

# Ethical and legal implications of the risks of medical tourism for patients: a qualitative study of Canadian health and safety representatives' perspectives

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## ABSTRACT

**Objectives:** Medical tourism involves patients' intentional travel to privately obtain medical care in another country. Empirical evidence regarding health and safety risks facing medical tourists is limited. Consideration of this issue is dominated by speculation and lacks meaningful input from people with specific expertise in patient health and safety. We consulted with patient health and safety experts in the Canadian province of British Columbia to explore their views concerning risks that medical tourists may be exposed to. Herein, we report on the findings, linking them to existing ethical and legal issues associated with medical tourism.

**Design:** We held a focus group in September 2011 in Vancouver, British Columbia with professionals representing different domains of patient health and safety expertise. The focus group was transcribed verbatim and analysed thematically.

**Participants:** Seven professionals representing the domains of tissue banking, blood safety, health records, organ transplantation, dental care, clinical ethics and infection control participated.

**Results:** Five dominant health and safety risks for outbound medical tourists were identified by participants: (1) complications; (2) specific concerns regarding organ transplantation; (3) transmission of antibiotic-resistant organisms; (4) (dis)continuity of medical documentation and (5) (un)informed decision-making.

**Conclusions:** Concern was expressed that medical tourism might have unintended and undesired effects upon patients' home healthcare systems. The individual choices of medical tourists could have significant public consequences if healthcare facilities in their home countries must expend resources treating postoperative complications. Participants also expressed concern that medical tourists returning home with infections, particularly antibiotic-resistant infections, could place others at risk of exposure to infections that are refractory to standard treatment regimens and thereby pose significant public health risks.

## ARTICLE SUMMARY

### Article focus

- Medical tourism involves patients' intentional travel to privately obtain medical care abroad.
- Empirical evidence regarding the health and safety risks facing medical tourists is limited, highly speculative and lacks meaningful input from people with specific expertise in patient health and safety.
- In 2011, a focus group was held with patient health and safety experts to explore their views concerning risks that Canadian medical tourists may be exposed to in purchasing private medical care abroad.

### Key messages

- The individual choices of medical tourists could have significant public consequences if healthcare facilities in their home countries must expend resources treating postoperative complications.
- Medical tourists returning home with infections, particularly antibiotic-resistant infections, could place others at risk of exposure to infections that are refractory to standard treatment regimens and thereby pose significant public health risks.
- Limited health literacy among patients, coupled with inadequate access to accurate information, could heighten their inability to make an informed decision about medical tourism and ultimately to accept the risks of going abroad and providing informed consent.

### Strengths and limitations of this study

- This article offers some of the first empirical insights coming from health and safety professionals about medical tourism. This article identifies important avenues for future research as well as for interventions that can be implemented to secure the safety and, ultimately, health of medical tourists. As this is a qualitative study, others can use the information provided herein to assess the transferability of the findings to their own contexts.
- Two participants spoke more than others in the focus group. Not all patient health and safety domains were represented among the participants. As this is not a quantitative study, generalisability cannot, and should not, be accomplished.

Medical tourism involves patients' intentional travel to privately obtain medical care in another country.<sup>1 2</sup> Outflows of patients are reported to be increasing as they seek more accessible, affordable or unrestricted care elsewhere.<sup>3 4</sup> Patients are travelling to a growing list of international destinations to obtain an array of procedures, ranging from those with low-to-high risk of complication or other negative outcomes.<sup>5-11</sup> While there are few quantitative studies of complication rates associated with this practice, researchers examining outbound medical tourism from Oman found that 15% of 45 surveyed medical tourists experienced complications following treatment abroad,<sup>12</sup> while a survey of the British Association of Plastic, Reconstructive and Aesthetic Surgery found that 37% of members had seen patients with complications resulting from medical tourism.<sup>13</sup> Complications are only one type of health and safety risk to which medical tourists may be exposed.

Various forms of risk are commonly associated with medical tourism. Medical tourists who fly abroad are thought to be at heightened risk for deep vein thrombosis or pulmonary embolism owing to long-distance air travel following surgery.<sup>14-17</sup> There is also concern that medical tourists are at risk of exposure to blood-borne infection due to inadequate blood collection, screening and storage protocols in destination countries.<sup>7 14 15 18-20</sup> Individuals travelling for organ transplantation in particular may experience higher rates of severe infectious complications because of inadequate screening protocols abroad.<sup>4 21 22</sup> Concern has also been raised that medical tourists may transmit infections to their home countries, demonstrated through the spread of New Delhi metallo-beta-lactamase 1 (NDM 1) to the home countries of patients who had been treated abroad.<sup>2 23</sup>

Numerous researchers express concern about the quality of medical care available in some medical tourism facilities, though evidence to support many of these concerns is lacking.<sup>2 5 24 25</sup> Although some facilities are accredited by such organisations as Joint Commission International and Accreditation Canada, much uncertainty exists regarding the value of accreditation as an indicator of high-quality care.<sup>7 15 26</sup> Additional concern exists about the facilities' abilities to meet widely acknowledged quality indicators. For example, medical tourism can disrupt continuity of care and result in gaps in documentation of patients' medical history.<sup>4 8 19 24 26-31</sup> As a result, medical tourists may lack adequate access to follow-up once back home owing to documentation gaps and resulting liability concerns held by physicians.<sup>15 17 19 31-33</sup> Another area of quality concern pertains to the capacity of medical tourists to make informed decisions in the face of limited information about hospital quality, surgical outcomes and risks and complications.<sup>6 8-9 11 18 29 34 35</sup>

Research about medical tourism is nascent.<sup>1-2 25 36</sup> Empirical evidence regarding health and safety risks facing medical tourists is limited. To date, consideration

of this issue in the literature is dominated by speculation and reports of individual cases and small case series and lacks meaningful input from clinicians and others with specific expertise in issues of patient health and safety. Much of what is known about the risks potentially faced by medical tourists comes from news media reports. For example, a Canadian newspaper series described infections resulting from medical tourists' pursuit of plastic surgery abroad,<sup>9</sup> and an American newspaper report noted the corrective treatment required by a patient who obtained plastic surgery abroad.<sup>10</sup> Turner<sup>37</sup> reviewed 26 news reports which focused on the deaths of patients following cosmetic or bariatric surgery abroad. Among other important findings, it was discovered that medical tourists' postoperative deaths occurred across high-income, middle-income and low-income destination nations, and not only in countries commonly thought to have lax safety standards.

Canadian patients are known to travel to a range of medical tourism destinations, both for procedures that are covered in the public Medicare system (eg, orthopaedic surgeries) and those that are not (eg, dental care).<sup>3 30</sup> Recent research shows that they are often motivated to seek medical care abroad out of a desire to save costs on procedures not covered by Medicare, access care faster than if they were assigned to a domestic wait-list and obtain procedures that are not commonly available or not available at all in Canada.<sup>3</sup> Acknowledging this outbound patient flow, we held a focus group among safety experts in the province of British Columbia (BC) to explore their views concerning risks that patients from the province may be exposed to by engaging in medical tourism. This constitutes the first scholarly attempt to consult with this stakeholder group about medical tourism. Herein, we report on focus group findings, linking these empirical insights to existing ethical and legal issues associated with medical tourism. We examine ethical and legal implications associated with the findings for two reasons. First, there is a growing body of ethical and legal scholarship about medical tourism to draw upon when addressing the practical implications of this practice.<sup>5 38-40</sup> Second, while participants specifically commented on the use of medical tourism by patients from BC, Canada, engagement with the wider ethics and legal literatures assists with 'scaling up' the findings and demonstrating their transferability to other home countries for medical tourists.

## METHODS

The purpose of this study was to gain the first empirical insights into health and safety professionals' perspectives on the risks of outbound medical tourism by Canadians, with a focus on the province of BC, and to begin considering appropriate interventions to secure these patients' health and safety. Our research team was made up of health services, ethics and legal scholars with established

research interests in medical tourism, as well as an independent patient health and safety professional from BC who served as a knowledge end-user collaborator on the study. To accomplish our purpose, we held a focus group in September 2011 in Vancouver, BC with professionals representing distinct domains of expertise. Prior to undertaking this research, approval for the study was received from the Office of Research Ethics at Simon Fraser University.

### Recruitment

We aimed to have 6–10 representatives participate. We use the term ‘representatives’ to indicate that participants were invited to share their own perspectives and those of the organisations and agencies where they worked. As such, we sought out high-level representatives (eg, directors, managers, etc) to participate or recommend individuals from their respective organisations and agencies who would be well suited to attend the focus group. To begin recruiting, we first identified distinct domains of expertise that we wanted to be represented in the focus group based on a review of the health and safety issues commonly raised in medical tourism and the related domains of professional practice, relying heavily on the expertise of our knowledge end-user collaborator. We then conducted online searches to identify organisations and agencies relevant to these domains, identifying specific people who worked within them and sharing the outcomes of these searches with our knowledge end-user collaborator for input as well as confirmation of the relative importance of potential organisations and agencies. We next sent these individuals invitations to participate. If unable to attend, they were asked to recommend others with similar expertise whom we could invite. It was explained in the invitation that participants were not required to have extensive existing knowledge about medical tourism.

Twenty-nine representatives were invited to participate. Fifteen were unavailable or did not wish to participate. Five did not respond to our invitation. Nine representatives accepted our invitation. Of this cohort, two withdrew prior to the focus group owing to changes in availability. The domains of expertise represented by the seven participants were tissue banking, blood safety, health records, organ transplantation, dental care, clinical ethics and infection control.

### Data collection

The focus group ran for 4 h. Two facilitators guided the conversation while a note-taker recorded observations. It began with introductions followed by an overview of the goals. A discussion followed, guided by the questions: what is medical tourism and what do you think are some of the main patient health and safety issues associated with medical tourism. The facilitators then gave a brief overview of the key issues discussed in the medical tourism literature to ensure that participants were working from a common understanding of key issues.

Participants next discussed what they understood to be the implications of the health and safety risks they had previously identified. The facilitators then gave another brief overview, this time focused on published case reports of negative health outcomes stemming from medical tourism. A final discussion ensued, which focused on identifying interventions for addressing health and safety risks.

### Analysis

A digital recording of the focus group was transcribed and thematic analysis was applied. Thematic analysis involves identifying trends and identifying linkages between these trends and issues identified in the existing literature.<sup>41</sup> In undertaking analysis, we first undertook an independent transcript review. Following this, a team discussion was held to identify the dominant health and safety risks identified. After reaching consensus on these risks and their scope, the data relating to each were extracted into separate word processing files for further review. The extracted data were then used to shape the structure of the results section and inform our discussion of the links between the findings and the existing knowledge on medical tourism, with a particular focus on the ethical and legal implications.

## RESULTS

Five dominant health and safety risks for outbound medical tourists from BC were identified: (1) complications; (2) specific concerns regarding organ transplantation; (3) transmission of antibiotic-resistant organisms; (4) (dis)continuity of medical documentation and (5) (un)informed decision-making. In this section, we discuss each of them separately. Verbatim quotations from participants are italicised.

### Complications

Recognising that patients can face complications when obtaining medical care at home, participants had particular concerns about complication risk as a result of medical procedures obtained abroad. One participant who had seen many severe complications following medical tourism explained that ‘when it goes wrong it really goes wrong’. The risk of complications was thought to be dependent on the procedure obtained and the patient’s existing health status. For example, several participants discussed the risks particular to patients managing chronic disease with complex medical histories or pharmacological regimes. It was thought that, in these cases, there could be a greater risk of complications: “given the demographic...many [medical tourists]...have some chronic disease management that they’re dealing with...and it’s like oh my God [the risks they could face].”

Participants were concerned about the demands the BC healthcare system faced as a result of treating complications incurred through medical tourism. They

expressed uncertainty over “the support for them (medical tourists) on their return and...is our health care system then responsible for the sequelae of them undergoing the procedure somewhere else if they develop a complication?” Many participants had concerns over the potential demands on clinicians and health and safety professionals for providing such care. It was also noted that medical tourists experiencing complications could be embarrassed about their situation. As a result, they might be reluctant to seek care upon return home, increasing their risk for continued negative health outcomes. “Yeah they might be feeling really bad and they’ve got an infection...and they’re feeling really stupid [for going abroad] and it’s like ‘oh it might go away, I’ll...try home remedies’ or something and by the time they get to the medical care then it’s out of control.” Participants expressed concern that delays in treating complications might require additional resources from the BC health system.

### SPECIFIC CONCERNS REGARDING ORGAN TRANSPLANTATION

Concerns emerged regarding transmission of infectious disease via transplantation, which was raised as an issue distinct from complications associated with other surgeries. Many participants expressed uncertainty regarding the safe acquisition of organs abroad and selection criteria for donors, indicating that non-industry-based information is lacking. It was noted that “occasionally we can know that they’re [a medical tourist is] doing this [planning to go abroad] ‘cause they announce it in advance, and...they’re required to get vaccinated, the whole Hepatitis range and all these things and that’s because they’re not screening the donors [abroad].” However, in most cases, there is no warning of a patient’s intent to go abroad for transplantation and so there is no opportunity to encourage vaccination before departure.

Because of the unclear organ screening standards and a lack of information about organ provenance and infection rates at facilities, individuals going abroad for transplant are at risk of exposure to infectious diseases. Participants were particularly concerned about the impacts of organ transplant patients’ acquired infections on the BC health system upon return home, and the potential public health implications of infection spread. They pondered policy formulation in this area, recognising that “how we deal with... patients who may be coming back into our hospitals with infections and...what the precautions are” are key concerns that need to be addressed when creating domestic protocols for addressing this issue.

### Transmission of antibiotic-resistant organisms

Participants were aware that some medical tourists from BC had indeed been exposed to antibiotic-resistant organisms while abroad. This poses a risk to public health upon return home. One participant noted that she had “become aware of as an issue of...patients

returning from foreign countries...carrying some really interesting bugs.” Treating patients with ‘really interesting bugs’ is challenging, wherein health and safety officials need to identify unusual strains of organism that they might not have previously encountered, which can delay treatment.

Participants discussed the challenges of policy formulation to address the risk of the spread of antibiotic-resistant organisms locally from outbound medical tourism. They focused on the costs of screening, isolation and testing for antibiotic-resistant organisms after medical tourists sought treatment upon return home. A participant noted that “if you write a policy that says anybody who’s been admitted to a hospital abroad needs to be isolated when they’re brought into your hospital, that has huge implications, and/or if you would say ‘well I’m going to do a screening swab on every single one of these patients whose been hospitalized abroad before I admit them to my hospital’, huge lab costs.” Agreeing that effective policy responses will be difficult to create, participants stressed the important role played by hospital infection control protocols in BC, such as hand washing, to limit organism spread.

### (Dis)continuity of medical documentation

Participants learnt from clinicians and other front-line providers that patients returning from medical care abroad often bring back incomplete medical records or no documentation of the care they received. Although some clinicians have requested results and records from international medical providers, destination facilities were often uncooperative. “One letter [about a patient’s treatment abroad]...was sent to me blacked out...from a Mexican clinic and they just said ‘how dare you ask me for this’.” Participants suggested that limited medical documentation provided to medical tourists could reflect a low standard of care abroad, masking shortcomings.

Participants agreed that patients typically understand it is their right to request records to bring home with them when engaging in medical tourism. However, they indicated that patients rarely do so, even though it would be reasonable for them to insist: “I want to see my chart, I want to see... I’m going back to wherever I live, I want to take my stuff with me in case something goes wrong.” Participants also did not believe patients had enough health literacy to question why a destination facility would not take their medical histories, something they reported was common. Meanwhile, failure by clinicians to obtain this information can result in complications or other negative outcomes. In effect, “the procedure [becomes] compromised...because they [were not asked for] a health history... So it kind of goes back to that health literacy point.”

### (Un)informed decision-making

Participants discussed at length issues of informed decision-making. They generally felt medical tourists were uninformed about risks they may face abroad, as

well as factors they should consider when selecting a facility. Participants characterised uninformed decision-making as a significant problem among medical tourists, particularly among those who obtained dental or cosmetic procedures. They posited that for some patients, the decision to obtain a procedure abroad is made with minimal thought. “We...are really concerned that there’s a lack of understanding [by patients] and...it’s driven by [the appeal of low] cost.” It was also reported that patients’ decisions to go abroad were sometimes made hastily. Participants characterised such decision-making as risky, in part because patients’ satisfaction is evaluated retroactively based on outcomes. “It’s interesting because their criteria for saying ‘it was a dumb decision [to have medical care abroad]’ is only based on the consequences.”

Participants suggested that if medical tourists do not fully understand the risks of the procedure they plan to purchase, it is questionable whether they are in a position to give informed consent. A participant noted that “sixty percent of Canadians have a hard time meeting one of the components of consent, understanding... And so a certain assumption around their capacity to understand [is made]...” It was suggested that patients may not know the right questions to ask to ensure that a facility implements the correct safety controls. “Do [patients] actually ask things like infection rates at these facilities?... We have best practice guidelines in processing medical devices, [but] what’s the standard in these countries?” Participants were also concerned that patients’ decision-making capacities may have begun to lessen in the face of *upsell* messages used by facilities abroad, encouraging them to purchase additional procedures.

## DISCUSSION

The findings reveal that the representatives we spoke with have a number of concerns regarding the risks that can confront outbound medical tourists from BC. Many of the risks they identified are discussed in the existing literature. This is an important empirical finding as it demonstrates that those with expertise in infection control, blood safety, clinical ethics and other fields associated with patient health and safety confirm the relevance of risks previously hypothesised about in the medical tourism literature.

Some issues did not receive as much attention in the focus group as we may have expected relative to their coverage in the medical tourism literature. First, there was limited discussion about the experimental procedures (eg, stem cell therapies) pursued abroad and their associated risks despite significant coverage in the popular and academic literatures.<sup>42 43</sup> This may reflect the participants’ limited exposure to medical tourists who have obtained such procedures. Second, although legal liability is often discussed in relation to risks inherent in medical tourism,<sup>7 38 44</sup> it received relatively little consideration by the participants. Although there was no

health law representative, we expected more explicit discussion of this issue given the centrality of legal liability to debates around medical tourism. Third, although concern about the quality of care received abroad was discussed, this topic received minimal attention relative to others. This may have been because health and safety issues are thought to be implicitly about care quality. Fourth, although health and safety risks are sometimes couched around larger health equity concerns and, in particular, in destination nations,<sup>1-2 44</sup> these concerns did not emerge in participants’ discussions. This may reflect participants’ lack of awareness of the health equity debates that surround medical tourism.

The findings offer new insights into current debates concerning the health and safety risks in medical tourism. One of these pertains to participants’ identification of health system limitations to addressing concerns. For example, the lack of existing protocols for treating patients treated abroad and the prohibitively high costs of and legal barriers to putting patients into isolation who had acquired antibiotic-resistant organisms were identified as limitations. Another new insight is participants’ concern that the general lack of health literacy will lead to outbound medical tourists ultimately experiencing health and safety risks, a point that broadens existing concern about medical tourists’ lack of reliable access to third-party information about facilities and surgeons abroad.<sup>3</sup>

## Ethical and legal implications

Some issues raised by participants’ parallel legal and bioethics scholars’ concerns with addressing the health system and public health effects of individual medical tourists’ decisions.<sup>45 46</sup> The concern, established in tort law, pertains to whether or not patients must assume the full costs of their decisions so that the repercussions are not unfairly borne by others. Such concerns are heightened in a universal healthcare system like Canada’s where provincial/territorial budgets are fixed and health resources are shared by all.<sup>47</sup> This egalitarian approach to access raises the issue of fairness in relation to addressing complications or the outcomes of other risks experienced owing to medical tourism. This is because Canadian citizens will be burdened by these collectively imposed costs without accessing the individual benefits of engaging in medical tourism.<sup>30</sup> This same ethico-legal concern has been raised in other home countries for medical tourists with public healthcare systems, including the UK.<sup>2 44</sup> Demonstrating an awareness of this concern, participants questioned the extent of their responsibility for addressing negative outcomes experienced by outbound medical tourists, given these patients’ individual decisions to access care abroad.

The potential for collective effects emerging from individual patients’ decisions to go abroad for private medical care emerged from participants’ discussions of the risks of infection spread due to medical tourism. Complications stemming from treating infections may pose costs for the domestic healthcare system and could

take the form of a low-probability, but high-impact, event that would require isolating many patients or even quarantining a hospital. Participants expressed frustration at the lack of good solutions to these problems at the hospital level and, in particular, their inability to quarantine, test or even identify all medical tourism patients. The solutions they offered focused on infection control measures, such as hand-washing procedures, which are not specific to addressing the health and safety risks posed by medical tourism in particular. They did, however, hint at system-level reforms such as limiting coverage for unauthorised transplant tourism or better regulation of medical tourism facilitators (eg, licensing, standardised training), both of which have analogues in the legal and bioethics literatures.<sup>38 48</sup>

Patient autonomy, including through informed consent, is a cornerstone of bioethics, and health law has been flagged as a concern for medical tourists.<sup>44 49</sup> In the context of medical tourism, informed consent can be disrupted by misleading or incomplete information on websites,<sup>36 50</sup> difficulties in obtaining information about success rates<sup>48</sup> and the quality and standard of care in destination facilities.<sup>38 51</sup> Participants echoed these existing concerns, adding that the limited health literacy among Canadians, coupled with inadequate access to accurate information, could heighten patients' inability to make an *informed* decision about medical tourism and ultimately to accept the risks of going abroad.

While obtaining informed consent for medical procedures is difficult under optimal considerations,<sup>52</sup> the international dimension of medical tourism raises special concerns. Participants expressed that patients may not be aware of the risks of infectious diseases contracted abroad or that they will be unable to obtain medical records for foreign care; more generally, it was thought that medical tourists do not know what questions to ask to better understand their risks or, owing to well-recognised cognitive biases, fail to adequately appreciate these risks. Participants also expressed concern that obtaining information about the risks of specific treatments in particular facilities would be very difficult. This opacity is problematic because information on whether internationally accepted safety protocols are being followed is typically unavailable and patients may not be aware of the need to ask about these protocols or feel empowered to do so. Because of the multiple jurisdictions involved and lack of clarity in terms of which the jurisdiction's law applies in circumstances of medical tourism, effective legal solutions to these problems are difficult to establish,<sup>53</sup> thereby placing pressure on patients' home healthcare systems, including health and safety professionals, to address them in an ad hoc fashion.

### Recommendations

First, there is a need for more research about health and safety risks in medical tourism, including: quantifying risk occurrence and determining which negative outcomes are attributable to medical tourism. Second,

protocols are needed to identify patients that have engaged in medical tourism, to treat these patients, as well as to enable infection control and containment procedures. Similarly, increased familiarity with destination country protocols is needed. Third, information about the risks of engaging in medical tourism needs to be effectively transmitted to potential medical tourists. As suggested by the participants, this can be achieved both by providing materials on the risks of medical tourism and improving the public's overall health literacy. Finally, action needs to be taken to address participants' and others' (eg, 25) concerns about discontinuities in medical documentation for medical tourists. For example, consideration could be given to developing a template that destination country physicians complete as a precondition of treatment.

### Study limitations

First, a limitation of focus groups is that particular individuals may dominate.<sup>54</sup> Although we encouraged all participants to engage in talk, two spoke most often. Second, we are aware that some health and safety domains were not represented. For example, there was no care quality representative or individual from the province's Ministry of Health despite efforts to recruit both. Third, reliance on a single focus group with participants in BC limits generalisability. However, as this is a qualitative study, generalisability is not a goal.<sup>55</sup> Instead, we seek transferability, accomplishing this by providing details others need to assess the relevance of the findings to their specific contexts.

### CONCLUSION

We spoke with seven BC-based participants with considerable expertise in key patient health and safety domains. Participants identified five main health and safety risks associated with outbound medical tourism by BC patients. Concern was expressed that medical tourism might have unintended and undesired effects upon provincial/territorial healthcare systems. In particular, participants noted that individual choices of medical tourists could have significant public consequences if domestic healthcare facilities must expend resources treating post-operative complications of medical tourists. They also expressed concern that medical tourists returning home with infections, particularly antibiotic-resistant infections, could place healthcare providers such as themselves and other patients at risk of exposure to infections that are refractory to standard treatment regimens and pose significant risks. There was considerable uncertainty over how such risks should be addressed and mitigated. This uncertainty suggests that clinicians, patients, healthcare administrators and other involved parties are likely to gain from a public dialogue about developing policy responses to both the risks and benefits associated with medical tourism, not only within Canada but in all countries facing outflows of medical tourists.

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**Contributors** VAC led the study design and analysis, served as the focus group facilitator and led the writing of this paper. LT contributed to the study design and analysis, co-facilitated the focus group and contributed to the writing. IGC made contributions to data analysis, including confirming the interpretation of findings, and the writing. JB provided advice on study design and participant recruitment and contributed to the writing. VC assisted with the recruitment, served as a note-taker during the focus group and contributed to the analysis and writing. RW assisted with confirming the interpretation of findings and offered assistance with the writing and editing. All authors read and approved the final manuscript.

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