Use of Tracking and Reminder Systems for Colorectal Cancer Screening in Indian Health Service and Tribal Facilities

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Abstract

Background—Colorectal cancer (CRC) is a significant cause of morbidity and mortality among American Indian/Alaska Native (AI/AN) people. Screening at recommended intervals can detect CRC in its early, most treatable stages, or prevent CRC through removal of precancerous polyps. However, CRC screening percentages remain low among AI/AN people. Reminder and tracking systems can be used to improve CRC screening percentages.

Purpose—In this study we assessed the prevalence of CRC screening reminder and tracking systems in Indian Health Service (IHS), Tribal, or Urban (I/T/U) health facilities.

Methods—A telephone survey of randomly selected small, medium and large I/T/U health facilities nationwide was conducted. Three health facilities from each of the 12 IHS areas nationwide were selected from a list of I/T/U healthcare facilities that provide CRC screening or refer patients to another facility for screening, with the goal of having one small, one medium, and one large I/T/U health facility from each IHS area.

Results—Thirty-four facilities (94%) participated in the telephone survey between April 1 and September 24, 2010. All facilities used the IHS Resource and Patient Management System to manage their patient care, and 82% used the Electronic Health Record (EHR) version. Over half of these facilities (55%) performed in-office fecal occult blood tests (FOBT) collected during a digital rectal exam, all of which reported that they also sent FOBT cards home with patients. Fifty-three percent of facilities used an opportunistic, visit-based approach to CRC screening. Nearly a third (32%) of facilities reported using a reminder system to notify patients that they were due for

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CRC screening. Almost two-thirds (65%) of facilities used a reminder system to notify health care providers that patients were due for CRC screening. While 73% of facilities used a system to track whether patients were due for CRC screening, only 61% used a system to track patient results for CRC screening, and 42% used a system to track patients with a personal history of polyps or CRC.

Conclusions—A majority of facilities performed in-office FOBT tests using a digital rectal exam, which is a practice that is contrary to national CRC screening recommendations. Additionally, the majority of facilities reported not using an organized system for CRC screening. Use of patient reminders was suboptimal. However, facilities did report use of provider reminders, tracking when patients were due for CRC screening, and tracking CRC screening results. As the EHR system becomes more widely used and established, I/T/U facilities could be encouraged to increase their use of the EHR tools available to aid in systematically increasing CRC screening percentages.

Background

Colorectal cancer (CRC) is a significant cause of morbidity and mortality in the United States (US).[1, 2] In certain geographic regions, rates are higher among American Indian/Alaska Native (AI/AN) people compared with non-Hispanic whites.[3] While CRC incidence and death rates have significantly decreased for many racial/ethnic groups over the past 10 years, they have not changed significantly among AI/AN people.[1, 4] CRC can be prevented or detected through recommended screenings. Despite this, CRC screening percentages among AI/AN people remain lower than breast and cervical cancer screening percentages. According to Government Performance and Results Act (GPRA) data, only about 37% of the Indian Health Services (IHS) eligible active user population were up-to-date with CRC screenings in 2010, which was up from about 22% in 2006.[5]

The US Preventive Services Task Force recommends the following CRC screening tests for adults at average risk and aged 50 to 75 years: high-sensitivity guaiac-based fecal occult blood test (FOBT) or fecal immunochemical test (FIT) every year, flexible sigmoidoscopy every five years with high-sensitivity FOBT or FIT every three years, or colonoscopy every 10 years.[6] People at increased risk, such as those with hereditary syndromes or a family history of CRC, or personal history of polyps or CRC should be screened more frequently and beginning at younger ages.[6, 7]

Healthcare provider recommendation is a strong predictor of increased CRC screening percentages.[8–10] Reminder and tracking systems are effective at prompting healthcare providers to recommend CRC screening to patients.[8, 11–14] However, in 2006, a national survey of 229 IHS and Tribal health care providers found that only 56% of respondents reported having an effective reminder system that notified them when a patient was due for CRC screening, and only about 41% stated they actually used the system.[15]

Most Indian Health Service, Tribal, or Urban (I/T/U) health facilities currently use the IHS Resource and Patient Management System (RPMS), which integrates clinical, business, and administrative information to manage patient care. The RPMS Electronic Health Record (EHR) is a modification of the traditional RPMS system, and many facilities have switched over to the EHR system.[16] The IHS RPMS Patient Care Component Health Summaries Suite

provides various tools to generate health care provider reminders, and track screening results to improve patient care.[17] Some specific systems and tools available to monitor CRC screening include: Clinical Reporting System (CRS) forecasts, EHR Consults, EHR Reminders, Health Maintenance Reminders, Health Summaries, and iCare (Table 1).

Little is known about whether I/T/U facilities are using the reminders and tracking systems available in RPMS, or screening percentages. This study aimed to identify the types of system(s) that I/T/U facilities use to estimate CRC screening rates, types of reminder and tracking systems being used, and program(s) available to increase CRC screening rates.

Methods

A telephone survey was conducted with randomly selected I/T/U facilities from each of the 12 IHS areas, using facility representatives who were knowledgeable about CRC screening, reminder, and tracking systems at their facility (Figure 1). First, a facility list containing I/T/U healthcare facilities was compiled, selecting for facilities that had evidence of any CRC screening-related visit. This was based on Current Procedural Terminology (CPT) codes for CRC screening from October 1, 2006 to September 30, 2008. Facilities were then organized alphabetically by IHS area and size. They were categorized as small (those with an active user population less than 1,000), medium (those with an active user population of 1,000 to less than 5,000), and large (those with an active user population of 5,000 or greater) facilities. Next, an online random number generator (www.random.org) was used to randomly select the facilities to contact to participate in the survey. A total of 36 key informant interviews (one small, one medium, and one large I/T/U healthcare facility from each IHS area) were planned. The IHS National Institutional Review Board (IRB) reviewed the protocol and determined the project to be a quality assurance activity in support of public health practice and disease prevention.

An initial email describing the project, with a signed letter attached, was mailed to each of the IHS Area Chief Medical Officers and the Clinical Applications Coordinators for each area. The letter requested contact information for appropriate personnel to interview. Once a contact knowledgeable about CRC screening reminder and tracking systems for a facility was identified, an email was sent to that person to invite their participation. If a contact did not respond to the email or follow-up emails, a phone call was made. At least three attempts with the identified contact were made to complete the survey. If there was no response from a contact at one facility, another randomly selected facility of the same size from the same IHS area was identified to participate. When it was not possible to obtain an interview with a contact from a facility of the same size from an IHS area (this happened for small and large facilities, in five of the IHS areas), a facility of another size was selected for survey inclusion.

The survey contained both open-ended and close-ended questions regarding the facility's approaches to CRC screening and referral; types of CRC screening offered; health record systems; CRC screening reminders; CRC screening, tracking, and potential tools for patient management, and efforts to improve CRC screening reminder or results tracking. Survey

administration took approximately 15 to 25 minutes. Descriptive analysis was conducted using Microsoft Excel, with each facility as the unit of analysis.

Results

A total of 34 (94%) facilities completed interviews for this project between April 1 and September 24, 2010. This included 15% small facilities, 38% medium facilities, 41% large facilities, and 6% mixed (where the respondent represented both a large facility and a small facility or where they answered for many facilities within a system of clinics that included small, medium, and large facilities). Although the initial goal was to obtain interviews for one small, one medium, and one large I/T/U facility from each IHS area, this was achieved only for four IHS areas (33%). Half of the completed interviews (17) were from IHS facilities, half (17) were from tribal facilities. Perhaps because of the small number of urban facilities around the country, no interviews ended up being conducted at urban facilities.

At least one staff member who was knowledgeable about CRC screening at their facility was interviewed for each facility; however, four facilities had two staff members participate in the interview. Of the 38 survey participants, 45% were information technology staff, 26% were nurses, 18% were medical or clinical directors or clinical division managers, 5% were administrative assistants/clerks, and 5% were staff physicians.

All of the facilities provided some form of CRC screening or referrals to another facility for CRC screening. Two facilities (one medium and one large) solely referred patients for CRC screening to other facilities. Of those facilities providing CRC screening procedures, 24% performed colonoscopies and 21% performed flexible sigmoidoscopies. Almost all facilities (94%) stated that they provided FOBT at their facility, with over half (55%) stating that patients completed the first card in-office with the stool specimen collected during a digital rectal exam, and took the other two home or the facility mailed cards to patients to complete at home. Eighteen percent of facilities provided double contrast barium enemas (DCBEs).

A majority of facilities (90%) reported having a system in place to produce their CRC screening percentages. However, three facilities (9%) stated that the reports weren't regularly run or were not available to providers. The majority (93%) reported using GPRA reports or GPRA reports in combination with another software tool (e.g., iCare) to obtain CRC screening percentages. Of the 32 GPRA data-reporting facilities, 72% used GPRA reports to obtain their CRC screening percentages, while the remainder were unaware of GPRA results or unsure how to obtain CRC screening percentages for their facility.

Participants were asked whether they considered their facility approach to CRC screening to be organized or opportunistic. An organized approach to CRC screening was defined as a facility that had a system in place to notify providers whether patients were due for CRC screening, along with a method to notify patients that they were due. An opportunistic approach to CRC screening was defined as relying on provider-patient interaction during clinic visits and not having a system to remind providers or patients about CRC screening. About one third (32%) of facilities reported some aspects of an organized approach and some aspects of an opportunistic approach to CRC screening, while 15% reported an

organized approach, and the majority (53%) reported an opportunistic approach to CRC screening.

Key activities of organized systems included empanelment of patients, reminders, notifications, audits and chart reviews, use of iCare and other RPMS tools, reminder letters to patients, and community outreach. Facilities that had an opportunistic approach to CRC screening stated that they noted if patients were due when a patient came in for another medical appointment; relied on the primary care physician to notify the patient if he/she was due for screening; relied on the patient to request screening; or waited for referrals.

Less than a third of the facilities (32%) used some type of reminder system to notify patients due for CRC screening. When asked to specify what types of patient reminders were used, responses included: having educational booths at health fairs and picnics; placing literature in waiting rooms; recommendations provided by health care providers; follow-up letters; and phone calls. Only 26% of the facilities had a system in place that was set up to notify patients due for CRC screening and did not rely on the patient to come into the facility for a visit.

About two-thirds of the facilities (65%) used some sort of reminder system to notify health care providers about patients due for CRC screening. These reminders included: identifying all eligible patients once a year based on information from the patient history; use of software such as CRS forecasts or FileMan; nurses and case managers notifying primary care providers based on data from the patient's chart; use of health maintenance reminders; and EHR reminders. In addition, some facilities stated that they had newly acquired the EHR system and would be implementing reminders in the future.

Over half (53%) of the facilities used RPMS Health Maintenance Reminders to notify providers if patients were due for CRC screening. Challenges reported for Health Maintenance Reminders included: unreliability; inaccuracy; inconsistency with provider reporting; and difficulty with interpretation by providers. Several facilities that have switched to the RPMS EHR system reported not needing to use Health Maintenance Reminders as much because of other tools available in the EHR system.

Seventy-three percent of the facilities used a system to track whether patients were due for CRC screening. Among the noted tracking systems were: patient histories; reminders; Health Maintenance Reports; EHR clinical dialogs, iCare and other RPMS tools; and the Health Summary in EHR. Sixty-one percent of the facilities used a system to track CRC screening results. Tracking systems noted included: iCare and other RPMS tools; periodic EHR and non-EHR lab report examinations; periodic review of documentation in patient charts; care coordinators and case managers; and relying on surgeons and physicians to follow up on patients. Forty-two percent of the facilities used a system to track patients who had a personal history of polyps or CRC. Tracking systems noted included: problem lists; chart documentation; using the family history tab in EHR; using a polyp registry; and using case management, iCare, and other RPMS tools.

All facilities interviewed used the IHS RPMS system to manage patient care. The majority (82%) used the RPMS EHR versus the traditional RPMS system. Facilities that used the

RPMS EHR system were asked if they used software tools available in the EHR system, and specifically whether they used those tools to improve CRC screening percentages. Seventy-four percent of the RPMS EHR facilities interviewed used EHR Consults, a software tool that allows providers to send referrals to other providers at their facility, and 56% used EHR Consults to improve CRC screening percentages. They reported using the consults within clinics and to refer patients for procedures such as colonoscopies. Challenges for EHR Consults included a steep learning curve and lack of time for training on the tool.

Sixty-five percent of the RPMS EHR facilities interviewed used EHR Reminders at their facility, and 54% used EHR Reminders to improve CRC screening percentages. Challenges reported for EHR Reminders included difficulty to set up and use; lack of training, and needing to go through the IHS area office to set them up. These factors contributed to delays, unreliability, and inability to differentiate between procedures (i.e., colonoscopy versus FOBT).

Among the RPMS EHR facilities interviewed, 61% used iCare at their facility and 36% used iCare to improve CRC screening rates. They reported use of iCare by case managers, nursing staff, and medical records personnel to notify health care providers of patients due for CRC screening. Challenges for iCare included lack of training and that iCare was not "user-friendly".

Discussion

This study showed that a number of areas for improvement in CRC screening tracking and reminders systems existed at I/T/U health facilities. The results of this survey demonstrate that I/T/U facilities often take an opportunistic approach towards CRC screening. However, an organized approach, with specific procedures and policies in place to inform providers when their patients are due for CRC screening, can help ensure that all eligible patients get a recommendation for screening.[8] The facility's policies and procedures need to state that a single in-office FOBT test obtained from a stool sample following a digital rectal exam is not recommended for CRC screening, and that patients are given the appropriate at-home FOBT/FIT test to complete per the manufacturer's guidelines.

Provider assessment and provider feedback have been shown to be effective interventions to improve CRC screening rates.[8, 12, 13, 18] Most of the I/T/U facilities in the current survey stated that they had a system in place that could be used to notify providers at their facility of CRC screening rates. Most of the participants reported that GPRA or GPRA in combination with a tool, such as iCare, was the primary source of data for reporting CRC screening rates. An area of concern, however, was that several participants stated that reports were neither consistently run nor provided to health care providers. Facilities could be encouraged to use available systems to produce CRC screening rates for the entire eligible patient population, and to produce screening percentages for each provider's panel of patients to encourage providers to recommend CRC screening.

The Community Preventive Services Task Force recommends provider reminder and recall systems as effective interventions to improve CRC screening rates.[19] A majority of the I/T/U

facilities that participated in the current survey reported using provider reminders. Health care provider teams need to be able to easily generate a list of patients who are due for CRC screening or who missed their referral appointments, and to generate reminder letters.[8, 13] Paper and electronic reminders at the front of a patient's chart or EHR are effective methods of increasing CRC screening rates, and combining electronic plus manual reminders is even more effective.[8, 11, 14, 20] Problem lists or health summaries that include preventive services such as CRC screening could be easily located in the patient chart and can also serve as a "cue to action".[8] This study indicated that although available EHR reminders and iCare were being used by facilities, they were not necessarily being used for CRC screening. Facilities could make efforts to use tools that are available to them within RPMS, to help improve CRC screening participation.

A successful strategy to increase patient follow-up for CRC screening is to send out patient reminders, which is recommended by the Community Preventive Services Task Force as an evidence-based intervention to improve CRC screening using FOBTs.[13] These could be in the form of letters, postcards, phone calls, or any combination of the three; the use of more than one option leads to better results.[21, 22] Since a small proportion of the I/T/U facilities stated that they used patient reminders when patients were due for CRC screening, implementing patient reminders is an area of opportunity to increase CRC screening in the tribal health system.

Tracking systems help ensure that patients at average and increased risk receive proper recommendations, that patients have followed through with screening recommendations and referrals, and abnormal results receive appropriate follow-up and treatment.[4, 8, 20] Electronic or paper-based tickler files, which allow facilities to file documents (e.g., follow-up reminders) based on the dates that they need action, can be used to track patient follow-through on CRC screening.[8, 20] Tracking can ensure reminders are sent; ensure patients receive screening results; track provider follow-up on lab results; and ensure that results from referrals are obtained.[8, 20] Based on the survey results in our report, a high proportion of I/T/U facilities reported having systems to track whether patients were due for CRC screening, but a lower percentage used their tracking system to track results of CRC screening, which is also critical. To ensure quality of care for patients, physician recommendations of complete diagnostic evaluation following a positive finding on FOBT are essential.[23] Less than half of facilities had a system to track and manage follow-up care for those with a personal history of adenomatous polyps. These individuals are at increased risk of developing CRC, and need to have testing at more frequent intervals than average-risked persons.[24]

User-friendly software could make it easier for health care providers to query patients and track whether they are due or overdue for CRC screening.[8,20] One barrier that was identified is that some software tools, such as iCare, are only available to RPMS EHR system users. Within iCare there is a Care Management Event Tracking (CMET) tool that aims to help providers track and manage patient care and minimize loss to follow-up.[25] In RPMS EHR facilities, a relatively high percentage used iCare in some capacity at their facility, but not as all facilities reported using iCare for CRC screening purposes. Additional training and

support opportunities are needed to increase use of iCare and other EHR tools by IHS and tribal health facilities.

Many I/T/U facilities reported that the lack of Clinical Applications Coordinators was why they did not have reminder or tracking systems. Many facilities, however, stated that they were moving toward hiring a Clinical Applications Coordinator at their facility.

An incidental finding of this survey was that over half of the facilities that use FOBT completed the first card in the office, with a stool specimen collected during a digital rectal exam. This is consistent with a national survey[26] that showed that a majority of primary care physicians used both in-office and home tests and one-quarter used in-office tests alone. National recommendations do not include in-office FOBTs, since in-office tests alone have been shown to miss up to 95% of advanced neoplasia.[27] Facilities need to ensure that patients are sent the appropriate at-home test cards and that the patient follows the manufacturer's instructions.

There are some limitations of this survey. Due to the small sample size (34 facilities), testing for significant differences by IHS area or facility size was not conducted. Many facilities reported having recently obtained the IHS EHR system, thus it was difficult to determine if differences in reminder and tracking systems were due to lack of use, or newness of the EHR system. In addition, many facilities indicated that there was a grace period upon receiving the RPMS EHR system where facilities were not permitted to use reminders or other tools available, which may have been why use of these tools was low.

By better utilizing tracking and reminders, healthcare providers serving AI/AN may have be able to increase CRC screening percentages among their patient population. If facilities use more patient-centered care models, such as empanelment of patients, and staff members receive training and support on using RPMS EHR, RPMS non-EHR, and other systems, along with using their tracking and reminder tools more efficiently, CRC screening percentages could be improved markedly, eventually leading to reduced CRC morbidity and mortality among the AI/AN population.

Acknowledgments

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Figure 1. Indian Health Service Area Map
Data Source: www.ihs.gov/PublicAffairs/IHSBrochure/map.asp.

Table 1

Electronic health system tools available for CRC screening promotion among Indian Health Service (IHS), Tribal, or Urban (I/T/U) health facilities.

System/Tool	Description	EHR/Non-EHR RPMS
CRS forecasts	Linked to the scheduling package; produces a list of patients, and identifies GPRA measures that the patient has not yet met.[28]	EHR or Non-EHR RPMS
EHR Consults	Allows one provider to refer to another provider to complete the screening. (Kimiko Gosney, Clinical Applications Coordinator, personal communication, April 20, 2011)	EHR RPMS
EHR Reminders	Responds to data cues in the patient record. Allows for additional management customization improvements such as clinicians being able to "resolve" reminders through the Notes and Consults tabs.[29]	EHR RPMS
Health Maintenance Reminders	Assists providers by monitoring and documenting due date to ensure patients receive proper screening at recommended intervals. This is found on the Health Summary.[17]	Non-EHR and EHR RPMS
Health Summaries	Assists providers deliver comprehensive care to patients by highlighting patient problems and preventive healthcare needs.[17]	Non-EHR and EHR RPMS
iCare	Helps to manage the care of patients by allowing patients to be viewed in panels with common characteristics, for example all patients with a history of polyps.[30]	EHR RPMS

CRS, Clinical Reporting System; GPRA, Government Performance and Results Act; EHR, electronic health record; RPMS, Resource Patient Management System.