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Groupe d'Analyse Psychosociale, uOttawa

**Public Communication of CBRN Risk in Canada:
Research, Training and Tools
to Enable Preparedness**

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CRTI (CBRN Research & Technology Initiative) project
- Program of Research
- Suite of Tools and Training

Partners

- Funding: Canada Centre for Security Science - DND (Consortium of 21 federal departments/agencies)
- Champion: Public Health Agency of Canada
- Sc. Lead: GAP-Santé, Faculty of Social Sciences Institute of Population Health, University of Ottawa
- With stakeholders: Public, NGOs, Private sector, Responders, Planners, Decision-makers

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CBRN threats and the Risk Analysis Cycle

In Canada, the strategy is to include public communication about CBRN threats in a larger Risk paradigm

- as a common language and platform
- within an all-hazard approach, yet customized
- across sectors (public, private, NGOs) and jurisdictions
- interdisciplinary
- across time spectrum (-3 to +3)

Steps:

- Define a psychosocial risk framework inclusive of risk perception
- Document an evidence-based case
- Derive implications for risk management and risk communication
- Develop tools to train and implement

Revisiting Risk Definition for better communication

Risk = f (Prob (Hazard), Prob (Consequences))

- Traditionally, risk focuses on mortality or morbidity and does not consider the social aspects of risk
- Risk = $p(\text{occurrence Hazard}) \times p(\text{mortality+morbidity+psychosocial ripple effects})$
= Meaning and Relevance
- Risk consequences are also about behaviors and emotions. It affects families, business, communities, and societies. It should be analyzed in a systems approach

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What does 'psychosocial' mean?

- Descriptive term for all human processes involving both psychological and social components.
- Relates to the way we think, feel and behave. (cognitive, affective, behavioral)
- It includes risk perception and preparedness
- Psychosocial applies to both individual and collective processes.



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Recognize parallel streams: The Bio-Environmental Reality & the Psycho-Social Reality

Risk analysis according to experts and the public

	Expert (Hazard driven)	Public (Consequence driven)
Risk Evaluation	Risk Assessment	Risk Perception
Risk Tolerance	Risk Threshold	Risk Acceptability
Risk Management	Risk Mitigation	Risk Behaviour
	(Probability based)	(Meaning based)

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I- Research : Understanding the issue(s)...

Building on background knowledge on Perception of Risk:
(Slovic, Fischhoff, Khaneman, Tversky, etc ...)

- Perceived probability are non-linear
- People overestimate small risks, underestimate high risks
- Dread and Novelty increase perceived risk
- People think of themselves as invincible (positive illusion)



And based on behavior, fear and compliance, social psychology research

- Fear alone does not induce sustained behavior uptake
- Experiencing self-efficacy improves performance
- Rehearsed behavior, even mentally, improves performance
- Mental models (beliefs, understanding, norms) predict behavior

Research through qualitative work

Focus groups with citizens across Canada on CBRN hazards
Consultations in all provinces, by gender, age groups (also with First responder groups)

Key findings should be drivers of communication interventions (motivation)

- Canada context: little history, perceived very low probability, 'aura'
- People focus more on the consequences than the hazard
- People would do things to protect dear ones
- Different views depending if under personal control (sense of mastery)
- People trust benevolence
- People do not differentiate Biological vs Chemical Agents
nor radioactive vs irradiated

Research with series of National Surveys

National Public Survey(s) of Risk Perception & Preparedness

N=1500 Canadian, representative by province, gender, age
Phone interview of 30-45 minutes
Template from Slovic et al. & Krewski et al.
- List of Hazards x List of Appraisals

(1992: Environmental Hazards)
2002: Population Health Risks
2004: CBRN Terrorism Risks
2007: Food Risks
(2010 : Radiological Risks)

Key findings: Factor Analysis of Risk Appraisal

Across CBRNE Hazards: 3 Dimensions are robust

	F1	F2	F3
	IMPACT	MASTERY	INTRICACY
Perceived severity for others	.97		
Perceived severity for oneself	.89		
Perceived likelihood (prob.)	.33		
Perceived knowledge		.53	
Perceived control		.42	
Perceived complexity			.51
Perceived uncertainty			.39

→ Public communication to better address Mastery and Uncertainty

Key findings: Empowerment

Using Regression Analysis ($p < .01$)

- Personal Preparedness

is predicted by Behavioral efficacy and Front-line preparedness
(Knowledge, skills, feasibility: Sense of Mastery) (neighborhood)

- Avoidance Behavior

is predicted by degree of Worry (severity), Lack of perceived control, and Uncertainty / complexity

So, for CBRN... it means: - increase relevance of preparedness, not fear
- show achievable solution
- empower through knowledge

→ public education (e.g. on radioactivity)

Key findings: TRUST

Where get their information?

1st trusted source : Friends & Family
→ social norms, public education, social media
Most consulted source:
Mass media more than government websites

Discriminant function of Trust between spokespersons (Loadings, $p < .01$)

Integrity	.64*
Discourse Plausibility	.56*
Working towards Public's Good	.55*
Competence	.34

Research via Experimental Work

On vignettes and messages varying uncertainty (on water safety)

Uncertainty due to contradictory data or expert opinion yields to lack of trust and less behavioral intent

Uncertainty due to explicit lack of data or knowledge yields to more trust, more behavioral intent

Uncertainty due to stochastic probability yields to trust, less behavioral intent

Uncertainty due to complexity leads to more avoidance, less behavioral intent

→so, need to better address types of Uncertainties for uptake

II- CBRN Training Program and Tools (PRiMer)

To reframe the Public Communication Response

From just about...

- Hazard
- Mortality / adversity
- Reactive
- Individual vulnerability
- Expert Control

To include...

- Consequences
- Resiliency
- Proactive
- Collective capacity
- Engagement & Collaboration



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Program & Tools

5 Tools

- Web-based Self Study Guide
- One-Day Workshop
- Interactive Decision Support Tool
- Psychosocial Checklist
- GIS Capability Tool

5 Principles

- Anticipate
- Communicate
- Listen
- Empower
- Coordinate

5 Psychosocial Considerations

- Perceptions Matter
- Routines Predict Behaviour
- People Act in Purposeful and Adaptive Ways
- People Are Differentially Affected
- People Want to Connect and Help

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Web-based Guide

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One-Day Training Workshop

A focus on:

- Case studies
- Simulation & Role-play
- Group activities
- Hands-on exercises
- Intro to *Psychosocial Decision Support Tools*

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GIS CapabilityTool

- Geographic Information Software (GIS) allows planners to access a map of their community through Google Maps
- Legend provides planners with various symbols that can be used to plot resources, organizations, communication points

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Videos

- [Gap-Santé Video](#)
- [PRiMer Video](#)
- [Social Media Video](#)

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Substantive Issues :

- Understanding the public - more than false perception
 - other valued dimensions/stakes
 - listening, polling, engaging
- Empowerment
 - conveying Sense of Mastery, Efficacy
 - educating, training (info, skills, rehearsal)
 - sharing responsibility and governance
- Uncertainty
 - maintaining Trust,
 - explaining unknowns
 - transparency

Next steps

- **Inter-organization communication ...**
- **Risk Governance**
- **Social media as a means and a challenge**

Videos

- [Gap-Santé Video](#)
- [PRiMer Video](#)
- [Social Media Video](#)

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