,7,9] Effective risk communication enables informed decision-making and risk management by health officials, healthcare providers, policy makers, regulatory bodies, industry leaders and executives, and members of the general public.[5,8]

METHODS

This research is part of a larger multi-method study of the psychosocial impacts of the SARS outbreak in Canada for healthcare workers. The project investigated which support mechanisms were needed to assist healthcare workers and their families to offset the negative impacts of the outbreak.[11-15] For the current study on risk communication with nurses, a series of five focus groups were conducted in four cities: Ottawa (2),* Toronto, Vancouver, and Halifax, between November 2005 and February 2006. These cities were selected because of their experience with the SARS outbreak in 2003 and their geographical representation of urban Canada. All participants signed a consent form approved by the University of Ottawa Research Ethics Board.

Using a Structured Interview Matrix[16] format, participants discussed their experiences of SARS or other recent emergencies, identified gaps in supports, and explored preparedness for future infectious disease outbreaks. Data analysis was completed by a team of four researchers, aided by the use of NVivo7(tm) software for coding. The data were coded according to communication practices and information support needs, and compared against a risk communication model developed by Covello (2003). The model identifies seven best practices guided by honesty, involvement of all stakeholders, development of collaborative communication and contingency plans, and meeting the needs of the media. Data collected from the focus groups were compared against the Covello model of effective risk communication[1] to situate gaps in efficient risk communication with the goal to build on lessons learned for future pandemic risk communications.

Sample

The research design for this study involved hosting five focus groups, each 4.5 hours in duration and facilitated using the Structured Interview Matrix (SIM) technique.[16] The SIM technique for facilitating group discussions can accommodate up to 40 participants and involves the following three steps: (1) one-on-one discussions between participants, (2) small group synthesis of the data collected during the one-one-one discussions, followed by (3) plenary facilitated discussion of each question. The number of participants in each focus group were as follows: Ottawa (n = 10, n = 25); Toronto (n = 15); Vancouver (n = 27); and Halifax (n = 23), resulting in a total of 100 participants (n = 95 women and n = 5 men). All of the participants

*Two focus groups were held in Ottawa, and one in each of the other cities listed; in total, there were five focus groups held in four cities.

spoke English during the focus group sessions. Participants were recruited through the nursing unions, nursing associations and professional colleges, advertisements in local newspapers, e-mail listservs and referrals from colleagues. The participants included registered nurses, registered practical nurses, or nursing managers working in emergency or critical care; including infection control workers, nurse educators, and representatives of nursing unions.

RESULTS

A total of n = 100 nurses participated in five focus groups held in Ottawa (2), Toronto, Vancouver, and Halifax between November 2005 and February 2006. Several key themes emerged from the data: Nurses' experiences of SARS reflected high levels of uncertainty, exclusion, and lack of trust or credibility of leadership, all of which coalesced to become major challenges to risk communication. Here, nurses' responses are discussed within the larger framework of Covello's best practices in risk communication[1] and are also presented in Table 1.

i. Best Practice 1: Accept and Involve Stakeholders as Legitimate Partners[1]

Guidelines:

- Involve all parties that have an interest or a stake in the particular risk.
- Include in the decision-making process the broad range of factors involved in determining public perceptions of risk, concern, and outrage.
- Use a wide range of communication channels to engage and involve stakeholders.

As the proposed best practice[1] would suggest, it is imperative to recognize frontline nurses in an emergency and critical care hospital unit as significant stakeholders during an infectious disease outbreak. They should be included early in the knowledge exchange and decision-making process. Nurses participating in the focus groups voiced considerable concern that they were neither accepted nor involved as stakeholders in managing the SARS risk. *"During SARS, people were making decisions up high and you were sort of there in the trenches." "We need to return to team work—the managers can't sit in the board room, we need to work together versus us and them. We need to know that we can trust our managers and not feel abandoned."**

Often, nurses expressed frustration that their health and well-being was taken-for-granted and little consideration was given to their individual and/or collective needs and concerns.[15] Non-verbal actions, such as avoiding going into the SARS units, or going near nurses who were working in the SARS units, spread messages that were interpreted as abandonment. These negatively impacted social relations, particularly trust between nurses and institutional administration.

ii. Best Practice 2: Listen to People[1]

Guidelines:

- Let all parties with an interest or a stake in the issue be heard.
- Emphasize communication channels that encourage listening, feedback, participation, and dialogue.
- Recognize that competing agendas, symbolic meanings, and broader social, cultural, economic, or political considerations may complicate risk communication.

During SARS, risk containment messages for members of the general public did not reach all of the intended audiences. "There was conflict with coworkers who were not complying with precautions and putting others at risk; conflict with people who were not coping." Nurses indicated they need to be heard and listened to and described instances of patients'

*Quotations in italics are those of focus group participants, as recorded by peer interviewers or team facilitators.

Table 1. Nurses' perceptions of communication gaps compared with Covello's (2003) best practices in risk communication[1]

Best practice	Sample guidelines	Nurses' focus group quotations
1. Accept and involve stakeholders as legitimate partners	• Involve all parties that have an interest or a stake in the particular risk.	*"During SARS, people were making decisions up high and you were sort of there in the trenches."*
	• Include in the decision-making process the broad range of factors involved in determining public perceptions of risk, concern, and outrage.	
	• Use a wide range of communication channels to engage and involve stakeholders.	*"We need to return to team work—the managers can't sit in the board room, we need to work together versus us and them. We need to know that we can trust our managers and not feel abandoned."**
2. Listen to people	• Let all parties with an interest or a stake in the issue be heard.	*"There was conflict with coworkers who were not complying with precautions and putting others at risk; conflict with people who were not coping."*
	• Emphasize communication channels that encourage listening, feedback, participation, and dialogue.	*"In many cultures it is appropriate for entire family to come to hospital to visit/care for loved one . . . this represents a significant infection control problem."*
	• Recognize that competing agendas, symbolic meanings, and broader social, cultural, economic, or political considerations may complicate risk communication.	*"Police and firefighters can say 'no, you can't go in there' and people listen, but if I say it they argue and ask 'why?'"*
3. Be truthful, honest, frank, and open	• Disclose risk information as soon as possible; fill information vacuums.	*"I was on quarantine, called Friday afternoon on three-way phone conversation. Under no circumstances should I come in. Someone would contact me from Public Health. Didn't happen. Said they would send food. Didn't happen. Next day called and asked me to come in. So poorly managed."*
	• If in doubt, lean toward sharing more information, not less—or people may think something significant is being hidden or withheld.	
	• Do not minimize or exaggerate the level of risk; do not over-reassure.	
4. Coordinate, collaborate, and partner with other credible sources	• Coordinate all inter-organizational and intra-organizational communications.	*"I called up infection control and asked someone to come watch activity response and was asked 'Can we do it in September?'"*
	• Devote effort and resources to the slow, hard work of building partnerships and alliances with other organizations.	
	• Do not attack individuals or organizations with higher perceived credibility.	
5. Meet the needs of the media	• Be accessible to reporters; respect their deadlines.	*"It is the media's responsibility to report good information and they could only report what they were getting, and we knew that information was coming from everywhere and they were just like us, trying to catch up everywhere."*
	• Prepare a limited number of key messages before media interactions; take control of the interview and repeat your key messages several times.	

(continued)

Table 1. Nurses' perceptions of communication gaps compared with Covello's (2003) best practices in risk communication[1] (continued)

Best practice	Sample guidelines	Nurses' focus group quotations
6. Communicate clearly and with compassion	• Personalize risk data. Use stories, narratives, examples, and anecdotes to make technical data come alive.	*"Emerg nurses walked in and no one else would want to talk to them—co-workers stigmatized each other- moved to the next table."*
	• Express genuine empathy. Acknowledge and say that any illness, injury, or death is a tragedy to be avoided.	*"(They) should implement specific guidelines for quarantine activities, codes, what we are allowed to do, what we aren't allowed to do, follow up, reassessment by public health . . . "*
	• Identify specific actions that people can take to protect themselves and to maintain control of the situation at hand.	
7. Plan thoroughly and carefully	• Begin with clear, explicit objectives—such as providing information, establishing trust, encouraging appropriate actions, stimulating emergency response, or involving stakeholders in dialogue, partnerships, and joint problem solving.	*"Now is the time to communicate, at least have common streams of information if not specific details. . . . (we) need general infection control guidelines across the board—standardized protocols."*
	• Train staff—including technical staff—issn basic, intermediate, and advanced risk and crisis communication skills. Recognize and reward outstanding performance.	*"People/Staff are going to be scared; the way to combat this? Education, education, education. An ongoing phone line, something you can reach 24/7; not having education days set up on person's day off, (having) education as part of shift, continuous education."*
	• Carefully evaluate risk communication efforts and learn from mistakes.	

*Quotations in italics are those of focus group participants, as recorded by peer interviewers or team facilitators.

family members not heeding requests to refrain from visiting the hospital. "In many cultures it is appropriate for entire family to come to hospital to visit/care for loved one . . . this represents a significant infection control problem."

As Covello's (2003) model suggests, it is important to recognize that people conceptualize risk perception in different ways and risk communication should be culturally sensitive to these differences. If not, discord may arise between hospital visitors and front-line nurses when nurses perceive their authority and expertise is contested. "*Police and firefighters can say 'no, you can't go in there' and people listen, but if I say it they argue and ask 'why?'*" Some nurses experienced difficulty enforcing hospital visitors to follow infection control protocol or personal protective equipment guidelines due to communication channels that were not inclusive to competing cultural understandings of risk.

iii. Best Practice 3: Be Truthful, Honest, Frank, and Open[1]

Guidelines:

- Disclose risk information as soon as possible; fill information vacuums.
- If in doubt, lean toward sharing more information, not less—or people may think something significant is being hidden or withheld.
- Do not minimize or exaggerate the level of risk; do not over-reassure.

Because of the high level of uncertainty regarding quarantine, nurses experienced a heightened sense of distrust and anxiety. "I was on quarantine, called

Friday afternoon on three-way phone conversation. Under no circumstances should I come in. Someone would contact me from Public Health. Didn't happen. Said they would send food. Didn't happen. Next day called and asked me to come in. So poorly managed." Within hospitals, infection control guidelines and risk communication messages changed frequently and nurses felt more appropriate channels of communication were needed to provide accurate and reliable information.

iv. Best Practice 4: Coordinate, Collaborate, and Partner with other Credible Sources[1]

Guidelines:

- Coordinate all inter-organizational and intra-organizational communications.
- Devote effort and resources to the slow, hard work of building partnerships and alliances with other organizations.
- Do not attack individuals or organizations with higher perceived credibility.

Nurses valued expertise in leadership and felt that a clinical perspective and experience would establish authority, confidence, and trust. They also echoed the importance of being connected to a wide network of specialists in infectious disease control or pathophysiology and to be able to draw on their expertise when grappling with infectious disease risks. *"I called up infection control and asked someone to come watch activity response and was asked 'Can we do it in September?'"*

Some nurses indicated that institutional organization and collaboration were weak and called for a more coordinated messaging system within the hospital. Specifically, nurses felt that Intranet and a list of reliable, accurate Internet sites would allow nurses to readily access credible information from other sources.

v. Best Practice 5: Meet the Needs of the Media[1]

Guidelines:

- Be accessible to reporters; respect their deadlines.
- Prepare a limited number of key messages before media interactions; take control of the interview and repeat your key messages several times.

The media plays an important role in educating and transmitting risk communication to the general public, as well as healthcare workers. Focus group interviews illustrated how some nurses lacked access to reliable information from the hospital or the government and watched the evening news to receive any information or updates. Yet, with conflicting and often exaggerated media reports, nurses reiterated that it was difficult to obtain reliable and up-to-date information on transmission risks. *"It is the media's responsibility to report good information and they could only report what they were getting, and we knew that information was coming from everywhere and they were just like us, trying to catch up everywhere."* Nurses' first-hand reflections underscore the importance of developing consistent and accurate risk messages to be communicated through the media.

vi. Best Practice 6: Communicate Clearly and with Compassion[1]

Guidelines:

- Personalize risk data. Use stories, narratives, examples, and anecdotes to make technical data come alive.
- Express genuine empathy. Acknowledge and say that any illness, injury, or death is a tragedy to be avoided.
- Identify specific actions that people can take to protect themselves and to maintain control of the situation at hand.

Nurses felt significant stigma, not only from the general public who were unclear as to how the virus was transmitted but also from within the hospital. *"Emerg nurses walked in and no one else would want to talk to them—coworkers stigmatized each other-moved to the next table."* Some nurses felt improvement was needed to ensure risk communications recognized and acknowledged the hardships they endured working on the frontline during the outbreak. High levels of uncertainty fuelled social isolation for nurses who worked during SARS. *"(They) should implement specific guidelines for quarantine activities, codes, what we are allowed to do, what we aren't allowed to do, follow up, reassessment by public health . . ."*

Nurses also indicated that they needed guidelines for appropriate self-care and a way for them to contact family members to reassure families, and ensure protection and support was in place for long-term implications.

vii. Best Practice 7: Plan Thoroughly and Carefully[1]

Guidelines:

- Begin with clear, explicit objectives—such as providing information, establishing trust, encouraging appropriate actions, stimulating emergency response, or involving stakeholders in dialogue, partnerships, and joint problem solving.

- Train staff—including technical staff—in basic, intermediate, and advanced risk and crisis communication skills. Recognize and reward outstanding performance.

- Carefully evaluate risk communication efforts and learn from mistakes.

Several focus group participants expressed interest to be involved greater in the preventative phase of pandemic planning. *"Now is the time to communicate, at least have common streams of information if not specific details. . . . (we) need general infection control guidelines across the board – standardized protocols." "People/Staff are going to be scared; the way to combat this? Education, education, education. An ongoing phone line, something you can reach 24/7; not having education days set up on person's day off, (having) education as part of shift, continuous education."*

Nurses noted that the breathing space between pandemics and emergencies was when "lessons learned" could be applied to existing systems, and that as key stakeholders, they could be actively involve in the training and design of contingency planning.

DISCUSSION/RECOMMENDATIONS

Good risk communication focuses on translating scientific information into understandable terms, explaining uncertainties, and helping the public make sense of risk.[1,4-8] Credibility and public trust are central to the success of these efforts and emphasis needs to be placed on how best to help the public acquire the information, skills, and opportunities to participate in risk-related decision making.[1,7] When successful, risk communication enables informed decision-making and effective risk management by health officials, healthcare providers, policy makers, regulatory bodies, industry leaders and executives, and members of the general public.[1,5] The consequences of poor risk communication can be severe and have long lasting repercussions. They may include loss of credibility and public trust, public outrage, unnecessary distress and anxiety, and conflicts between different stakeholders, including essential service providers.[4,9,10] In the case of biodisasters such as SARS and influenza viral strains H1N1 and H5N1, this can pose a significant risk to national response capacity.

Many of the risk communication challenges experienced during SARS were a result of the uncertain nature of the virus and its high mortality rate. Members of the public, the media, healthcare providers, and other stakeholders had questions that were difficult to answer when little was known about factors such as transmission modes, consequences of exposure, and prevalence of the hazard. Other risk

communication gaps noted by nurses in this study point to a need for greater involvement in decision-making, stakeholder involvement and more efficient communication channels in the management of emergency planning. Recommendations useful for planning of any pandemics including H1N1 are derived.

Building risk communication capacity within Canada's healthcare system

Risk communication should empower people to have a greater sense of control over the risks, either through augmenting knowledge, managing uncertainty, or increasing specific skills to enhance response.[3,17] Various routes can provide empowering risk communication if planned and deployed in advance. Nurses participating in the focus groups suggested that practice drills are a useful method to highlight the need for risk management skill development and prompt key departments and leaders to act,[18] in which the risk communication models will improve confidence in leadership in the longer term.

A progression of drills is best, starting with table-top drills† to first foster risk communication and leadership skills in decision-makers, progressing to full institutional and/or regional disaster drills. In addition to inspiring confidence and trust in leadership, inclusion in full disaster drills may help address perceptions of limited professional preparedness reported by many nurses in this study,[11] as well as create a "teachable moment" to spur more nurses to prepare family emergency plans. The online infrastructure for e-learning and role-playing scenarios related to emergency and disaster preparedness is rapidly growing, with examples including Psychosocial Risk Manager (PRiMer): Computer-based Pre-Event Training,[19] Outbreak,[20] and Second Life.[21] Hence, disaster drill training used more widely within healthcare institutions has the potential to generate multiple and important improvements in trust and risk communication skills.

†Table top drills are a facilitated group exercise where decision makers and representatives from various departments within an organization, or across the spectrum of emergency response organizations, work through a hypothetical emergency situation. Such drills test existing operational plans, identify problems, and enhance problem solving skills and processes.

Risk communication and values

Risk communication is also a process of shared deliberation around values and ethics. For example, in the case of SARS and nurses' experiences, the limited right to refuse dangerous work further necessitates effective risk communication with healthcare professionals in comparison with that described with the general population. Canada has a healthcare system that aims to protect the basic human right to health of all citizens. This right to health has been enshrined in part through legislation that limits the right of those who work in healthcare and other first responder institutions to refuse dangerous work, as long as the danger is one typical of the occupation and the employer has supplied appropriate protective equipment, education, and engineering controls. However, this limited right to refuse dangerous work may challenge the basic human right to health for our healthcare workforce. Healthcare members of the first responder and receiver communities are at increased risk for exposure to some types of hazards, and in the event of regional or national crisis, nurses will have fears and concerns for their health and well-being, as well as that of their families and loved ones.

The failure to devise risk communication that is honest, transparent, and compassionate to those enduring hardships has significant negative impacts. Furthermore, to not fulfill the risk-related informational needs of nurses during SARS or other infectious disease outbreaks could be constructed as a failure to meet institutional requirements on which the limited right to refuse dangerous work is based. Recent developments in the UK prompted legislation on the requirement for hospital administration to engage in institutional disaster planning and training. In the future, in other countries, it is possible that nurses may be legally able to refuse work based on the grounds of inadequate education. If this were to happen, healthcare system collapse during a disaster is conceivable.

CONCLUSION

As with any pandemic planning, including H1N1, risk communication constitutes an important component of any emergency protocol. This article highlights lessons learned from the SARS outbreak that

reflect gaps in risk communication from the vantage of frontline nurses.

When practiced inconsistently or improperly, risk communication may have significant consequences on occupational health and safety and ultimately, healthcare worker retention. This article discussed how implementation of best practices in risk communication is essential to maintain the confidence and trust of healthcare workers during infectious disease outbreaks and includes suggestions for improvements in future pandemic planning.

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Eileen O'Connor, PhD, Assistant Professor, School of Human Kinetics, University of Ottawa, Ottawa, Ontario, Canada; Affiliate Scientist, Institute of Population Health, University of Ottawa, Ottawa, Ontario, Canada.

Tracey O'Sullivan, PhD, Assistant Professor, Faculty of Health Sciences, University of Ottawa, Ottawa, Ontario, Canada; Research Associate, Elizabeth Bruyere Research Institute, Ottawa, Ontario, Canada.

Carol Amaratunga, PhD, Dean, Justice Institute of British Columbia, British Columbia, Canada; Project Principal Investigator.

Patricia Thille BSc (PT), PhD (Student), Faculty of Communication and Culture, University of Calgary, Calgary, Alberta, Canada.

Karen P. Phillips, PhD, Assistant Professor, Faculty of Health Sciences, University of Ottawa, Ottawa, Ontario, Canada; Principal Scientist, Institute of Population Health, University of Ottawa, Ottawa, Ontario, Canada.

Michelle Carter, MSc (Candidate), Research Assistant, Institute of Population Health, University of Ottawa, Ottawa, Ontario, Canada.

Louise Lemyre, PhD, FRSC, Professor, Faculty of Social Sciences, University of Ottawa, Ottawa, Ontario, Canada; McLaughlin Research Chair on Psychosocial Aspects of Risk and Health, Institute of Population Health, University of Ottawa, Ottawa, Ontario, Canada.

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