Developing collaboration in complex events: A model for civil-military inter-organizational problem-solving and decision-making

Louise Lemyre, PhD, FRSC, & Celine Pinsent, PhD
GAP-Santé Research Unit, Institute for Population Health
University of Ottawa

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Contributors: The interdisciplinary GAP-Santé Team

- with Paul Boutette, Wayne Corneil, Colleen Johnson, Jo Riding, Cecilia Lemus, Stephanie Blust, Dave Riding.

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In vivo project goals

1. Develop a meta-organizational shared decision making framework

2. Test the framework through in vivo simulation

3. Document a psychosocial model on interagency collaboration and decision-making

4. Provide suggestions for overcoming social and cognitive barriers to interagency collaboration

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In vivo project overview

- Literature review included a survey of decision making practice across numerous types of organizations
- Case studies included both Canadian and international extreme events with multi-level, multi-jurisdictional interaction
- Mixed methods data gathering: Qualitative analysis of interviews as well as the qualitative and quantitative analysis of the in vivo simulation experiment
Literature review

Literature review aimed at a broad understanding of:

- Various types of organizational structures involved with problem-solving during complex events (ICS, HRO, Community development, Private sector, Public service)
- Decision-making strategies used by different organizational structures
- Key organizational characteristics such as types of authority, interaction and roles
Case studies

Eastern Ontario & Quebec Ice Storm (1998)
Red River Floods (1997)
Kelowna Fires (2003)
SARS (2003)
Gander, Operation Sleepover (2001)
Blackout (2003)
Katrina (2005)
London Bombing (2005)
Tsunami (2004)
Considerations

- Model conceptualized within an extended timeline from pre-event to reconstruction
Considerations

- No one approach is “best”
  - Complex situations require diverse approaches
  - These approaches may combine, unroll in parallel, and interact in a recursive fashion.
- Decision-making is only one stage in the problem-solving process
  - Other stages include identifying the problem, defining the problem, generating solutions, decision-making, implementing solutions, and monitoring implementation
- Multi-disciplinary approach is appropriate
  - Integrates findings from diverse disciplines and fields of practice
  - Will lead to a more robust and relevant model
Video: Shared Decision Making (SDM) Model
 Videos

- Gap-Santé Video
- PRiMer Overview Video
- PRiMer DST Video
- Social Media Video
- C4 SDM Framework Video
- In-Vivo Tool Video
Video: Shared Decision Making (SDM) Model
Video: Shared Decision Making (SDM) Model

Lemyre et al. 2009
Video: Shared Decision Making (SDM) Model

Lemyre et al. 2009
Two main components:
- Situational complexity (simple, complicated, complex)
- Inter-organizational approach to problem-solving (Coord., Coop., Coll.)

Two main modifiers:
- problem-solving stage (problem definition, solution generation, implementation, evaluation)
- available assets (power, resources, and information)
Three main factors of situational complexity

- The impact of the event, *(actual, perceived and potential impacts)*
- The uncertainty *(novelty, unknowns, unrolling)*
- The vulnerability/resiliency of those who may be impacted *(Social, economic, educational)*
Approach to problem solving

**Coordination**
- Emphasis on the sharing of information

**Cooperation**
- Emphasis on the sharing of resources

**Collaboration**
- Emphasis on the sharing of power and of decision-making

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Problem solving is an iterative process.

Different stages require different problem solving approaches.
Methods: Inter-GAP *in vivo* system

HYDRA-like system

- Working in Pods (groups)
- Based on a scenario ("dirty bomb"); situated in a fictional mid-sized Canadian border town called "Gapville"
Inter-GAP *in vivo* system

With a software of communication (Nefsis) (camera, audio, chat)

- Examines interaction both within groups and between groups

- 2 I.V.:
  - Group composition
    - Homogeneous
    - or Mixed
  - Approach
    - Coordination
    - or Collaboration
Overall session composition for *in vivo* experiment

- Sessions typically hold nine participants grouped three to a pod

- Participants drawn from three types of organizations
  - Military
  - ICS non-military
  - Non-ICS

- PODS are either Homogeneous or Heterogeneous
Preliminary Results

- Fourteen *in vivo* sessions to date
  - Senior decision makers
  - Early career professionals
  - Naïve participants (to pilot)

- In-depth qualitative interviews
  - Senior decision makers
  - Military, police, health, social services
  - Focus on a real experience of problem-solving in a multi-organizational context
Results: Situation Complexity

- Event players/organizations need to understand what drives complexity
  - Initial tendency to view event as less complex
  - Increased diversity of organizations $\rightarrow$ more rapid and accurate assessment of event complexity
  - Increased emphasis on social complexities in addition to technical complexities $\rightarrow$ better situational awareness
Results: Problem Solving

Collaboration

- Requires practice
- More heavily influenced by trust and relationships → less procedural driven
- Higher levels of frustration, but also higher levels of satisfaction with decisions
- Linked to the capacity to view “big picture”
  - Integrated multi-org perspective greater than sum of multiple organizations’ perspectives
Results: Problem Solving

Cooperation

- Important to consider sharing of information and resources and the allocation of resources
  - Conditional “sharing” can be a challenge

Coordination

- Perceived as easier than collaboration
  - Takes less time, less frustration, less negotiating
  - Emphasis on defining “who is in charge”
Results: Organizational Structure

- Organizational cultures impact multi-org problem solving
  - Interpersonal trust vs. organizational trust
  - Capacity of orgs to expand, extend, emerge is related to their culture
  - Culture influences the capacity of orgs to share info, resources, power/authority \( \rightarrow \) capacity to coordinate, cooperate, collaborate
Louise Lemyre, Ph.D., FRSC
Director of “Groupe d’Analyse Psychosociale de la santé”, GAP-Santé
Professor of Psychology, Faculty of Social Sciences
The McLaughlin Research Chair on Psychosocial Risk
Institute of Population Health
University of Ottawa

louise.lemyre@uOttawa.ca

www.gapsante.uottawa.ca

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