

Colorectal cancer screening practices in Saskatchewan

Survey of family physicians

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Abstract

Objective To evaluate current colorectal cancer (CRC) screening practices in Saskatchewan and identify barriers to screening with the goal of improving current practice.

Design Survey of family physicians.

Setting Saskatchewan.

Participants A total of 773 family physicians were surveyed.

Main outcome measures Demographic characteristics, individual screening practices, and perceived barriers to screening.

Results The response rate to the survey was 44.5%. When asked what method they used for fecal occult blood testing, almost 40% of respondents were either unsure or did not answer the question. Of those who did respond, 35.8% employed hemoccult testing following digital rectal examination, a practice not recommended for CRC screening. Screening guidelines for average-risk patients were generally well adhered to, with 79.9% of respondents recommending screening beginning at age 50. For screening patients at increased risk of CRC owing to family history, only 64.2% of respondents began screening 10 years before the age of the index patient at diagnosis. Physicians who were more likely to follow guidelines were female, in practice fewer than 10 years, trained in Canada, and practising in urban areas. More than 90% of family physicians agreed that a standard provincewide screening program would be beneficial.

Conclusion We have identified considerable knowledge gaps with regard to CRC screening. There is confusion about which fecal occult blood tests are recommended for screening. Also, screening guidelines for patients with a family history of CRC are poorly understood. These findings suggest that better physician education about CRC screening is required. Introduction of a provincewide screening program should improve overall screening success.

EDITOR'S KEY POINTS

- Despite the high incidence of and mortality associated with colorectal cancer (CRC) and the proven effectiveness of screening, studies continue to show low screening rates across Canada. As there is no standard provincewide screening program in Saskatchewan, the responsibility for initiating screening belongs to family physicians.

- The authors administered a survey to family physicians across Saskatchewan to ascertain their current screening practices and their views of the barriers to current screening options, with the goal of using this information to improve CRC screening in the province.

- Family physician respondents reported that an estimated 50% of patients without a family history of CRC and more than 75% of patients with a family history of CRC were being screened for the disease.

- When asked if a standard provincewide screening program would be beneficial, more than 90% of family physicians either agreed or strongly agreed. The recently introduced fecal immunochemical testing program in the province should improve overall screening success but will require further increases in resources and availability of colonoscopy for follow-up of positive results.

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Pratiques de dépistage du cancer colorectal en Saskatchewan

Enquête auprès de médecins de famille

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POINTS DE REPÈRE DU RÉDACTEUR

- Même si le cancer colorectal (CCR) a des taux d'incidence et de mortalité élevés, et malgré l'efficacité démontrée du dépistage, les études montrent que le taux de dépistage demeure faible au Canada. Comme il n'existe pas de programme provincial standard pour le dépistage en Saskatchewan, c'est aux médecins de famille qu'incombe la responsabilité de lancer le dépistage.

- Les auteurs ont mené une enquête auprès des médecins de famille de la Saskatchewan afin de connaître leurs pratiques de dépistage et leurs opinions sur les obstacles aux différentes options de dépistage, dans le but d'utiliser cette information pour améliorer le dépistage du CCR dans la province.

- Les médecins de famille ont répondu croire que 50% des patients sans histoire familiale de CCR et plus de 75% de ceux qui avaient une telle histoire subissaient un dépistage pour cette condition.

- Lorsqu'on leur a demandé s'il y aurait avantage à créer un programme provincial de dépistage, plus de 90% des médecins de famille se sont dits d'accord ou très en accord. L'introduction récente d'un programme provincial portant sur un test immunochimique à partir des selles devrait améliorer l'efficacité globale du dépistage; il faudra toutefois davantage de ressources et un meilleur accès à la colonoscopie pour assurer le suivi des résultats positifs.

Cet article a fait l'objet d'une révision par des pairs.
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Résumé

Objectif Évaluer les pratiques de dépistage du cancer colorectal (CCR) en Saskatchewan et déterminer les facteurs qui font obstacle à ce dépistage afin d'améliorer les pratiques actuelles.

Type d'étude Enquête auprès de médecins de famille.

Contexte La Saskatchewan.

Participants L'enquête a été postée à 773 médecins de famille.

Principaux paramètres à l'étude Les caractéristiques démographiques des répondants, leurs pratiques individuelles de dépistage et les obstacles au dépistage qu'ils perçoivent.

Résultats Le taux de réponse a été de 44,5%. À la question portant sur la méthode qu'ils utilisaient pour la recherche du sang occulte dans les selles, près de 40% des médecins n'ont pas répondu à la question ou dit ne pas en être sûrs. Parmi ceux qui ont répondu, 35,8% utilisaient des tests de dépistage hémoculte après un examen rectal digital, une méthode qui n'est pas recommandée pour le dépistage du CCR. Dans le cas des patients à moyen risque, les directives pour le dépistage étaient généralement bien suivies, 79,9% des répondants recommandant le dépistage à partir de 50 ans. Pour dépister les patients présentant un plus grand risque en raison de l'histoire familiale, seulement 64,2% des répondants ont dit commencer le dépistage 10 ans avant l'âge où le parent atteint avait reçu son diagnostic. Les médecins les plus susceptibles de suivre les directives étaient des femmes pratiquant depuis moins de 10 ans, avaient été formés au Canada et pratiquaient en milieu urbain. Plus de 90% des médecins de famille pensaient qu'il serait avantageux d'avoir un programme de dépistage standard pour l'ensemble de la province.

Conclusion Cette étude a révélé d'importantes failles dans les connaissances des médecins de famille sur le dépistage du CCR. Il existe une certaine confusion quant au type de recherche du sang occulte dans les selles recommandé pour le dépistage. De plus, les directives sur le dépistage des patients qui ont une histoire familiale de CCR sont mal comprises. Ces observations laissent croire en la nécessité d'une meilleure formation des médecins sur le dépistage du CCR. La création d'un programme provincial de dépistage devrait entraîner une amélioration globale de l'efficacité du dépistage.

Colorectal cancer (CRC) is the third most common cancer among Canadian men and women and is the second leading cause of cancer-related mortality, responsible for approximately 12% of all cancer deaths in Canada.¹ In 2010, it was estimated that approximately 22 500 Canadians would be diagnosed with CRC, while 9100 would die from the disease.¹ Although new guidelines have been released,² the Canadian Association of Gastroenterology recommendations for CRC screening of average-risk individuals during the time of this study recommend fecal occult blood testing (FOBT) every 2 years, with either guaiac-based tests or fecal immunochemical testing (FIT); flexible sigmoidoscopy with or without FOBT every 5 years; double-contrast barium enema every 5 years; or colonoscopy every 10 years.³ Individuals at higher risk of CRC, including those with a personal or family history of the disease or history of inflammatory bowel disease, should be screened with colonoscopy.³ The timing of screening in high-risk individuals is dependent upon the underlying risk of disease and in principle dictates earlier and more frequent screening for those with high risk of disease.

Despite the high incidence of and mortality associated with CRC, the presence of screening guidelines, and effective surgical treatment of early disease, screening rates remain extremely low across Canada. Screening programs allow tumours to be identified at an earlier stage of development; the earlier the stage of detection, the better the prognosis.³ Both FOBT and flexible sigmoidoscopy have been shown in randomized controlled trials to reduce mortality rates of CRC.^{4,5} A recent cohort study also demonstrated a mortality benefit with colonoscopy and polypectomy.⁶ Studies show that only 30% to 40% of people older than 50 years of age across Canada have undergone screening, and these numbers are even lower in Saskatchewan.⁷⁻¹¹ As there is no standard provincewide screening program in Saskatchewan, the responsibility for initiating screening belongs to family physicians. Patients who have regular contact with family physicians have the highest rates of screening, but rates are still less than 40%.^{10,11} We administered a survey to family physicians across the province of Saskatchewan to ascertain their current screening practices and their views of the barriers to current screening options, with the goal of using this information to improve CRC screening in Saskatchewan.

METHODS

Saskatchewan is a province of more than 1 million people, more than half of whom live in moderate-sized urban centres. A total of 882 family physicians were registered with the College of Physicians and Surgeons of Saskatchewan at the time we conducted our survey. Of these, 109 were excluded for various reasons,

including wrong mailing address, change in practice (eg, only work in emergency department, on Workers' Compensation Board cases, or in administration), or no longer in practice, leaving a total of 773.

A paper survey was developed, piloted, and mailed to family physicians in Saskatchewan registered with the College of Physicians and Surgeons of Saskatchewan. Only physicians practising family medicine or in general practice were eligible. The survey consisted of questions regarding demographic characteristics, individual screening practices, and perceived barriers to screening. The survey is available from the authors on request. The survey was administered from September to December 2010, with an initial survey sent in September and a second identical survey sent in November to those who had not responded. An individualized unique identifier was used to facilitate the repeat mailing. As physicians are known to have low response rates to survey research,¹² a draw for a tablet computer was used as an incentive, with those responding before the second mailing receiving 2 entries for the draw. A preaddressed, stamped envelope was also included with each mailing. All responses were entered into a Microsoft Access database for statistical analysis. Responses were characterized using descriptive statistics. Comparisons between demographic characteristics and practice patterns were made using χ^2 tests, Fisher exact tests, and logistic regression analysis. The study was approved by the Behavioural Research Ethics Board of the University of Saskatchewan.

RESULTS

Of the 773 eligible family physicians, 344 responded to the survey, which yielded a response rate of 44.5%. The demographic characteristics of the respondents are detailed in **Table 1**. Discrepancies exist between the values noted in **Table 1** and the total number of respondents because not all respondents answered all the questions.

While 87.5% of family physicians who responded believed CRC screening was beneficial for patients without family history of CRC, only 77.0% recommended screening in this population. For patients with a family history of CRC, 100.0% of family physicians recommended screening and 99.1% believed it was beneficial. When asked to estimate what percentage of eligible patients in their practice had undergone screening, most family physicians estimated that more than 50% of patients without a family history and more than 75% of those with a family history had been screened (**Tables 2 and 3**).

For patients without a family history of CRC, most (79.9%) family physicians began screening at 50 years of age; 17.2% of respondents indicated that they began screening such patients at 40 years of age (**Table 2**). The screening methods most commonly used by respondents

were FOBT (71.8%) and colonoscopy (21.9%). Other screening methods were used much less frequently, and none of the surveyed physicians used barium enema alone. However, when physicians were asked which screening method they most preferred, colonoscopy was most preferred (57.6%) followed by FOBT (34.8%) and then other investigations (7.6%).

For patients with a family history of CRC, most (64.2%) family physicians began screening 10 years before the age of the index case; 19.7% of respondents began at 40 years of age (Table 3). The screening methods most commonly used by respondents included colonoscopy (83.8%), FOBT (12.1%), and others (4.1%). The preferred method of screening was colonoscopy (93.5%).

Several questions were asked about individual screening methods (Table 4). The lowest response rates in our

survey were for the questions concerning FOBT. When asked what test physicians used for FOBT, a large proportion did not answer the question or indicated they were unsure (38.4%). Those who did answer were split between guaiac FOBT (32.6%), hemoccult following digital rectal examination (DRE) (22.1%), and FIT (7.0%). Most agreed that 3 samples were required (91.6%) and that testing should be done every 1 to 2 years (92.2%). General surgeons were selected as those who performed most

Table 1. Demographic characteristics

CHARACTERISTIC	RESPONDENTS, N (%)*
Sex (N = 339)	
• Male	208 (61.4)
• Female	131 (38.6)
Country of training (N = 338)	
• Canada	192 (56.8)
• South Africa	101 (29.9)
• United States	7 (2.1)
• Other	38 (11.2)
Time in practice, y (N = 337)	
• < 5	53 (15.7)
• 6-10	50 (14.8)
• 11-20	77 (22.8)
• > 20	157 (46.6)
No. of physicians in group (N = 337)	
• Solo	53 (15.7)
• 2-5	122 (36.2)
• > 5	162 (48.1)
No. of periodic health examinations/wk in patients > 40 y of age (N = 334)	
• < 5	56 (16.8)
• 6-10	168 (50.3)
• 11-20	85 (25.4)
• > 20	25 (7.5)
Location of practice (N = 338)	
• Rural (population < 10 000)	107 (31.7)
• Regional (10 000 to 100 000)	63 (18.6)
• Urban (Regina or Saskatoon)	168 (49.7)

*Not all respondents answered all questions.

Table 2. Responses about patients with no family history of CRC

SURVEY QUESTION	RESPONDENTS, N (%)*
Routinely recommend screening (N = 344)	
• Yes	265 (77.0)
• No	79 (23.0)
Benefit to screening (N = 344)	
• Yes	301 (87.5)
• No	43 (12.5)
Estimated percentage of eligible patients in your practice who have been screened (N = 335)	
• < 25	73 (21.8)
• 26-50	86 (25.7)
• 51-75	95 (28.4)
• > 75	81 (24.2)
Age to start screening, y (N = 344)	
• 40	59 (17.2)
• 50	275 (79.9)
• 60	6 (1.7)
• Other	4 (1.2)
Screening method most often used (N = 301)	
• FOBT	216 (71.8)
• Colonoscopy	66 (21.9)
• FOBT and BE	9 (3.0)
• Flexible sigmoidoscopy	1 (0.3)
• Other	9 (3.0)
Screening method most preferred (N = 302)	
• FOBT	105 (34.8)
• Colonoscopy	174 (57.6)
• Flexible sigmoidoscopy and BE	7 (2.3)
• FOBT and BE	6 (2.0)
• Other	10 (3.3)

BE—barium enema, CRC—colorectal cancer, FOBT—fecal occult blood testing.

*Not all respondents answered all questions.

sigmoidoscopies for screening (73.4%). Colleague family physicians (11.4%) and gastroenterologists (8.6%) were the next most common. When asked who physicians preferred to have perform the sigmoidoscopy, again general surgeons were selected first (41.6%), while a large proportion had no preference (31.5%). When asked about colonoscopy, again general surgeons performed the procedure most often (86.3%) and were the most preferred (54.1%). There was again a large proportion of respondents who had no preference (27.1%). Most physicians had screening investigations available locally.

Physicians were also asked to rank known barriers to various screening methods to determine which had the greatest negative effect on screening. Patient acceptance was clearly the most important barrier to FOBT, with more

than 83.6% of family physicians ranking it first. This was also the most important barrier to screening with barium enema. For both flexible sigmoidoscopy and colonoscopy, wait times were considered the greatest barrier, followed by number of specialists and patient acceptance (Table 5).

When asked if a standard provincewide screening program would be beneficial, more than 90% of family physicians either agreed or strongly agreed (Table 6). Physicians were split on who should be responsible for referring patients to a screening program; 57.5% stated that family physicians should be responsible and 41.6% thought such a program should be run by the Saskatchewan Cancer Agency, similar to those in existence for breast and cervical cancer.

Table 3. Responses about patients with a family history of CRC

SURVEY QUESTION	RESPONDENTS, N (%)*
Routinely recommend screening (N = 344)	
• Yes	344 (100.0)
• No	0 (0.0)
Benefit to screening (N = 344)	
• Yes	341 (99.1)
• No	3 (0.9)
Estimated percentage of eligible patients in your practice who have been screened (N = 339)	
• < 25	37 (10.9)
• 26-50	35 (10.3)
• 51-75	66 (19.5)
• > 75	201 (59.3)
Age to start screening (N = 254)	
• Absolute, 40 y	50 (19.7)
• Absolute, other	18 (7.1)
• Relative, 10 y earlier	163 (64.2)
• Relative, 5 y earlier	16 (6.3)
• Relative, other	7 (2.8)
Screening method most often used (N = 314)	
• Colonoscopy	263 (83.8)
• FOBT	38 (12.1)
• Other	13 (4.1)
Screening method most preferred (N = 322)	
• Colonoscopy	301 (93.5)
• FOBT	8 (2.5)
• Other	13 (4.0)

CRC—colorectal cancer, FOBT—fecal occult blood testing.
*Not all respondents answered all questions.

Table 4. FOBT

FOBT SCREENING QUESTION	RESPONDENTS, N (%)*
Test used for FOBT screening (N = 344)	
• FIT	24 (7.0)
• Guaiac FOBT	112 (32.6)
• Hemoccult following DRE	76 (22.1)
• Total respondents who selected a test	212 (61.6)
• Unsure or did not answer	132 (38.4)
Frequency of testing (N = 282)	
• Every 1 y	190 (67.4)
• Every 1-2 y	30 (10.6)
• Every 2 y	40 (14.2)
• Other	22 (7.8)
DRE—digital rectal examination, FIT—fecal immunochemical testing, FOBT—fecal occult blood testing. *Not all respondents answered all questions.	

Table 5. Barriers to screening methods

SCREENING METHOD	MOST IMPORTANT BARRIER
FOBT	Patient acceptance
Barium enema	Patient acceptance
Flexible sigmoidoscopy	Wait times
Colonoscopy	Wait times
FOBT—fecal occult blood testing.	

Table 6. Opinions regarding provincial screening program: N = 340.

OPINION	RESPONDENTS, N (%)
A standard provincewide screening program would be beneficial	
• Strongly agree	205 (60.3)
• Agree	103 (30.3)
• Neither agree nor disagree	22 (6.5)
• Disagree	4 (1.2)
• Strongly disagree	6 (1.8)

DISCUSSION

In our survey, family physicians reported an estimated 50% of eligible patients without a family history of CRC and more than 75% of patients with a family history of CRC were being screened for the disease. It is difficult to know the accuracy of these estimates. The responses will be affected by recall bias and only take into account patients with family physicians. Additionally, there is an element of selection bias, as those who responded to the survey are likely to have more of an interest in CRC screening than nonrespondents are. As such, these numbers will overestimate the number of those living in Saskatchewan who are undergoing CRC screening.

There seems to be some confusion with regard to FOBT, which is the most common test used to screen patients at average risk (71.8%). Only 39.6% used a recommended screening test, either the guaiac-based test or FIT. A large proportion of respondents (38.4%) were unsure of which method they used or did not answer the question. A further 22.1% of respondents stated that they used hemoccult testing following DRE, which is not a recommended screening test. In multivariate analysis, physicians who had been in practice for more than 10 years were more likely to use this test ($P=.005$). It is possible that these physicians meant that they performed DRE as part of their screening and also sent patients for recommended FOBT. Regardless, there is a potential knowledge gap that should be investigated further, as less than 40% of respondents selected a recommended screening test.

Recommendations on when to begin screening patients without a family history of CRC were well followed, with nearly 80% of physicians beginning at the suggested age of 50 years. For patients with a family history of CRC, the guidelines suggest beginning screening 10 years before the age when the index patient was diagnosed. Only 64.2% of respondents followed this guideline. In multivariate analysis, those who did were more likely to practise in urban areas ($P=.025$), to be female ($P=.006$), to be Canadian-trained ($P=.043$), and to have been in practice for less than 10 years ($P<.001$). This suggests another aspect of CRC screening where further physician education might prove beneficial.

In Saskatchewan, access to colonoscopy is a barrier to screening, and family physicians thought that the wait time for the procedure was the most important barrier. This is in contrast to an Ontario study that found that wait times were not considered a barrier by family physicians in that province.¹³ While Saskatchewan family doctors prefer to use colonoscopy for those with no family history of CRC, substantially more use FOBT. This is appropriate, as this is the recommended screening test for this population.

In December 2010, the Canadian Association of Gastroenterology issued an updated position statement on CRC screening.² They recommended that FIT should

be used in preference to guaiac-based FOBT, and that colonoscopy should not be used as the initial screening test in a population-based screening program. They also recommended program-based screening for CRC. The Saskatchewan Cancer Agency has begun to implement such a screening program for those 50 to 74 years of age using FIT. This program was piloted in a number of health regions within Saskatchewan with the goal of provincewide implementation over the next 5 years. Our data suggest that family physicians would agree with the direction taken by the province and the Saskatchewan Cancer Agency, as more than 90% support a provincewide screening program for CRC.

Conclusion

Screening for CRC by Saskatchewan family physicians is currently occurring at a low rate. Educational opportunities exist regarding appropriate screening methods, as well as recommendations pertaining to at-risk populations. The main barrier identified was access to and wait times for colonoscopy. The recently introduced FIT program in the province should improve overall screening success but will require further increases in resources and availability of colonoscopy for follow-up of positive results. 🌿

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Contributors

Drs Deobald, Graham, Chad, Di Gregorio, Johnstone, Kenyon, and Lees contributed to the concept and design of the study, the acquisition of data, and the development and revision of the manuscript. **Dr Balbuena** performed the statistical data analysis and interpretation of the data. All authors have given final approval of the manuscript for publication.

Competing interests

None declared

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