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3 1 **Using Care Pathways for Cancer Diagnosis in Primary Care: A Qualitative Study to Understand Family**  
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6 **Physicians' Mental Models**  
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10 4 **Authorship**

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3 25 **Abstract**  
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5 26 BACKGROUND: Care pathways are tools that can help family physicians navigate the complexities of the  
6  
7 27 cancer diagnostic process. The objective was to examine the mental models associated with using care  
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9 28 pathways for cancer diagnosis of a group of family physicians in Alberta.

10 29 METHODS: We conducted a qualitative study using Cognitive Task Analysis, with interviews in the  
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12 30 primary care setting between February and March 2021. Family physicians whose practices were not  
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14 31 heavily oriented toward cancer patients and who did not work closely with specialized cancer clinics  
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16 32 were recruited with the support of the Alberta Medical Association and our familiarity with Alberta's  
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18 33 Primary Care Networks. Simulation exercise interviews with three pathway examples were conducted  
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20 34 over Zoom, and data were analyzed using both a framework-guide based on macrocognitive theory and  
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22 35 thematic analysis.  
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28 36 RESULTS: Eight family physicians participated in interviews. Main subthemes for macrocognitive  
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30 37 functions and mental models were: sensemaking and learning (including confirmation and validation,  
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32 38 guidance and support, and sensegiving to patients), care coordination and diagnostic decision-making  
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34 39 (shared understanding). Main subthemes related to the use of the pathways were: limited use in  
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36 40 diagnosis decisions, use in guiding and supporting referral, just relevant and easy-to-process  
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38 41 information, and easily accessible.

39 42 INTERPRETATION: Findings suggested the importance of developing pathways that can be easily  
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41 43 integrated into family physicians' practices, highlighting the need for co-design approaches. Pathways  
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43 44 were identified as a tool that used in combination with other tools may help enhance cancer diagnosis,  
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45 45 with the goals of improving patient outcomes and care experience.  
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## 49 Introduction

50 In Canada, the process of obtaining a cancer diagnosis following first suspicion of a problem can be  
51 fraught with delay (1-5), which is associated with shorter survival, decreased quality of life post-  
52 treatment, and suboptimal patient experience (2, 6). Delays may be caused by various factors related to  
53 the characteristics of cancer, to the patient, and to the fragmented healthcare system (5, 7, 8). There is a  
54 set of standard tests and steps required to get to diagnosis, and the coordination of these mostly rests in  
55 the hands of family physicians (1, 5, 9).

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57 Care pathways are tools that can help family physicians navigate the diagnostic process (10), and  
58 potentially result in enhanced quality of care and efficiencies in the healthcare system (11-15). While  
59 some studies in Alberta and Canada suggest that family physicians are interested in and follow pathways  
60 in their everyday practice (16), others suggest important challenges related to how pathways might be  
61 adopted, approached and used (17). Some authors report low uptake due to little consideration of how  
62 family physicians approach their work during pathway design (18, 19). There is a need to rethink the  
63 process of designing and implementing pathways in the primary care setting (20, 21). This study was  
64 intended to take a first step at addressing that need in the context of cancer diagnosis. The objective  
65 was to examine the mental models associated with using care pathways for cancer diagnosis of a group  
66 of family physicians in Alberta, and applying the findings to guide integration of pathways into family  
67 physicians' practices.

## 69 Methods

### 70 Design

71 We conducted a qualitative study using Cognitive Task Analysis (CTA). CTA is designed to elicit the  
72 mental processes that underlie observable behaviours and reveal the cognitive skills and strategies

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3 73 needed to effectively tackle challenging situations and accomplish tasks in real-world settings (22, 23). It  
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5 74 uses specialized interview methods and a framework-guided analysis to uncover and represent what  
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7 75 individuals know and how they think when making decisions or performing tasks, which is known as  
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10 76 'macrocognition' (22).

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14 78 We used the mental simulation method of CTA, with a "think-aloud" protocol. Mental simulation allows  
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16 79 participants to consider events or scenarios, and learn of possible consequences, results, and futures  
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18 80 (24). The "think aloud" process is a method used for developing and testing new clinical systems (in this  
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20 81 case, care pathways). It encourages participants to talk through their use of the system in order to  
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22 82 assess participants' information retrieval needs, their reasoning in how they use the system, and the  
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24 83 usability of how the system fits within existing workflows (25).  
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### 29 30 85 **Setting and participants**

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32 86 We used purposive sampling (26) to recruit family physicians whose practices were not heavily oriented  
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34 87 toward cancer patients and who did not work closely with specialized cancer clinics. We posted notices  
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36 88 in the provincial newsletters of the Alberta Medical Association (AMA), and relied on our familiarity with  
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38 89 Alberta's Primary Care Networks and practices to purposely target physicians who would be most  
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40 90 representative of real-world users (27). All physicians expressing interest in the study participated in it.  
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42 91 Fee-for-service physicians were offered a stipend to compensate their time for participation, based on  
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44 92 established provincial guidelines.  
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### 49 50 94 **Data sources and collection**

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52 95 Data sources were CTA interviews from simulation exercises that used three examples of care pathways  
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54 96 for cancer diagnosis recently developed for use in Alberta: rectal bleeding, iron deficiency anemia, and  
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3 97 suspected lymphoma. Each simulation asked the participant to choose one pathway based on a recent  
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5 98 case where they could have used that pathway. Participants were asked to recall that case, and think  
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7 99 aloud about how they would have cared for that patient using the pathway. We used a list of interview  
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10 100 probes derived from macrocognition theory to ensure that key information was elicited (28-30). We  
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12 101 gathered information on: 1) how the proposed pathways affected the family physicians' macrocognitive  
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14 102 functions; 2) the fit between the family physicians' mental models of diagnostic processes and the  
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16 103 proposed pathways; and 3) the use of the pathways (25, 28-30) (Appendix 1). Interview guides were  
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18 104 developed by the research team based on their previous work in the area (1, 17, 31, 32). Interviews  
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20 105 were conducted by an interviewer and a note-taker, who were members of the AMA-Accelerating  
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22 106 Change Transformation Team (ACTT) trained in CTA and might have previously interacted with some of  
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24 107 the participants through their work. Individual interviews took place virtually by Zoom, in February and  
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26 108 March of 2021, after informed consent was granted. No repeat interviews were conducted. Transcripts  
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28 109 were not returned to participants for comment and/or correction, as they rarely are in CTA; however,  
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30 110 participants were notified that they may be contacted with clarifying questions.  
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### 36 111 37 112 **Data analysis**

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39 113 All interviews were audio-recorded, transcribed verbatim, combined with field notes, and imported into  
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41 114 Excel for analysis. The text was divided into sections, and each section was coded using a coding  
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43 115 framework from macrocognition theory used in our previous CTA studies (17, 31) (Table 1). In addition,  
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45 116 emergent themes were identified using thematic analysis (33). Coding of each section was completed by  
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47 117 two CTA-trained members of AMA-ACTT. Members were assigned to sections so that the same two  
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49 118 members did not code together each time. To ensure consistency and trustworthiness (33), AMA-ACTT  
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51 119 and research team members met to review and discuss the coding, resolving any disagreements by  
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53 120 consensus. We then met to review all the narrative summaries of the macrocognitive functions, plus  
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3 121 emergent findings, to build a description of each participant's mental model of their cognitive approach  
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5 122 to using clinical diagnostic pathways, and finally to compile similarities and contrasts across participants.  
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10 124 **Ethics approval**

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12 125 Ethics approval was received from the Health Research Ethics Board of Alberta, Cancer Committee  
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14 126 (HREBA.CC-21-0003).  
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19 128 **Results**

20  
21 129 We interviewed eight family physicians (Table 2). Interviews lasted 45-60 min. Four chose the rectal  
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23 130 bleeding pathway, three the iron deficiency anemia pathway, and one the suspected lymphoma  
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25 131 pathway. Two also provided additional comments on the pathways they did not choose (iron deficiency  
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27 132 and lymphoma). The analysis identified the macrocognitive functions most used and physicians' mental  
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29 133 models (4 subthemes), as well as the actual use of the pathways (4 subthemes). Illustrative quotations  
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31 134 for subthemes are provided in Tables 3 and 4.  
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37 136 **Macrocognitive functions and mental models**

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39 137 The pathways influenced participants' sensemaking and learning (Table 1) the most. Participants used  
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41 138 the pathways to gather information, confirm what they already knew, support what they were doing, or  
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43 139 as a quick guide for what steps to take when unsure. This was particularly true for the rectal bleeding  
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45 140 and iron deficiency anemia pathways, which were related to common health issues seen by physicians  
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47 141 regularly. Physicians had well-developed mental models of the diagnostic process in these cases, and  
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49 142 described using the pathways as a quick confirmation or validation tool (Table 3, Subtheme 1). In the  
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51 143 case of the lymphoma pathway, a less common issue experienced by study participants, physicians did  
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53 144 not have a well-developed mental model of the diagnostic process, and would use the pathway for  
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3 145 guidance and support, as well as confidence or reinforcement in making decisions about the diagnostic  
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5 146 and referral processes (Table 3, Subtheme 2).  
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10 148 In some cases, participants stated that they would use the pathways for sensegiving to patients, either  
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12 149 to show them that a process exists and where they are within that process, or to provide information in  
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14 150 the form of patient handouts (Table 3, Subtheme 3). Some participants went further to note that they  
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16 151 would find it useful to have a patient version of the pathway, with information on procedures and side  
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18 152 effects, that were easy to find and printable (Table 3, Subtheme 3.1).  
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23 154 Referring to all pathways, participants mentioned that pathways could help care coordination and  
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25 155 decision-making. Participants perceived that there is no agreement among family physicians and  
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27 156 specialists (as well as among specialists themselves), about what is considered a “high risk” scenario,  
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29 157 which determines if referrals are “semi-urgent” or “urgent”. Pathways were expected to inform or  
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31 158 validate decision-making in regards to referral priority; however, with uncertainty about risk, and  
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33 159 without clarity about urgency, the majority stated they would simply “pick up the phone and call a  
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35 160 specialist”, to avoid a potential miss of cancer diagnosis (Table 3, Subtheme 4).  
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#### 39 161 40 41 162 **Use of the pathways**

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43 163 Participants demonstrated that the pathways presented in this study are not tools they would  
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45 164 necessarily use for all patients. Participants explained that for common health issues, they had already  
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47 165 developed an approach, and relied upon existing, more generic tools to inform diagnostic decisions (e.g.,  
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49 166 [TOP Guidelines](#), [Specialist Link](#), [UpToDate](#)). Participants reported that if they were to use pathways  
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51 167 guiding the diagnostic process, they would only use them to complement the tools they typically use  
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53 168 (Table 4, Subtheme 1).  
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5 170 Participants indicated that the most valuable use of the pathways was to support and guide the referral  
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8 171 process. Firstly, pathways could act as a platform to build a shared understanding between family and  
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10 172 specialist physicians of what “high risk” means and when to send a referral for “semi-urgent” or  
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12 173 “urgent” treatment. Secondly, pathways could provide steps to guide the referral process, including  
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14 174 criteria and requirements, when and to whom to refer. Some participants proposed that pathways could  
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16 175 even be part of the referral process itself by being a clickable form that could be submitted for referral.  
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19 176 Participants indicated this may help improve time to diagnosis, and communication and care  
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21 177 coordination with specialists (Table 4, Subtheme 2).  
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25 179 Although the pathways are presented as an algorithm, participants would not use them algorithmically.  
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28 180 In the time-pressured primary care setting, physicians emphasized their need to access and process  
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30 181 information quickly. The participants walked us through how they would rapidly review the pathways to  
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32 182 identify recognizable patterns or the minimum information necessary to make decisions, confirm  
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34 183 knowledge, guide what steps to take when unsure, or build new patterns to drive a satisfactory decision.  
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37 184 They emphasized they typically would only access the information in the first page, which should  
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39 185 present the most valuable information in a very concise and user-friendly way (Table 4, Subtheme 3).  
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41 186 Last, the majority of participants stated that the pathways needed to be located on the same webpage,  
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43 187 and easy to find. A few participants noted that having access to the pathways through their electronic  
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45 188 medical records (EMR) would be ideal (Table 4, Subtheme 4).  
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### 49 190 **Interpretation**

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52 191 Pathways presented for the study had little effect on participants’ diagnostic process beyond  
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54 192 sensemaking and learning, some diagnostic decision-making, and potentially care coordination.  
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3 193 Pathways did not conflict with participants' mental models, meaning that they could fit within their  
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5 194 diagnostic and referral processes. Findings suggested that family physicians might use pathways to  
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7 195 gather information, confirm or validate what they already know, support what they are already doing, as  
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10 196 a quick reference for steps to take when unsure, complementing tools they already use.

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14 198 Our findings align well with and help explain previous studies reporting low uptake of pathways in  
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16 199 primary care, even though family physicians see them as highly relevant (34). Evidence on successful  
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18 200 pathway implementation is not abundant (20), and mostly refers to barriers and facilitators related to  
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21 201 the contextual factors linked to patients (e.g., epidemiological, socio-economic, political, ethical  
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23 202 aspects), healthcare providers (knowledge, attitudes, behaviour), and work environment (e.g.,  
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25 203 inadequate staffing, time pressure) (21). Our results elaborate on factors related to family physicians,  
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27 204 and suggest that uptake will not succeed if pathways conflict with physicians' cognitive work strategies.  
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30 205 While pathways were presented as algorithms, family physicians used them as resources to support  
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32 206 well-known System 1 thinking strategies, which are rapid, efficient, and heuristic-based in contrast to  
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34 207 slow, effortful "reasoning from first principles" System 2 thinking (35). Participants used pattern  
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36 208 recognition and satisficing approaches (36) to quickly find the minimum information necessary to make  
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38 209 a satisfactory decision, or to confirm that their decision was appropriate. It is crucial that future design  
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41 210 of primary care pathways takes into account the cognitive implications of the primary care time-  
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43 211 pressured context, in which family physicians, in order to quickly work through the issue at hand, are  
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45 212 heavily dependent on fast automatic and instinctive thinking strategies.

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50 214 In Alberta, care pathways have been identified by the Strategic Clinical Networks (networks of clinicians  
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52 215 and patients with knowledge about a specific health area) at Alberta Health Services as a preferred  
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54 216 strategy to improve the quality of care provided to Albertans (37, 38). Findings from our study provide  
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3 217 two relevant considerations related to this. First, they suggest that pathways should be co-designed with  
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5 218 the intended physician end-users. Post-implementation solutions to promote pathway uptake and use,  
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7 219 such as dissemination strategies (39), training activities (40-42), or additional materials like explanatory  
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9 220 handbooks (43), may not support successful implementation, at least not by themselves. Pathway  
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11 221 design should include the meaningful involvement of physician end-users and explicit examination of  
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13 222 their cognitive work patterns in order to fulfill their information needs, while increasing the likelihood of  
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15 223 seamless incorporation into their workflow. Second, findings suggest that pathways may need to be  
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17 224 complemented by other tools. In the context of cancer care, where pathways are identified as a tool to  
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19 225 support enhanced diagnosis of cancer (44), participants reported that they would refer their patients to  
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21 226 a specialist when there was any chance of cancer, even if minimal, and mentioned the lack of shared  
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23 227 understanding and poor communication with specialists. In alignment with current discussions on poor  
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25 228 care continuity and inconsistent collaboration between family physicians and other specialists (5, 9, 45,  
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27 229 46), our findings emphasized the importance of pathways, while also suggesting the need additional  
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29 230 improved supports for family physicians. A previous study by this team (1) reported that family  
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31 231 physicians and cancer specialists supported the implementation of a centralized service where primary  
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33 232 and specialist physicians converge in their roles. Pathways, low-risk guides, and other initiatives such as  
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35 233 rapid access clinics (47, 48) and specialty teleconsultation systems (16) could be considered.  
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### 43 235 **Limitations**

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45 236 Given resource constraints, we opted to interview participants in-depth, gathering significant and  
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47 237 meaningful information, rather than reaching data saturation. An additional limitation is that  
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49 238 participants did not represent a diversity of profiles. Most practiced medicine in urban centres and were  
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51 239 located in Southern Alberta. As such, findings might not reflect the views of family physicians in rural  
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53 240 and remote communities of Alberta, and those of the north and central parts of the province.  
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5 242 **Conclusion**

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7 243 In this study we found that family physicians might use pathways developed for primary care, but not  
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10 244 necessarily in the manner intended. Findings highlight the need to use co-design approaches to develop  
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12 245 pathways, ensuring that the information needs and cognitive strategies of family physicians are  
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14 246 accounted for. Findings also underline the need to think about cancer diagnosis pathways not as ‘the  
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16 247 tool’ to guarantee improved diagnosis of cancer, but as ‘one tool’ that may be used in combination with  
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18 248 other tools to help enhance cancer diagnosis. Future studies should explore and rigorously assess  
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20 249 existing and innovative approaches to develop pathways and additional supports that can be easily  
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22 250 integrated into family physicians’ practices.  
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33  
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36 256 and valuable insights.  
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Table 1. Macro cognition framework

Function	Description
Sensemaking and learning	<ul style="list-style-type: none"> <li>- Deliberate attempt to find coherent situational understanding</li> <li>- Modifying a mental model or generating a new one</li> <li>- Includes sensegiving (presenting an understanding to others to adopt)</li> </ul>
Decision-making	<ul style="list-style-type: none"> <li>- Decisions in, or about, patient care and administrative processes</li> </ul>
Planning and re-planning	<ul style="list-style-type: none"> <li>- Shaping or reshaping patient care or administrative processes</li> </ul>
Monitoring and problem detection	<ul style="list-style-type: none"> <li>- Tracking the progress or outcomes of patient care or administrative processes</li> <li>- Planned, ad hoc (“noticing”), formal (data collection), or informal</li> </ul>
Managing the unknown, unclear, unexpected, and irregular	<ul style="list-style-type: none"> <li>- Planned or anticipatory (contingencies, fallbacks)</li> <li>- Evaluating/estimating risks</li> <li>- Unplanned, “scrambling”</li> </ul>
Coordinating	<ul style="list-style-type: none"> <li>- Any activity that helps synchronize two or more individuals in a patient care or administrative process, especially transmitting information or expectations</li> <li>- Maintenance of “common ground,” shared expectations/understanding/mental models of processes</li> </ul>

Table 2. Participant demographics (n=8)

Characteristic	Frequency n (%)
Gender	
Woman	6 (75)
Man	2 (25)
Age (years)	
30-39	6 (75)
50-59	2 (25)
Years in practice	
6-10	6 (75)
29-33	2 (25)
Geographic location of practice (*)	
Southern Alberta, urban	6 (75)
Northern Alberta, urban	2 (25)

(\*) Locations are classified based on Alberta Health Services and Alberta Health Standard Guidelines.

Urban centre have a population of 25,000 or more, and rural centres have population of less than 25,000.

Table 3. Illustrative quotations from data generated by CTA interviews with family physicians related to macrocognitive functions and mental models

Macrocognitive function & subtheme	Quotations
<p>1. Sensemaking &amp; learning: Confirmation and validation (common health issues)</p>	<p>I'd probably, just given my experience, I would see the patient and probably open this up after just to glance through to see, have I thought of everything I should? Almost like a checklist to make sure I haven't missed anything. FP7</p> <p>I think what it would have done is just confirmed for me that I was doing the right thing. FP3</p> <p>All of the pathways, for me, it gives me a framework to go off of. How do I go through the process in my mind in terms of what's the differential? ... Just reminding myself what are the alarm features? When do I have to be really worried? ...It is good to have that framework. It gives us more reassurance. So much of family practice is uncertainty and dealing with uncertainty. And dealing with very big symptoms to start with. They don't come in and say, "Oh, I have rectal cancer." You are trying to sort through the symptoms. FP1</p>

<p>2. Sensemaking &amp; learning, decision-making: Guidance and support (uncommon health issues)</p>	<p>I'd say all of it [use of lymphoma Pathway], because I do struggle in this area. It's uncommon, so I don't have as much experience or comfort level with it, so I would [use it], especially the "clinical exam". FP8</p> <p>It [Pathway] would make a difference... I'll be seeing the patient next week. I'll be able to say, "Listen, I've sent this to the Lymphoma Diagnosis Program and they are going to call you." I know with confidence that I'm sending the patient to the right place. FP2</p>
<p>3. Sensemaking &amp; learning: Sensegiving to patients</p>	<p>...if there is a patient that is insisting on seeing the specialist then I'll use the algorithm and say, "Actually, we have something that we follow. This is a pathway that we follow and the specialist won't see you until we follow through this pathway to the end where we need to go. And then, if something comes up, there are indications when I have to send you to the specialist, but we have to work through this together before we get to that point". FP1</p> <p>Handouts for patients are the best. ...I definitely would still share this with them. You just have to spend the time to go through each thing with them and make notes and give it to them so they can refer back to it. FP4</p>
<p>3.1. Sensemaking &amp; learning: Sensegiving to patients -</p>	<p>...a tool that followed the algorithm that we were following, so they [patients] would know what steps we were going through and when it is a problem, when to reconnect. FP1</p> <p>Often patients will experience some side effects the first couple of weeks and they will go away, so that is good for them to know. I don't necessarily give them a</p>

<p>patient version of pathways</p>	<p>handout about that, but could I? Absolutely I could. Maybe it would just make me feel better that they have absorbed and understood that information... I think information about procedures is probably harder to find, so I think that is good.</p> <p>When I order a specialized test, sometimes patients want to know a bit more about that. It helps alleviate their anxiety as well. FP5</p> <p>The patient handouts... it is hard to actually find the right ones. ...I think having handouts direct from AHS would be a great thing. Also, with instructions... "Your doctor has referred you to here and you should be hearing from this particular place" or something within this timeline. FP6</p>
<p>4. Coordination, decision making: Shared understanding</p>	<p>...one is "Urgent". One is "Semi-urgent." ...I think is a bit confusing to be honest because this is all the same thing in my opinion. Only because as primary care physicians, we don't really dictate when the person is going to be scoped or not, so "two weeks" or "eight weeks" unless they are bleeding... if you are looking for "Urgent" they should be picking up the phone and calling. FP4</p> <p>"Semi-urgent criteria". Yes, that was pretty much what we fall into. I then just did the referral, although I marked it as urgent. Urgent, I suppose, when I mark a referral I'm just faxing through, I'm not expecting it to be necessarily quicker than that two months. If I'm thinking this needs to be seen in next week or two, that's when I'm picking up the phone and speaking to someone. FP3</p> <p>Sometimes you have to go with your gut feeling though or refer them anyway, because it is better to rule out the cancer than to find out it was and it's too late... I</p>

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	may not fully always go to the "T", because if you think this is cancer, you should check it out, right? FP8
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Table 4. Illustrative quotations from data generated by CTA interviews with family physicians related to the use of pathways

Subthemes	Quotations
<p>1. Limited use in diagnosis decisions (common health issues)</p>	<p>A lot of it is stuff you just intrinsically think about. ... when you are doing your history and physical for the patient, you will always ask, if someone is coming in with anemia... "Any major sources of bleeding? How are your bowel habits? What do they look like? How many times a day do you go? How is your appetite? How is the shape of your stool?" There is just a fire of questions that you ask that I guess is intrinsic. FP7</p> <p>Like I said before, rectal bleeding is a very common patient complaint. ... I don't think it [Pathway] would have informed my practice... This is what we would be doing. What we think are red flags concerning colorectal cancer. This kind of stuff, to be honest, most GPs should know it and have it in the back of mind or the back of their hand. FP5</p> <p>For the rectal bleeding, one of my main go-tos is going to be UpToDate. The resource there. That is still the one I would refer to, but I guess from provincial guidelines, I still find that for this particular, these types of cases, it is still the TOP Guidelines. ...I think this Pathway is pretty closely aligned with the current one from TOP Guidelines. I don't think having this one in particular would necessarily change a lot of what would have been done for this patient already. FP6</p>



	<p>I was just going to say it is really good that you have the Specialist Link number there. I usually have it on a sticky on my monitor and sometimes it falls off, so this is really good. FP4</p>
<p>2. Use in guiding and supporting referral</p>	<p>... referring to a GI [gastrointestinal] specialist, well, it's complicated. If you kind of put it that if some of these investigations come back a certain way, if CBC [complete blood count] is up, or if this is down or the other one is up, refer to GI. If this is up and this is down, if not refer to Hematology.</p> <p>And different tests you could do and add in there. FP4</p> <p>I think it is really helpful just to have these community specific pathways. Especially for people who practice in multiple communities. For people who are new to a certain community if they moved here and just don't know where to refer. ... If you refer to the wrong people, they tend to reject it. That can cause delays in diagnosis. I think that community specific piece is really what I'm really looking for within these Pathways. FP5</p> <p>They [surgeons/specialists] are not easily approachable people. ... I find that I am always in an awkward position. I am the low man on the pole.... Surgeons don't want to talk to me. I don't want to waste the radiologist's time. And I also don't want to send the patient down the wrong path... FP2</p>

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	<p>I think the Pathway would be good ... just having it take one extra step... where you check off you meet this, this, and this criteria and just sending that sheet off. And referral done. FP3</p> <p>I think there is not a lot of standardization in terms of in general what happens with referrals. Some specialists send the thing back to us and say, "You contact the patient and tell them about the appointment". Another one will say, "We will take care of it." I think most of the time patients have no idea when to expect a call or what to do if they haven't heard or how long to wait. It would be nice if everyone was standardized. But instructions on a paper would be great.FP6</p>
<p>3. Just relevant, easy-to-process information</p>	<p>This [pathway] is nine pages long. You don't want that when you are trying to quickly access something to jog your memory or trying to determine if someone is high risk or low risk for an investigation. FP7</p> <p>Yes, what I am looking for. I say I am a family doctor and I work from 'rules of thumbs' and I have two, so I don't want a long list of 20 thumbs. I want two thumbs. What do I look for and if this happens, send them to emerg. FP2</p> <p>We just really don't have the time, so making it super simple and easy to follow would be really, really helpful. One page. High level information of what is going to change outcomes and what is going to help outcomes and help people be seen sooner. FP4</p>

## 3. Easily accessible

I want it all in one spot. ... it has to be just sort of in one sport and we know where to look for it. FP1

I think if they are easy to access that people would use them. If you have to search within a website too far, if it gets too cumbersome to get to, then people will give up because they will forget to bookmark it or how to get there. FP8

I would want them all together. I think it would be easy enough if it was just set up as a book mark or something that opened in easy access. ... I'm going to say I still probably prefer something within my EMR that would allow me to - Just because sometimes navigating away, ... it is not very quick. Often, I end up reverting to my phone to show patients things on the internet, because it is so much quicker than trying to do it on my computer. So, having it, again, just being able to access it and at least click a link through my EMR would probably be quicker than me trying to open everything else up. FP3

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3 Appendix 1. Interview guide  
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7 **Pathway selection**  
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10 Show/ask the participant to look at the three diagnostic pathways.  
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- 12 - If interview is by phone, CTA Coordinator will have emailed these to the participant prior to  
13 interview so that they can review during the interview  
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- 15 - If interview is conducted by Zoom, the interviewer can share their screen to have the participant  
16 view the pathways  
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21 Ask the participant to choose a pathway and recent patient that best relate in terms of symptoms or  
22 cancer diagnosis.  
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28 **Grounding**  
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30 How many patients do you currently have with a cancer diagnosis?  
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32 Thinking of a patient you saw recently (chosen from step 1), tell us about the care you provided for that  
33 patient.  
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39 *Probes:*  
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41 What are some things you accessed to know what care to provide for this patient?  
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43 What did you use? What did you like about it? What did not work well?  
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45 Who on your team was involved in this patient's care?  
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47 Were there specialists involved in this patient's care?  
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49 How did you give and receive information with them?  
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51 How did you know what your role is? Theirs?  
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53 What would help clarify roles and processes in this patient's care?  
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5 **Mental Simulation**  
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7 Now I would like you to focus on the pathway you chose. Thinking of this same patient, I would like you  
8 to consider the following:  
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14 *Counterfactual 1:*  
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16 Had this pathway been available to you for this patient, would it have informed your approach, and if so  
17 how?  
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19 Would it have changed anything in your approach? (If yes, what specifically?)  
20

21 How would have you used it? (E.g., with the patient? When? Which elements of it or all?)  
22

23 Who else might have been involved? How would have you interacted with them?  
24

25 What is useful about using a pathway such as this?  
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27 What about this pathway is off the mark?  
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29 What would you add or change?  
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31 Would this pathway enhance your experience of providing care? What about your patient's experience?  
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39 *Counterfactual 2:*  
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41 Where would you want to find or access this pathway?  
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43 How would you see this integrating into your work?  
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45 When thinking about this pathway, and others that are or might become available (e.g. lung cancer,  
46 breast cancer, prostate cancer), how would you want to access these pathway?  
47

48 Would you want them bundled together or kept separate?  
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50 If kept separate, would there be any exceptions? (I.e., would certain pathway be grouped together but  
51 others not?)  
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3 If bundled, which would you bundle together?  
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5 Other ideas?  
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10 The pathway we have provided as examples are for high-risk presentations, situations likely to be  
11 diagnosed as cancer. Where do you think resources for lower risk presentations fit?  
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14 Where and how would you want to access resources for low risk presentations?  
15

16 Would you want them bundled with pathway for high-risk presentations? (E.g., three we have shown,  
17 also developing ones for head and neck cancer, sarcoma)  
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20 How would you integrate these into your work?  
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23 Do you have anything further to add about the use of clinical cancer pathway (specifically examples  
24 shown or in general)?  
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30 **Closing**  
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32 Do you have any questions for us, or any further comments?  
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