



PUBLIC HEALTH MONITORING OF MENTAL AND BEHAVIORAL HEALTH IN DISASTERS

Overview & Next Steps

March 18, 2020

OVERVIEW OF THE PROJECT

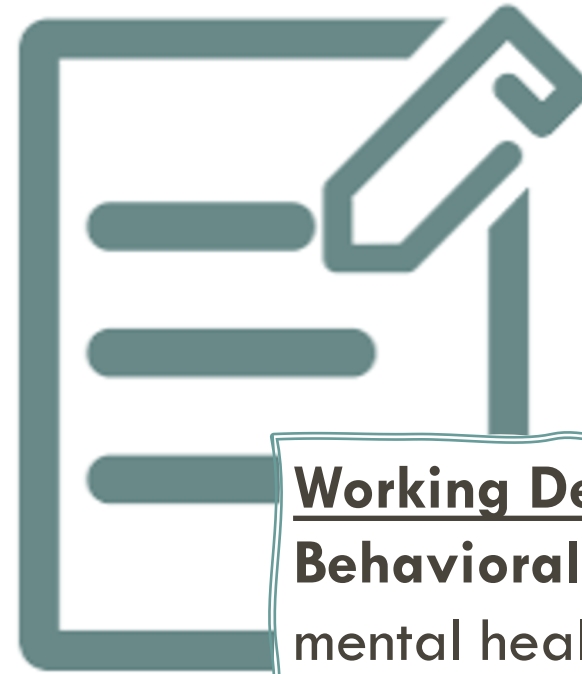
Research questions

Approach

Preliminary findings

Feedback and next steps

Start Date: Sept 2019
End Date: Sept 2022



Working Definition

Behavioral health is a state of mental health, emotional wellbeing and/or choices and actions that affect wellness. Examples of problems arising from poor behavioral health include acute psychological distress, mental illness, substance abuse, and suicide.

RESEARCH QUESTIONS

1: What resources and surveillance systems are available to monitor behavioral health (BH) symptoms during disaster response and recovery?

2: What data sources and approaches can be used for BH surveillance in the disaster context?

3: What are core, standardized, and validated measures of BH issues?

4: How could BH data be interpreted and used to monitor and respond to disasters' impacts on BH?



Conduct a targeted environmental scan to document existing surveillance systems, data sources, data science technologies, and approaches to monitor BH symptoms during disaster response and recovery.



Obtain stakeholder input through interviews, a survey, and a technical expert panel.

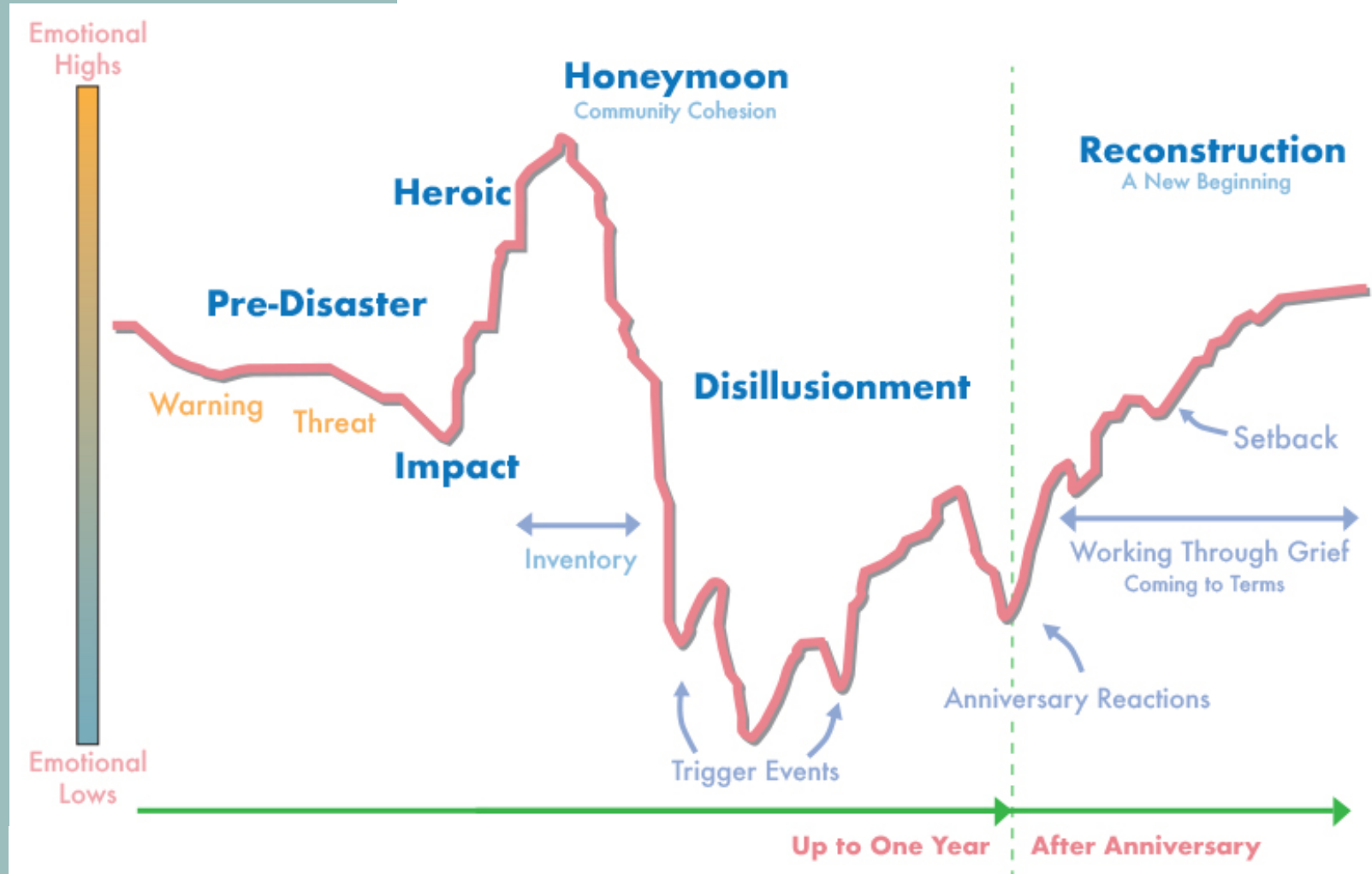


Develop and disseminate practical and evidence-informed guidance for policymakers in STLT public health, and BH providers.

APPROACH

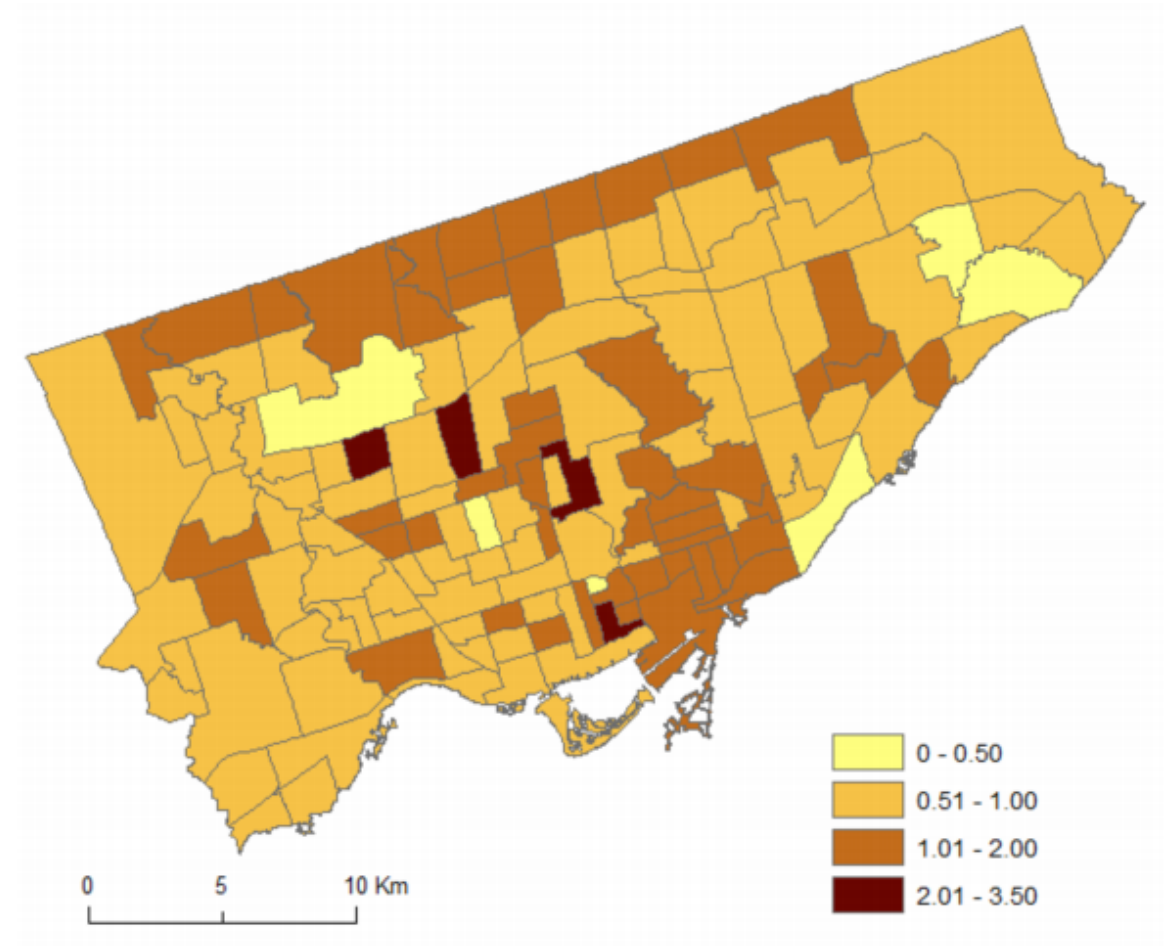
ASSUMPTION 1:
THE IDEAL
TIMEFRAME FOR
BH
SURVEILLANCE
AFTER A
DISASTER IS
CONTEXT-
DEPENDENT

Life Cycle of a Disaster



ASSUMPTION 2: GIVEN THE AUDIENCE FOR THIS WORK, DATA AVAILABLE AT THE LOCAL (SUB-STATE) LEVEL IS PREFERRED

Partnerships between public health agencies and public and private behavioral health providers will be needed to get data at this level



Source: Jane Law and Christopher Perlman. Exploring Geographic Variation of Mental Health Risk and Service Utilization of Doctors and Hospitals in Toronto: A Shared Component Spatial Modeling Approach. *Int. J. Environ. Res. Public Health* 2018, 15, 593.

ASSUMPTION 3: THE USE OF BH SURVEILLANCE DATA IS PRIMARILY FOR *DISASTER IMPACT ASSESSMENT*—DETECTING EARLY INDICATORS OF DISTRESS AND BH PROBLEMS

- What do these indicators tell a community about the possible magnitude and distribution of behavioral health problems during disaster response and recovery?
- How do these patterns diverge from expected patterns?
- Where are there hotspots with potentially higher than expected rates of BH problems?

A note about scope: health departments' role is to monitor population trends, not facilitate individual clinical care.



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There are a myriad of behavioral health impacts during disaster response and recovery that occur at different time points.

Both active and others passive surveillance techniques will be required.

No dedicated surveillance systems presently exist, so public health leaders rely on a patchwork of existing sources.

More research is needed on solutions to surveillance challenges.



POTENTIAL SOURCES OF BH DATA

Health and human service administrative data (e.g., Medicare/Medicaid, claims data, child welfare)

Registry data (e.g., death certificate reporting of suicides)

Population-representative survey data (e.g., Behavioral Risk Factor Surveillance System)

Non-traditional sources of administrative data (e.g., interpersonal violence hotlines, police records of driving under the influence and drug-related arrests,).

Crowdsourced data, citizen science or participatory surveillance

Online platforms such as “Flu Near You,”

Retail pharmacies

Big data (e.g., “All of Us” at NIH or “Project Baseline”)

Aerial imagery (e.g., LIDAR mapping) to identify disaster damage

Social media/mobile apps and tele-mental health providers

Data Source		Outcome(s)	Spatio-Temporal Data Granularity			Population Generalizability			Data Servicing Lag			Data Science Capacity Requirements		
			Low	Medium	High	Low	Medium	High	High	Medium	Low	Medium/ High	Medium	Low
			Cnty-Yr[s]	Cnty-Qtr; Subcnty-Yr[s]	Cnty-Mnth; Subcnty-Qtr	Convenience Sample	Client Sample	Population census/ sample	Year[s]	Months /Weeks	Days/ None	Full-time Epidemiologist/ Data Scientist	Part-time Epidemiologist / Data Scientist	No Dedicated Data Science Staff
ADMINISTRATIVE RECORDS														
County Health and Human Services Agencies														
	Local Public Health Department													
	County 2-1-1	Call counts for mental health referral												
County NGO														
	Domestic violence hotline	Call counts												
County Private Providers														
State Health and Human Services														
	State hospital discharge database	Discharges for drug abuse/ dependence, mental disorders, intentional self-harm												
	Vital Statistics													
	CPS: National Child Abuse and Neglect Data System	CPS Incidents												
Federal Agencies														
	CMS (Medicare/Medicaid)	Healthcare utilization for mental/behavioral health												
	CDC Wonder	Death by Cause (Suicide; Overdose; Cirrhosis)												
	NHTSA Fatality Analysis System	Alcohol-related crash deaths												
	DEA Automated Reports &	Prescription opiod sales												

DATA SCAN: PRELIMINARY RESULTS REVEAL THE IMPORTANCE OF DATA TRADEOFFS

DATA SCAN—PRELIMINARY RESULTS SHOW TWO TYPES OF DATA ARE EMERGING

Type 1: 'Pre-packaged & user friendly' data:

- Useful for “low-level” data capacity—limited time and/or limited statistical/epidemiological capacity
- Example: County health rankings 3-year average of BRFSS data

Type 2: Data sources for producing own estimates

- Intended for “mid-level” data capacity—moderate time investment and/or statistical/epidemiological expertise
- Includes strategies for obtaining ‘novel’ data for less well established BH indicators (e.g., publicly accessible digital trace data)
- Example: Sub-county estimates from BRFSS using 5 years of data

POTENTIAL APPROACHES TO DATA LINKAGE AND INTEGRATION

Using secondary data (Macro)	Meta-analysis
	Data smoothing
	Data interpolation
Using primary data (Micro)	Combined-survey regression with multiple imputation
Using primary & secondary data (Macro + Micro)	Small-area estimation
	Constrained regression

DISCUSSION



Questions?



Comments on current challenges, successful surveillance strategies, important considerations?



What end product from this work would be most useful (e.g., guidance on interpreting and using BH data; guidance on coordinating with BH staff)?



Suggestions for making the final product ("guidance on BH surveillance in disasters") maximally useful?

NEXT STEPS

- Begin conducting formative interviews
- Continue the environmental scans
- Prepare materials for a larger set of interviews and a national survey after OMB review
- Convene a technical expert panel in May

Please email the project leaders with any questions, feedback, or interest in participating in a formative interview.

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THANK YOU