



Consortium for Health
Informatics: PTSD Project

Mixed Methods Findings &
Implications for Future
Informatics Research

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Outline

- Brief overview of aims of the CHIR-PTSD project, with emphasis on potential for different project components to inform each other
- Presentation of findings from qualitative analysis of provider interviews
- Challenges and lessons learned for future projects

Goal: stimulate researchers to consider the benefits of working across disciplines to approach informatics and health services research questions from different perspectives

Poll question

I'm attending today primarily because:

- a) I have an interest in informatics.
- b) I have an interest in qualitative or mixed methods.
- c) I have an interest in PTSD.
- d) I'm equally interested in two or more of the above.

Acknowledgements: CHIR-PTSD contributors

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Context: aims of the CHIR-PTSD project

- Identify vocabulary used by clinicians to describe the clinical course of PTSD among veterans with a PTSD diagnosis (and enrolled in VA care)
- Improve information extraction for PTSD using computational linguistics and machine learning techniques
- Through manual annotation of clinical text sets, measure the performance of newly developed information extraction information extraction techniques for classifying clinically important concepts

Mixed methods (and sources) approach to inform analysis & tool development

Data collection, generation, and analysis :

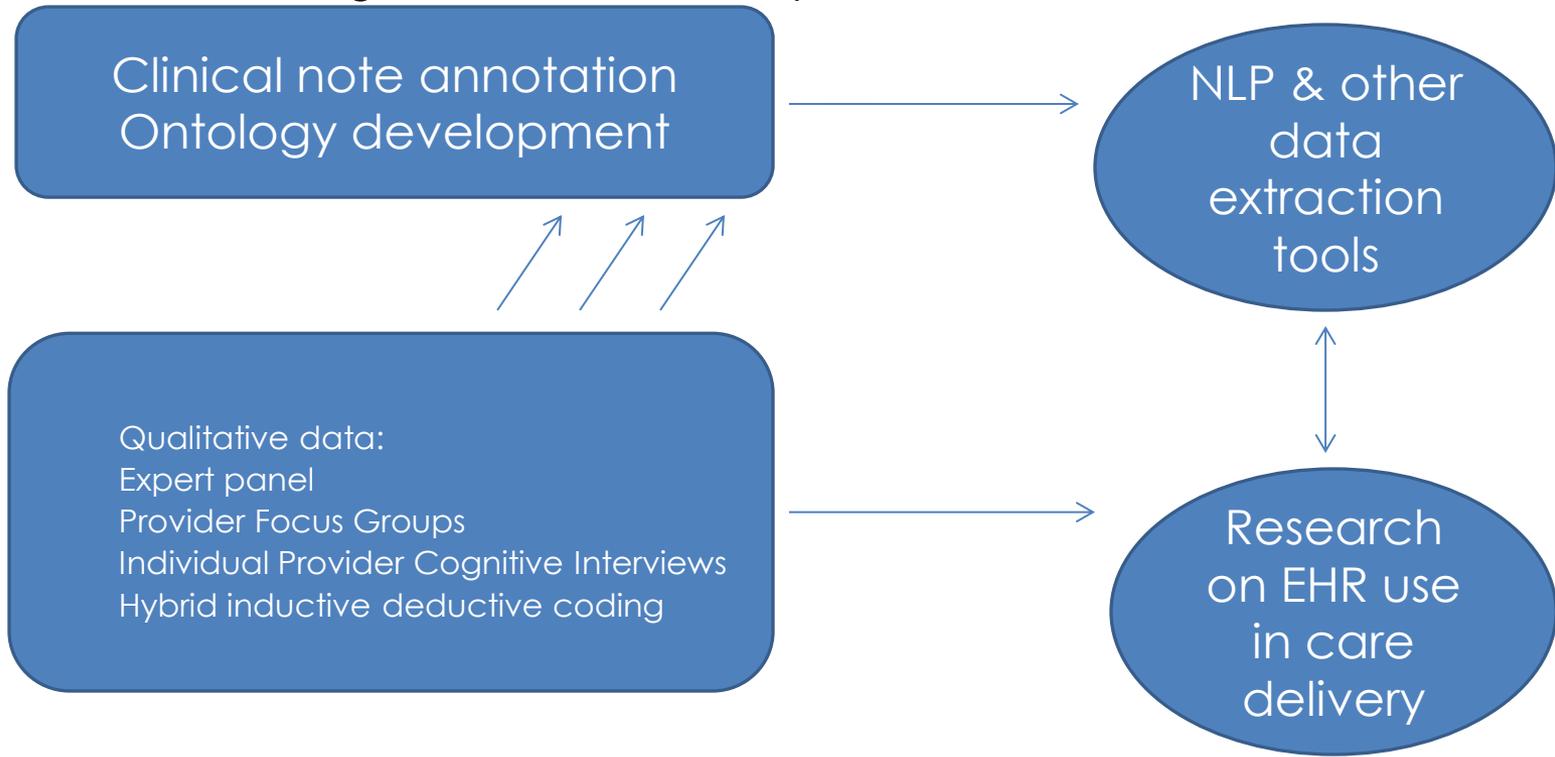
Clinical note annotation
Ontology development

Qualitative data:
Expert panel
Provider Focus Groups
Individual Provider Cognitive Interviews
Hybrid inductive deductive coding

Products:

NLP & other
data
extraction
tools

Research
on EHR use
in care
delivery



Sample qualitative deductive/directed coding results, shared for ontology development (specific symptom language from clinician interviews): lots of triangulation, some new insights

Sleep(ing) (“poor -,” “wakes up in a sweat...unable to fall back to -,” “reports not - for 2 or 3 days,” “reports... - from 10 pm to 6 am each night,” “overall... - is better,” “increased - , decreased awakening,” “wife indicated patient was much better and...able to -”), also “hyper-vigilance”

“Anger” (“angry outbursts,” “decrease in the intensity of - and irritability,”) also “calmer,” “at decreased risk of aggressive actions, although he remains at risk of aggressive behavior,” “hyper-irritable,” high levels of irritability,” “hyper-arousal” “increase in difficulty controlling his emotions,” “coping with disagreements by going to his room,” “still very emotional and tearful,” “tends to assume the worst of others,” “tends to impair his judgment and insight.”

“Intrusive thoughts” (“- and guilt,” “intrusions”), also “flashbacks,” “auditory/visual disturbances,” “frequent visions of...people he killed,” “often thinks about his combat experiences,”

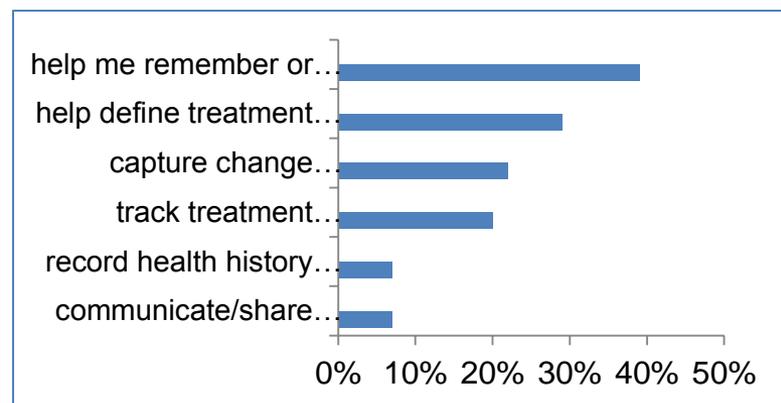
“Anxiety” (persistent - , “felt anxious,” “being at the [gun] range does cause him - ” “left work twice in the past two weeks related to - and panic symptoms,” “ not evident - when talking about war experience;” also “withdrawal,” also “detached” “isolation,” “self-isolates socially, reports minimal desire to develop close relationships with others” “feels like he just wants to be alone and isolate,” “can’t tolerate telling the whole story again” (quote from patient), “finds little to nothing in which he takes pleasure in life,” “mood is... less suppressed,” “getting out more,” “no close relationships with family members other than his brother,” “does keep in touch with a close friend,” “report[s] forming one good friendship,” “estranged from his adult children,” “maintains regular contact with his neighbor,” “better relationship with his fiancée,” “able to have sex...again and enjoy it,” “has started school,” “talking about going to school”

Latent thematic/phenomenological findings also informative

Concepts of interest not always *terms* of interest

- Suicidality: omnipresent references
- Resiliency: an important concept, an absent word
- Recovery: used in diverse ways

How providers use the note influences content available for researchers



Other findings (*manuscript under review*)

- Providers used progress notes primarily to remember and access details for direct patient care, but only rarely for (conscious) communication.
- Providers infrequently recorded information not judged to directly contribute to improved care, sometimes deliberately omitting information perceived to jeopardize patients' access to, or quality of, care. Omitted information frequently included sexual or non-military trauma.
- Understanding providers' thought processes can help *clinicians* be aware of the limitations of EHR notes as a tool for learning the histories of new patients. Similarly, *researchers* relying on EHR data for PTSD research should be aware of likely areas of missing or ambiguous data.



Reflections on the process/lessons learned

- Project design for true mixed methods design is challenging especially in terms of timing; plan sequence/timing of analyses realistically
- Learn each other's terms/languages (as best you can)
- Think ahead: do you want to have a data repository? For qualitative data from humans, make sure your informed consent addresses this



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