Understanding the usability and utility of standardized data fields in the EMR from the perspective of primary care clinicians

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Faculty/Presenter Disclosure

- **Faculty: Ted Alexander and Lori-Anne Huebner (Assistant Clinical Professors (Adjunct) at the Michael G. DeGroote School of Medicine, McMaster University)**

- **Relationships with commercial interests:** None

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Disclosure of Commercial Support

- This research was supported by project funds from the Primary Care Data Sharing project of the connecting South West Ontario Program.

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Mitigating Potential Bias

- The research protocol was approved by the Hamilton Integrated Research Ethics Board (McMaster University).

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Practical Context of the Study

- As an initial phase of a project dedicated to standardizing and sharing primary care data, cSWO, the eHealth Centre of Excellence at the Centre for Family Medicine and the Canadian Institute of Health Information piloted the Primary Health Care EMR Content Standard v3.0

Theoretical Context

- Systematic review on diffusion of innovation in service organizations (Greenhalgh et al., 2004) found:

"a striking finding of this extensive review was the tiny proportion of empirical studies that acknowledge, let alone explicitly set out to study, the complexities of spreading and sustaining innovation in service organizations" (p. 614).

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Theoretical Context

- Two key concepts on technology perception (Sykes, Venkatesh & Rai, 2011):

1. Ease of use (usability): the extent to which an individual believes using a tool is free of effort.

2. Usefulness (utility): the extent to which an individual believes use of a tool enhances job performance.

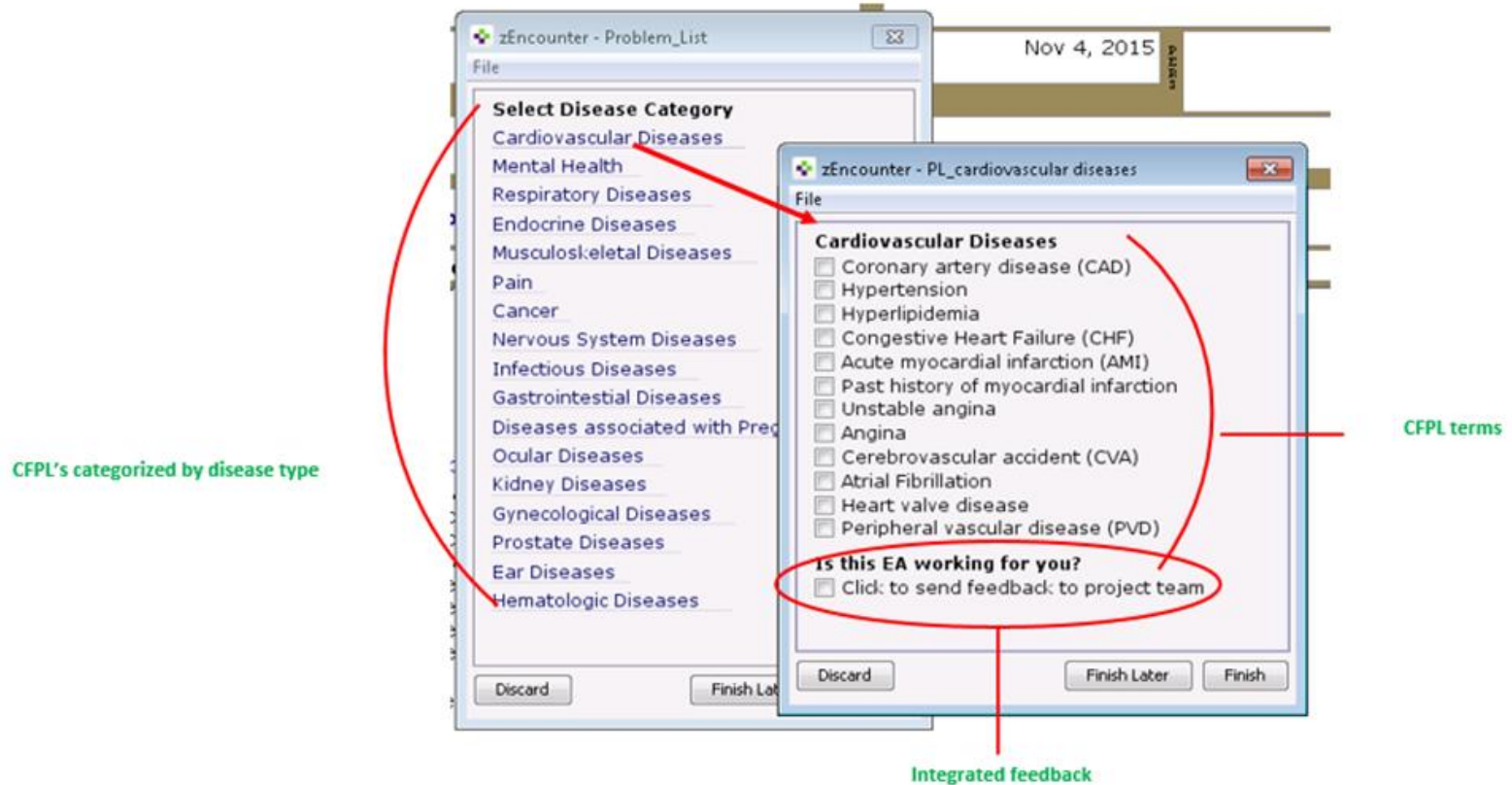OntarioMD

Our Research Program Context

- Alexander et al. (2015): are there clinical leadership, org. development, change management resources and collaborative interest to support improvements in data that inform innovation and better care?
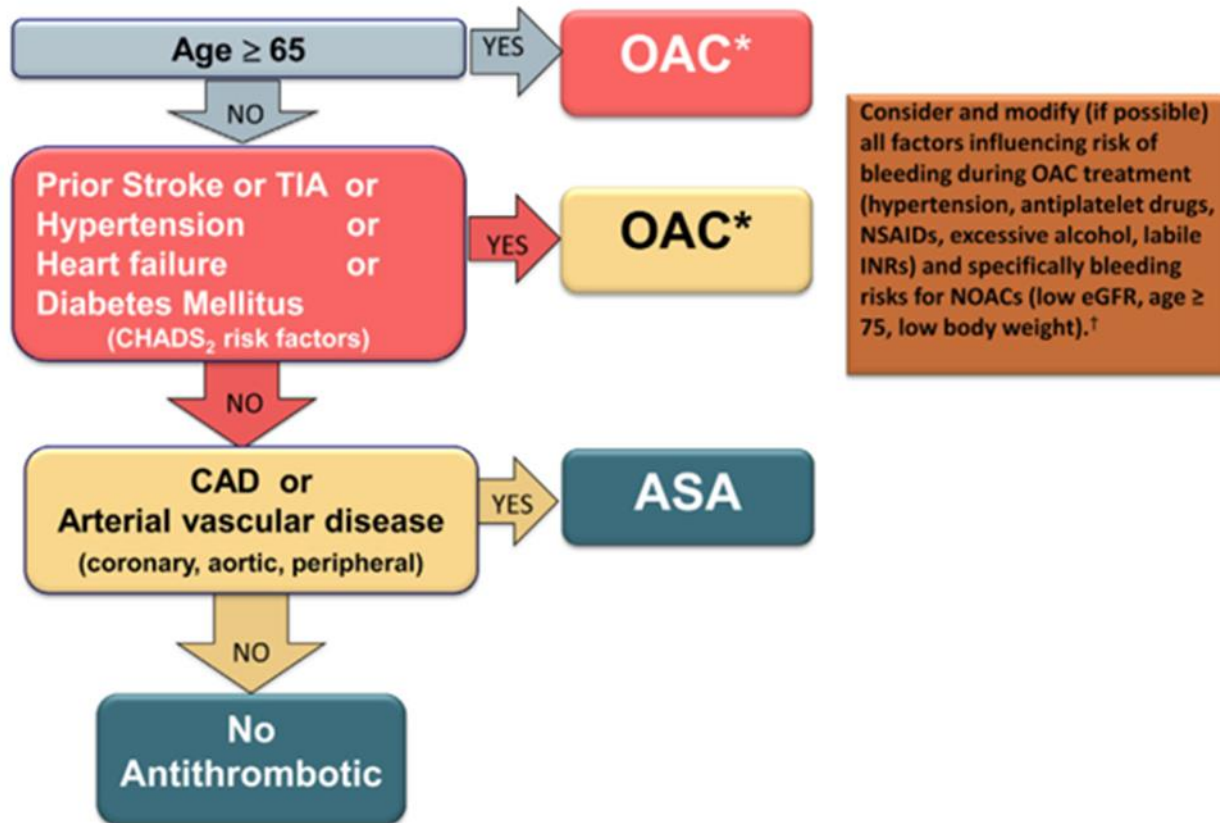
- Alexander et al. (2016) white paper to MOHLTC

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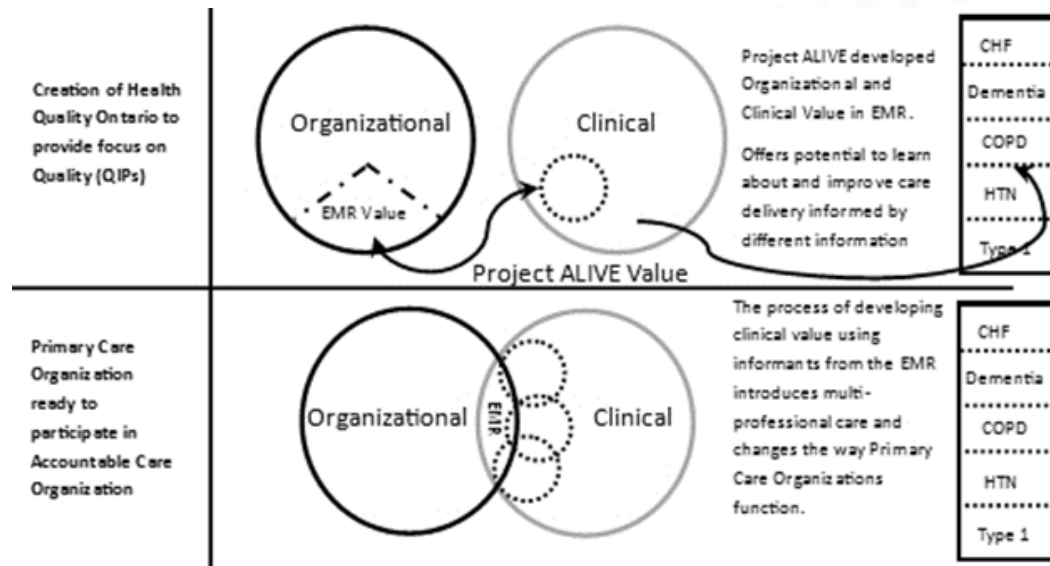
Project

- Produce "primary tools" designed to standardize data in the cumulative patient profile

- Produce "secondary tools" showing value of standardized data to develop patient population tools

- Interview clinicians about usability (ease of use) and utility and discuss in context of core business objectives
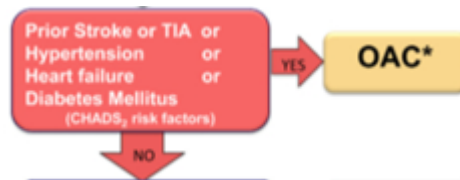
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Primary Tools

CFPL's categorized by disease type

CFPL terms

Integrated feedback

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Secondary Tools

The "CCS Algorithm" for OAC Therapy in AF

Age ≥ 65 — YES → **OAC***

NO ↓

Prior Stroke or TIA or Hypertension or Heart failure or Diabetes Mellitus (CHADS$_2$ risk factors) — YES → **OAC***

NO ↓

CAD or Arterial vascular disease (coronary, aortic, peripheral) — YES → **ASA**

NO ↓

No Antithrombotic

Consider and modify (if possible) all factors influencing risk of bleeding during OAC treatment (hypertension, antiplatelet drugs, NSAIDs, excessive alcohol, labile INRs) and specifically bleeding risks for NOACs (low eGFR, age ≥ 75, low body weight).[†]

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250 patients with Atrial Fibrillation (AF)

196 are over the age of 65

24 of 54 remaining patients have AF, are under 65 and standardized data identified additional diagnoses that provided cause for OAC therapy consideration

Analytical Steps:
1. Met with pharmacist to verify OACs involved in AF therapy.
2. Eliminated patients already prescribed OAC therapy (N = 171).
3. Re-ran the analysis.
4. Provided 49 patients to pharmacist for chart review.

Chart review results: Recommendation to physician board for 13 patients (5.2% of AF population) to have initial or follow-up discussion on OAC therapy and stroke risk.

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Utility/Usability Interviews

- Interviewed 17 clinicians (7 physicians, 8 nurses, 2 nurse practitioners)

- Asked to identify core business objectives of organization(s)

- Defined perceived usefulness (utility) as the extent to which an individual believes use of a tool can enhance their job performance.

- Defined perceived ease of use (usability) as the extent to which an individual believes using an EMR is free of effort.

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Finding #1

Clinician responses about ease of use generally focused on the primary tools. This is not particularly surprising as the capture of standardized data is the action that most directly affects workflow.

"The tools are easy to use, and provide consistency in charting so that other team members can easily interpret the patient records."

"having coded this stuff now you just see how easy it is to actually be able to accurately capture things. ..I think the whole push towards coding...is extremely valuable in just being able to run efficient, accurate searches". Physician

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Finding #2

Clinician responses about utility generally focused on the secondary tools. This is not particularly surprising as the secondary tools help establish the relevance of standardizing data as it relates to the production of clinical value.

"Sometimes we struggle a little bit with…(knowing) what are the latest guidelines so this might … help with that." Physician

"The development of secondary tools enables us to "treat our patients more efficiently and more accurately". Nurse

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Finding #3

Discussions of secondary tools seem to both reinforce and destabilize discussions of core business objectives (individual and collective objectives for the Family Health Team (FHT)).

"So I think it would come back to the organizational level, … what are the priorities,…and then maybe developing tools that would meet some objectives of those things." Physician

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Discussion of Limitations

- The findings and conclusions developed during this study do need to be interpreted cautiously. The amount of exposure that clinicians had to primary and secondary tools was uneven, which could have played a significant role influencing clinicians' responses on the ease of use of tools towards primary tools.

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Discussion/Recommendation
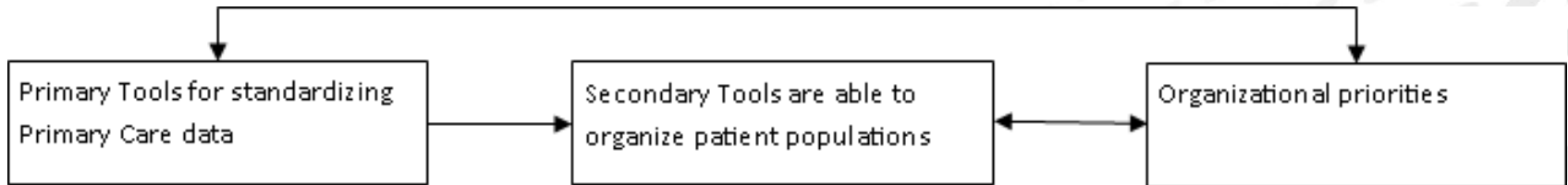
- Primary care organizations should implement processes to examine innovations alongside individual and collective business objectives to ensure sustainable adoption of tools.

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Thank you!
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