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Delays in Colorectal Cancer Screening for Latino Patients: The Role of Immigrant Healthcare in Stemming the Rising Global Incidence of Colorectal Cancer

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Abstract

The significant global burden of colorectal cancer accentuates disparities in access to preventive healthcare in most low- and middle-income countries (LMICs) as well as large sections of underserved populations within high-income countries. The barriers to colorectal cancer screening in economically transitioning Latin America are multiple. At the same time, immigration from these countries to the USA continues to increase. This case highlights the delays in diagnosis experienced by a recent immigrant from a country with no established colorectal cancer screening program, to an immigrant population in the USA with similar poor screening coverage. We discuss common challenges faced by Latinos in their home countries and the USA, as well as strategies that could be implemented to improve screening coverage in US immigrant populations.

Keywords: Colorectal cancer; Screening delays; Latino patients; Immigrant healthcare; Rising global incidence; Colorectal health; Cancer prevention; Healthcare disparities

Introduction

Colorectal cancer (CRC) is one of the most common cancers worldwide and causes a high burden of disease in both high- and low-resource countries. Globally, incident CRC increased dramatically from 842,098 in 1990 to 2.17 million in 2010 [1]. CRC screening allows for early detection of early stage and precancerous lesions, allowing for curative treatment or even interrupting the adenoma-to-carcinoma sequence [2]. Screening has clearly contributed to reduced mortality from CRC globally [3, 4] and in the USA [5], and is recommended for average risk adults by most national and international guidelines starting around age 50 [6-8].

Despite recent declines in CRC incidence and mortality rates in high-income regions, these rates are increasing dramatically throughout the rest of the world [1]. Nowhere is this more pronounced than in Latin America, where Central and Andean Latin America has experienced a greater percentage increase in overall deaths and disability-adjusted life years (DALY) due to CRC than any other region [1]. Overall incidence rates are still lower in most of Latin America than in the USA and Europe, except in the southern cone of South America (Argentina and Uruguay), where rates are as high as any in the world [9].

Most screening programs exist in high-income countries with high CRC incidence rates and healthcare resources [10], while access to screening and surveillance remains limited in low-resource settings. At the intersection of these spheres, the large US immigrant population seeking to improve their situation by moving to a high-resource country often experience the same health inequity in the form of lack of access to screening even after arriving to the USA. The largest immigrant subpopulation in the USA, as well as the largest and fastest growing ethnic minority in the country, are those with Latin American ancestry and cultural heritage, also known as Latinos [11]. Historically, the term “Latino” has included individuals from Mexico, Central America, parts of the Caribbean, and most of South America, regardless of race [11, 12]. Despite many similarities, this group is quite heterogenous, with different subgroups and races including white, black, Native American, Mestizo (European-native American), Mulato (European-African ancestry), and Zambo (African-native American) [13]. There is a corresponding high level of genetic diversity, though self-identified Latino populations do share some unique variants and predisposition to certain diseases [14]. Accordingly, Latino immigrants are usually studied together, juxtaposed to immigrants from other continents.

Where studied in Latin America, CRC screening programs have shown benefit, but they have not been prioritized for implementation [15]. Most Latin American countries lack organized CRC screening programs altogether [16], leading to gaps in healthcare that have repercussions in the US health system

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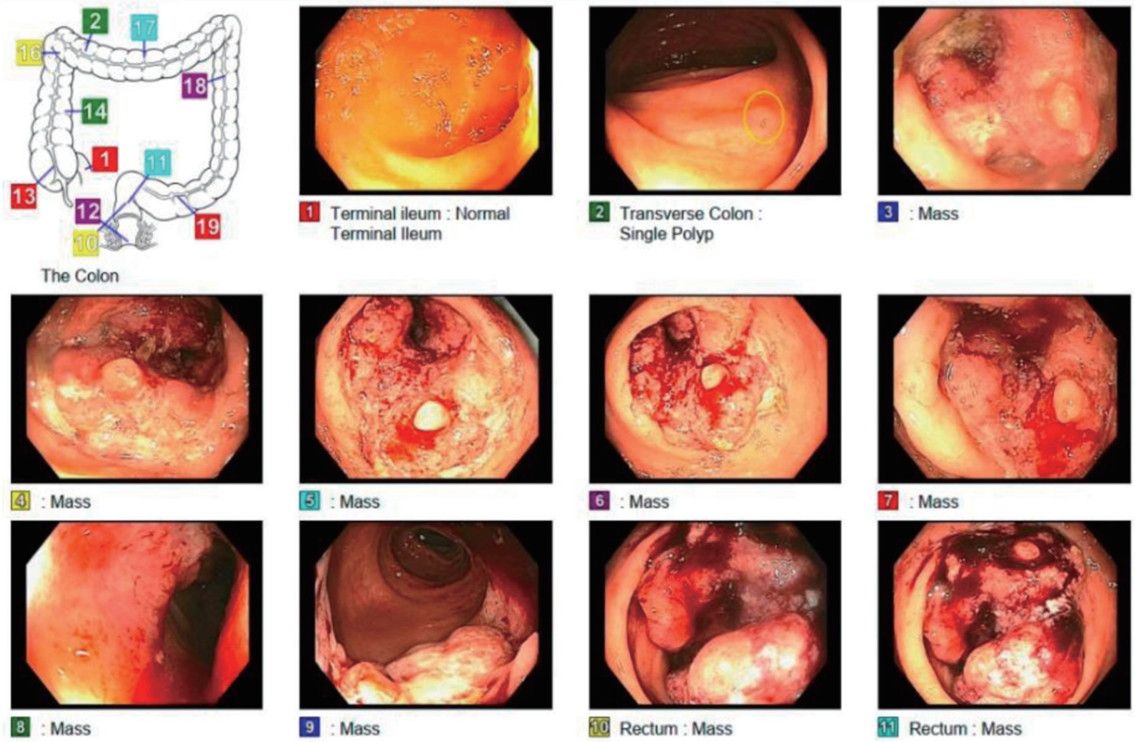

Figure 1. The examined portion of the ileum looks normal. One 2 mm polyp in the transverse colon. Obstructing tumor in the rectum malignant-appearing. A biopsy from a colorectal lesion was taken confirming adenocarcinoma. Figure created by the first author Eleazar Montalvan-Sanchez.

among the immigrant population. We report a case of CRC in a Latino patient and highlight the barriers to care contributing to his late presentation, in the context of the current literature on CRC screening in Latin America and the USA.

Case Report

A 52-year-old man originally from South America, who immigrated to the USA 2 years before presentation, with a past medical history of diabetes mellitus type 2, hypertension and alcohol use disorder, presented to his first primary care clinic appointment in the USA with report of unintentional weight loss. The patient named lack of insurance or financial resources, fear and anxiety about a potentially complicated medical diagnosis, as well as a language barrier among the reasons for delay in the decision to seek health care. On this first visit, he reported having lost 18 pounds in 6 months, despite eating more greasy and processed foods. He had noticed his stools becoming thinner caliber, without any change in frequency. He also complained of abdominal discomfort that was relieved after defecation, and 2 years of intermittent, scant bright red blood per rectum (BRBPR). There was no rectal pain and no melena. A colonoscopy revealed an infiltrative, partially obstructing polypoid mass in the proximal rectum, about 5 cm in length (Fig. 1). Computed tomography (CT) of the abdomen and pelvis demonstrated thickening of the rectal wall and prominent adjacent adenopathy, but no distant metastases. A magnetic resonance imaging (MRI) demonstrated a middle to upper third rectal mass with involvement of the muscularis propria, with numerous perirectal nodular deposits/perirectal lymph nodes, compatible with stage T3b disease.

The patient underwent total mesorectal excision via robotic low anterior resection, with neoadjuvant chemoradiation with capecitabine and oxaliplatin, according to the RAPIDO trial regimen [9]. The surgery was performed 8 months after his initial encounter with the primary care physician (PCP). One year after that clinic visit, he had a successful takedown of diverting ileostomy and no symptoms were reported on follow-up.

Discussion

Our patient presented with an advanced stage of CRC due to lack of access to CRC screening, as well as timely diagnostic colonoscopy. While patient characteristics and tumor molecular pathology lead to a wide variation in rates, some data suggest tumors double in size in a median of 211 days, with the majority increasing their T stage at 150 days [17]. This suggests our patient may not have required as aggressive therapy with both chemotherapy and radiation if he had presented even 6 - 12 months earlier, much less the 2 years earlier when he was first eligible for CRC screening in the USA, and less symptomatic. We present this case as an example of the difference that could be made by improving access to recommended cancer screening to the US immigrant population, which is increasing in size as incidence of CRC is rising in their countries of origin.

Risk factors for CRC in Latin America

The reasons behind the rising incidence of CRC in Latin America are not completely understood, though are largely a function of a country's stage of development. As development index increases in middle- and upper-middle-income countries, there is greater adoption of Western lifestyle patterns (processed food, red meat, and resultant obesity, accompanied by changes in the gut microbiota) [9, 18-21], though still without adequate coverage by organized CRC screening programs. Red meat consumption in Argentina and Uruguay are thought to drive the very high incidence of CRC in those countries [22, 23], but CRC is also more frequent in urban areas of Mexico than rural [24], presumably due to the same lifestyle factors. Our patient was from an urban center of South America, possibly reflecting lifestyle risk factors elevating his risk closer to that of individuals in developed countries. He also endorsed significant lifetime alcohol consumption, which has been associated with an up to 60% increase in the likelihood of developing CRC [25, 26]. While US Latinos are more likely to abstain completely from alcohol than non-Latino Whites, Latino drinkers on average consume more than non-Hispanic White drinkers, perhaps contributing to a unique risk factor for this subpopulation [27].

Barriers to CRC screening in Latin America: economic and access to care

Even in countries with newly established screening programs, as in Brazil, the coverage of screened patients remains suboptimal owing mainly to limited resources and low population awareness, among other factors [28, 29]. With financial barriers being the most important obstacle to a standardized screening program, cost-effectiveness analyses take into account the type of screening test and/or cascade [30, 31] counterposed to the high costs (medical and non-medical) of cancer treatments that can be avoided by early detection, to assess the cost per DALY or death averted. Research suggests that CRC screening is still cost-effective in some low- and middle-income countries (LMICs), at least via stool-based screening, especially as age-standardized rate (ASR) rises above 14 [28, 32, 33]. However, prevention programs are an investment for the future health of a population, and still a hard sell to struggling economies and health systems with more immediate concerns before them. As a result, very few LMICs, including our patient's country of origin, have established screening programs [28, 32].

Barriers to CRC screening in Latin America: knowledge and beliefs

There are other barriers to screening uptake besides healthcare resources however. While there is not much direct evidence regarding CRC screening programs in Latin America, experience with other screen-detectable cancers can shed light on some of the specific cultural barriers to and motivations for cancer screening in immigrants [34]. Lack of knowledge about cancer and screening is an important driver of lower screening uptake in Latin America. Fear of finding cancer is another important factor that discouraged cancer screening in Brazil and Chile [35, 36]. Fatalism, or the belief that cancer is due to bad luck or God's will, and there is nothing a person can do about it, was noted as a barrier for cervical cancer screening [37]. In some settings, gender roles have also prevented screening, as men have not allowed wives to undergo pelvic examination for cervical cancer screening [38, 39]. Another study showed that women place greater priority on taking care of their children, family, and work, leading them to neglect their own health [40, 41]. In addition to providing screening programs, addressing such social factors with education aimed at changing attitudes toward cancer is necessary to improve screening rates.

Immigrant healthcare is another means to address the problem of screening in lower resource countries, albeit only partially. Immigrants from lower-incidence regions typically retain a lower incidence of CRC than destination countries, but this increases with time even within the same generation, and certainly in subsequent ones [9, 42, 43]. While immigrants' primary motivation is usually economic opportunity, the health equity opportunity should not be lost on destination countries. If high-income countries hold global health equity as a goal, the immigrant to a high-income country has not only become a much easier client to serve, by dropping right into an established health system, but the immigrant is now also a potentially productive member of the economy, whom it befits the host country to keep as healthy as possible. Maintaining immigrant health should include age-appropriate screening. However, immigrants (and particularly "language-discordant" minorities such as our patient, whose preferred language differs from the predominant language of the healthcare system and their own provider's) are consistently the least up-to-date on health maintenance items in the United States [44-46].

Resource-related barriers to CRC screening among US immigrants

Factors influencing US immigrants' CRC screening uptake can be categorized as resource-related or culture-related. Health insurance coverage and screening costs are significant resource-related factors. Chinese and Korean American immigrants were less likely to undergo screening colonoscopy if they lacked health insurance [47]. In addition, many insured immigrants are still unaware that colonoscopy is covered [47]. Other resource-related barriers mentioned previously in the literature include lack of time from work or childcare and difficulty in navigation or accessing complex healthcare systems [48].

Specifically among Latinos, data from the National Health Interview Survey from 2010 and 2015 showed a low prevalence of being up-to-date with CRC screening for all Latinos subgroups (between 23% and 29% up-to-date) [49], though worst for Mexicans and possibly Central/South Americans [50-52], relative to Latinos of Caribbean heritage (Cubans, Dominicans, or Puerto Ricans, depending on study). These differences are likely related to social determinants of health among the different subgroups of Latinos [51, 49, 53]. Similar to other immigrant and disadvantaged non-immigrant communities in the USA, the most significant determinant of screening has been health insurance [49, 51]. Accordingly, large differences in Latino screening uptake between states are likely driven by different healthcare-related policies, though differing makeups of Latino subpopulations could contribute as well [54]. Low income, no recent physician visits, or no high school education were associated with decreased CRC screening in US Latinos [51, 49, 53, 55], as well as living in the USA for less than 15 years [49] and having less "acculturation" [56]. Compared to second- and third-generation Latinos (those who were born in the United States or who have spent a significant amount of their lives in the United States), first-generation Latinos (those who were born outside the United States) generally have lower rates of CRC screening uptake [49, 51, 57], though the effect of US nativity may vary by Latino subgroup. Being born in the USA was associated with increased screening rates in Mexican-Americans, no change in rate for individuals of Puerto Rican descent, and decreased screening rates among Cuban-Americans [58]. Our patient was a first-generation immigrant with low socioeconomic status and healthcare access, contributing to his delayed presentation.

Culture-related barriers among US immigrants

A major culture-related factor impeding screening uptake among immigrants is the language barrier. A study of Chinese and Korean American immigrants showed that patients prefer language-concordant physicians to whom they can "express their concerns" without the need of a translator, and more easily understand medical terminologies [48]. Beyond language however, another culture-related factor is disease misconception. For example, some US Asian immigrants consider cancer a "Western disease", assuming their risk is low due to their different lifestyle and healthier eating habits [47]. However, a study showed that most epidemiologic patterns of GI cancer including CRC in Chinese American immigrants were closer to those of the people of their new country of residence compared to those of their original country, indicating a shift in environmental exposures which may change cancer risk [59]. Fatalistic beliefs present in cultures of origin persist and affect adherence to screening [47, 60-63]. In addition, many cultures have a bias towards first seeking complementary and alternative medicine, where screening does not feature as prominently [47, 64]. One culture-related barrier that has been studied specifically in Latinos is the concept of *machismo* in Latino men [65, 66]. This cultural construct, a conglomerate of attitudes and behaviors associated with masculinity widespread throughout Latin America and US Hispanic populations, contributes to the reluctance of some male Latinos to get a screening colonoscopy, in the sense that rectal instrumentation is associated with fear, embarrassment and a "transformative" threat to their masculinity [64, 65, 67].

Many of these beliefs and practices regarding cancer screening may not be deeply held, however, and modifiable through education. As changing beliefs can take time, early initiation of cancer screening discussions through culturally tailored public health messaging and contact with primary care are important. It is notable that studies on Latino immigrants' perspectives on CRC screening are few. *Machismo* should be considered in approaches to CRC screening of Latino populations in order to adequately support screen-eligible Latino men. More research is needed to further elucidate the specific cultural beliefs and norms relevant to screening the largest subgroup of US immigrants (Fig. 2).

Health systems barriers for CRC screening

The process for CRC screening differs from country to country, and even between regions of the USA. There are organized screening programs within the USA, though the majority of the population is approached for screening through opportunistic means (via a provider visit). Provider-related factors certainly affect immigrant adherence to screening guidelines, especially in opportunistic settings. Studies of the Chinese American community have found limited provider time to contribute to inadequate cancer screening [68, 69]. Improving clinician-patient communication skills in screening discussions is ideal [70], but making the recommendation to get screened at all has been shown to be important at least in Chinese and Latino immigrants [56, 68, 70-74]. Technological advancements through machine learning and deep learning (including the Internet of Things concept) may be able to increase trainee and global health practitioner expertise in CRC diagnosis, such as via enhanced classification of histopathologic images used in diagnosis as well as enhanced effectiveness and safety of surgery [75-77]. If CRC screening and diagnosis is easier and more efficient through technology, it may be more available to more individuals at lower cost.

As for systems-level interventions to improve screening uptake, the first step is addressing the non-cultural barriers of access to care, increasing both supply and demand for healthcare among immigrants. Targeted messaging to immigrant populations could highlight the importance of accessing insurance coverage and medical care, as well as the importance of CRC screening and resources for covering the associated costs. Once having accessed primary care, providers can discuss cultural beliefs about cancer and screening as well as specific screening tests available, and introduce immigrants to the new country's health care system [78]. Ideally, patient education and counselling should take place early, to avoid situations such as our case where an immigrant does not seek medical care until they are symptomatic. Effective patient-level measures include patient reminders, financial incentives, and reducing barriers such as transportation and language issues [5, 79, 80]. Language barriers can be overcome not only by offering translators but also by providing multi-language advertising media. Further, multi-level and/or multi-component interventions have been shown to be the

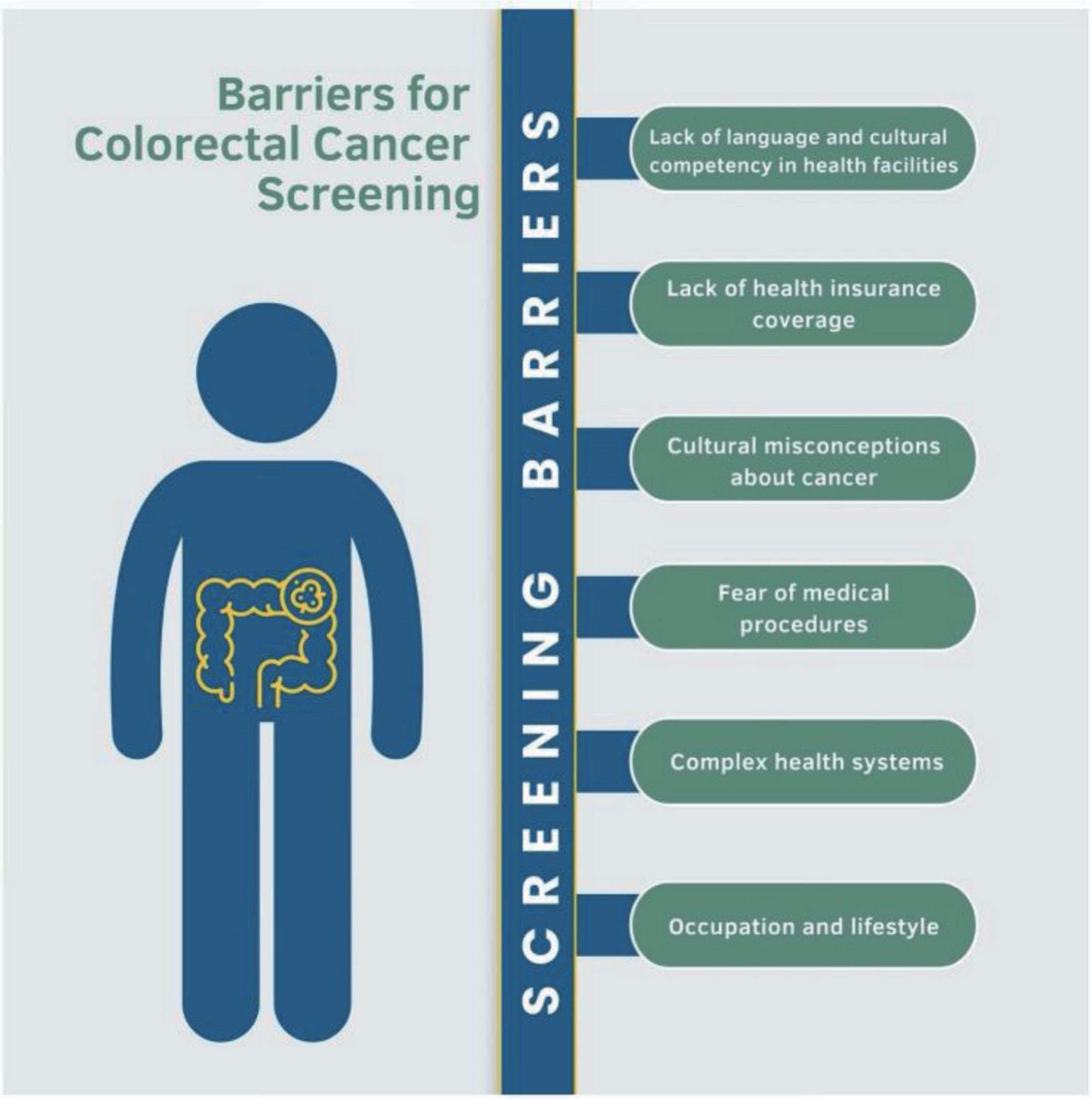

Figure 2. Barriers to screening for colorectal cancer encountered by the immigrant population when moving to the USA. Figure created by the first author Eleazar Montalvan-Sanchez.

most effective for increasing screening uptake [5, 81, 82]. This has held true in Latino and Asian immigrant populations when tested, for instance with patient navigation [83, 84]. Multicomponent interventions include patient navigation, interventions that combine patient with provider-level interventions, and those that address multiple structural barriers to screening [85, 86].

Many such structural barriers involve financial and insurance constraints as discussed above, and can also be addressed by patient navigators, or else via policy-level changes to make health coverage more accessible. However, many US immigrants still remain uninsured, due to requirements for > 5 years of residency, undocumented status, or just persistent unmitigated socioeconomic stresses overrepresented in this population. Foreign-born individuals (especially undocumented and language-discordant populations) face greater resource-related barriers to healthcare access and access less preventive care than US-born individuals of the same socioeconomic status [87]. A more aggressive policy change to address immigrant health disparities might consist of a basic public health insurance coverage (e.g. Medicaid) for a temporary period (6 - 12 months) to enhance the chance of the immigrant getting introduced to the healthcare system as they gain their financial footing, and are able to transition into an employer-based or health insurance marketplace plan.

While health insurance coverage may not be as crucial of an issue to legal immigrants to developed countries with universal healthcare, there are still disparities in access at least for recent immigrants [88-91]. In all settings, highly effective screening measures such as FIT kit distribution (or self-administered cervical HPV DNA testing) could also likely be implemented with a good value on a programmatic basis for new immigrants within eligible age ranges [92]. Patient navigation can improve access to the available system resources, and in a study of New York Latinos reversed the association of acculturation and time in the USA with lower screening rates, at least for Dominicans and Central Americans [93]. Community-based coalitions can advise and coordinate the planning, development and implementation of such cancer prevention programs to include education and other measures culturally relevant to their own community. Leveraging digital platforms that are specifically relevant to immigrant populations (such as WhatsApp or WeChat) could enhance test completion and navigation to follow-up [92]. Audits of such programs with registries of clinical outcomes and cost-effectiveness analyses will be crucial for sustainability and even expansion of funding. Access for the undocumented will remain a large problem, but counterposed to the legal concerns regarding undocumented immigration, there are practical reasons to consider supporting high-value preventive healthcare for all. If we are not prepared to deny any human life-saving care (which would be morally reprehensible), it may be more cost-effective to prevent common life-threatening conditions, such as the case of emergency vs. regular dialysis [94].

Finally, even non-health-related policy changes affect immigrant healthcare utilization, through fostering generally more or less restrictive immigrant policy "climates" [95]. "English-only" laws, "Public Charge" rules, and other policies that promote fear of deportation and overall limit integration into the larger community of the destination country thereby reduce participation in preventive care (which immigrants often perceive as less essential). Such policies are not aligned with the "Health in All Policies" approach espoused by the WHO and CDC.

Conclusion

Our patient lacked health insurance, an established healthcare provider, English language proficiency, and was a recently immigrated, foreign-born individual of South American ethnicity, all factors associated with worse uptake of CRC screening in the USA. His educational level or prior knowledge of CRC screening are not known, nor if he was affected by certain cultural beliefs such as fatalism or *machismo*, but these could have played a role as well. It is likely that an earlier contact with culturally sensitive, language concordant support services to facilitate access to healthcare could have led to earlier detection of his CRC, potentially with a less morbid outcome. Fortunately his long-term prognosis is optimistic, though this is still not the case for a disproportionate number of US immigrants.

CRC is a global challenge of increasing importance, with disease burden rising across the globe in places where proven screening strategies to reduce morbidity and mortality are not available. The impact of this disparity in screening access could be partially alleviated by screening immigrants from LMICs to high-income countries. To-date such screening has been inadequate, though there are evidence-based strategies to address this, on both patient and policy levels (Fig. 3). These strategies depend on a commitment from high-income countries to advance global health equity within their own borders.

Learning points

1) CRC screening programs should be encouraged in all countries with significant burdens of disease, while taking into account competing financial burdens of the health system.

2) Lack of access, lack of awareness, and language discordance are the main barriers that the healthcare system must address to increase CRC screening uptake among US immigrants.

3) Outreach and bilingual patient navigation are some of the many methods that may decrease barriers and increase screening adherence among immigrants. Funding for such programs, and generally more support for immigrant health coverage, should be part of equity-informed health systems.

4) More research is needed on how to best increase preventive health uptake for the breadth and diversity of ethnic groups and subgroups that make up immigrant populations.

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The authors have no financial conflict of interest disclosed.

Conflict of Interest

None to declare.

Informed Consent

Informed consent was provided by the patient.

Author Contributions

EEMS, AG, AK and RB: the leading role in patient care and diagnosis. EEMS, RB, AG, DN and MD executed the study literature review. EEMS designed the figures and table. All authors provided the overall data interpretation and oversight. All authors provided a critical review of the manuscript and approved the final manuscript.

Data Availability

All data underlying the results are available as part of the article, and no additional source data are required.

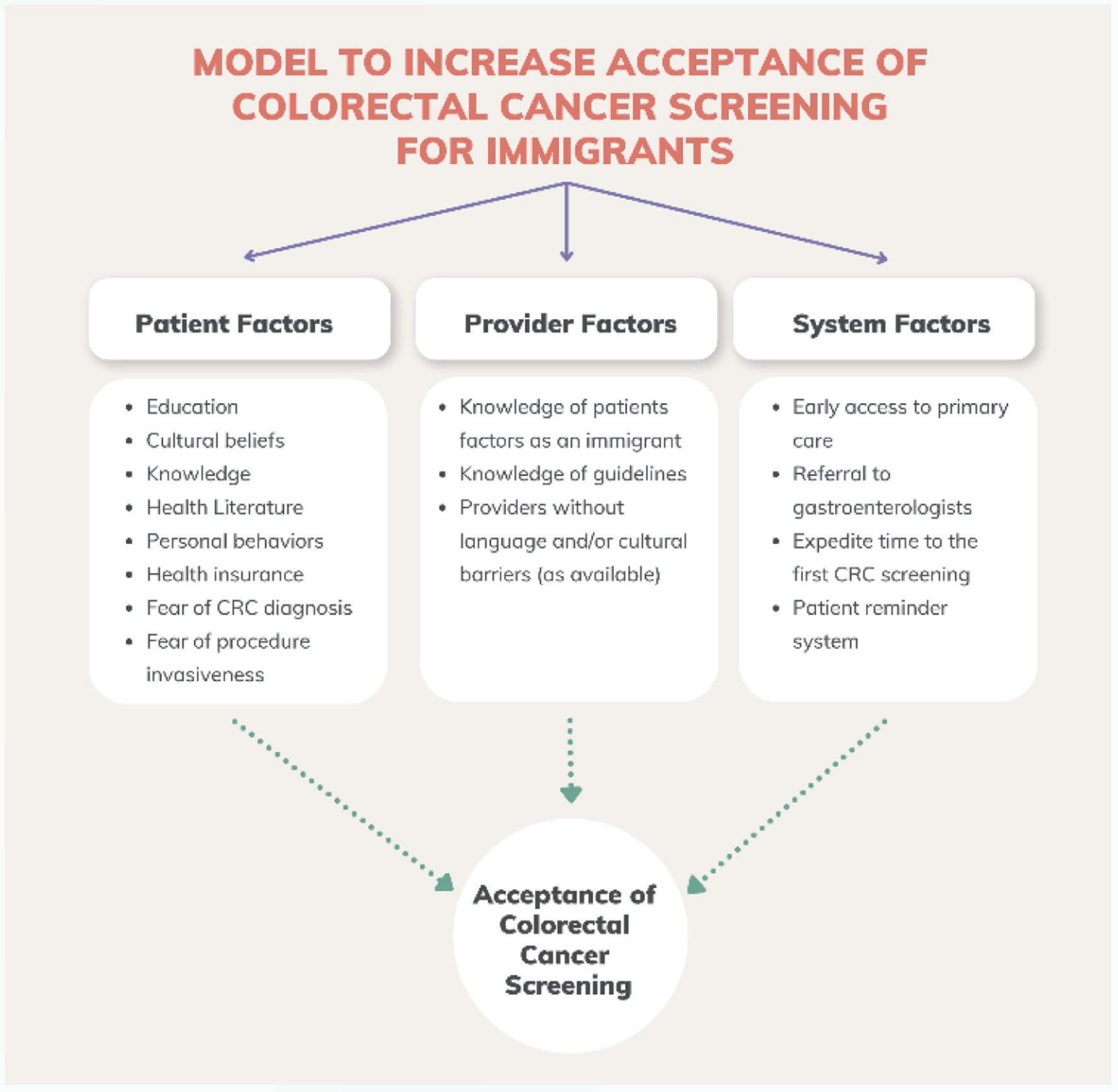

Figure 3. Model to increase uptake of colorectal cancer screening in immigrants. Figure created by the first author Eleazar Montalvan-Sanchez.

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