

Submission Id: 2804

Title

Improving clinical pathways for cancer diagnosis by understanding physicians' mental models

Priority 1 (Research Category)

Healthcare Services, Delivery, and Financing

Presenters

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Abstract

Context: The Alberta Cancer Strategic Clinical Network (SCN) has proposed province-wide diagnosis and referral pathways for rectal bleeding (RB), iron-deficiency anemia (IDA) and lymphadenopathy (LA). The pathways aim to ensure that high-risk patients are referred and evaluated quickly, and reduce low-yield referrals. Historically such initiatives have met with limited uptake. Objective: Apply cognitive engineering principles to improve uptake. Study Design: Cognitive Task Analysis (mental simulation method), cross-sectional. Setting: Family medicine practice. Population: 8 family physicians in Alberta; 6 women; range < 10 to > 30 years in practice; none rural. Intervention: Findings presented to Cancer SCN Leadership for revision of pathway content and implementation process. Outcome Measures: Fit of pathway content and implementation with mental models and cognitive strategies of family physicians. Suggestions for improving fit. SCN actions in response to findings. Results: Physicians had well developed mental models for RB and IDA. They did not use the diagnostic information but used a few key points of the content for sensemaking in the referral process and validating their decision making. The implementation plan did not fit with physicians' mental models, with respect to whom to refer for endoscopy. Advice for changing the plan was provided to the SCN: not to attempt changing physicians' mental models, but to change the triage process for incoming referrals. Physicians did not maintain detailed mental models for LA, and did use the content for sensemaking. For all three pathways, physicians did not follow the algorithms, but sought out the key cues to use in System 1-based (rapid, intuitive) cognitive strategies, either recognition-primed decision making or satisficing. The SCN was advised to change the format to cluster those key cues and make them easy to find, and to avoid forcing physicians into slower System 2 thinking (potentially disrupting busy clinic workflow). The SCN requested the study team remain involved, to review and advise as they revise pathways and implementation plan. Specific usability feedback was catalogued at the level of wording and format details, for use by the SCN pathway designers. Conclusions: Cognitive Task Analysis can provide a perspective on care/diagnostic pathways that results in substantially different design and implementation choices. The next step is to observe whether uptake is superior to previous efforts.