

The Intersection of Digital Literacy, Cultural Trust, and Generational Divides in the Adoption of Tele-Oncology Services Among Indigenous Populations

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Abstract

Indigenous populations worldwide experience disproportionately higher cancer mortality rates and significant disparities in accessing timely oncological care, largely due to geographic isolation, healthcare workforce shortages, and systemic barriers rooted in colonial legacies. Tele-oncology presents a transformative opportunity to bridge these gaps, yet adoption rates remain significantly lower among Indigenous communities despite demonstrated clinical efficacy. This study investigates the multidimensional barriers and enablers of tele-oncology adoption among Indigenous populations, with particular focus on the intersection of digital literacy, cultural trust, and generational divides. Employing a mixed-methods sequential explanatory design across three Indigenous communities in remote regions, the research surveyed 287 participants and conducted 45 in-depth interviews. Results revealed that digital literacy ($\beta = 0.41, p < 0.001$) and cultural trust ($\beta = 0.38, p < 0.001$) emerged as the strongest independent predictors of tele-oncology acceptance, explaining 67.3% of variance in adoption intention. Critically, a significant three-way interaction was identified: younger generations (18–40 years) demonstrated 2.4×

higher adoption rates (89.4%) compared to older generations (41+ years, 37.2%), but this gap narrowed substantially when culturally trusted intermediaries facilitated initial consultations and when digital literacy training incorporated Indigenous knowledge systems. These findings challenge the prevailing technology-centric implementation models and argue for a relational framework that positions cultural safety, intergenerational knowledge transfer, and community co-design as foundational rather than peripheral to tele-oncology deployment. The study contributes a validated Culturally-Responsive Tele-Oncology Adoption Framework (CR-TOAF) and offers actionable recommendations for health systems, policymakers, and technology developers.

Keywords: Tele-oncology, Indigenous health, digital literacy, cultural trust, generational divide, health equity, Two-Eyed Seeing, culturally safe technology

1. Introduction

1.1 Background

The global burden of cancer is rising disproportionately among Indigenous populations, who experience higher incidence rates of preventable cancers, later-stage diagnoses, and significantly poorer survival outcomes compared to non-Indigenous populations . These disparities are not attributable to biological differences but rather reflect systemic inequities: geographic isolation from tertiary cancer centers, chronic underfunding of Indigenous health services, historical trauma from medical experimentation and coercive policies, and the persistent absence of culturally safe care delivery . In the United States, American Indian/Alaska Native populations have the lowest cancer screening rates among all racial and ethnic groups, contributing to late-stage diagnoses and mortality rates that are 30–40% higher than the national average for several cancer types . Similarly, Aboriginal and Torres Strait Islander peoples in Australia face cancer mortality rates approximately 1.4 times higher than non-Indigenous Australians, a disparity that has widened rather than narrowed over the past decade .

Telemedicine—the delivery of healthcare services via telecommunications technologies—has emerged as a promising strategy to address these access barriers . The extension of telemedicine to oncology, or tele-oncology, encompasses remote consultations, multidisciplinary tumor board participation, chemotherapy supervision, survivorship care, and palliative care coordination . The COVID-19 pandemic accelerated telemedicine adoption globally, yet the benefits of this technological revolution have not been equitably distributed. Indigenous communities, despite having the most to gain from remote healthcare delivery, consistently demonstrate lower uptake rates and higher discontinuation rates compared to non-Indigenous populations .

This persistent adoption gap suggests that availability alone is insufficient to drive utilization. The determinants of telemedicine adoption are multifaceted, encompassing infrastructure access, digital literacy, trust in technology and healthcare providers, cultural appropriateness of the platform and consultation process, and sociodemographic factors including age and intergenerational dynamics . Understanding how these factors interact in Indigenous contexts—where historical trauma, cultural values emphasizing relationality, and unique conceptions of health and wellbeing intersect—requires examination that moves beyond technological determinism toward culturally grounded analysis.

1.2 Problem Statement

Despite the proliferation of telemedicine programs targeting Indigenous communities and growing recognition of the need for culturally appropriate digital health interventions, a significant gap exists in the empirical literature regarding the specific determinants of tele-oncology adoption among Indigenous populations. Existing studies have identified barriers including limited internet connectivity, lack of digital skills, and privacy concerns, but these findings are largely descriptive and do not examine how these factors interact with cultural trust, generational dynamics, and Indigenous conceptions of health and healing .

More critically, the predominant implementation model positions Indigenous communities as passive recipients of technology designed elsewhere, leading to what scholars have termed "digital health colonialism"—the extension of extractive and culturally unresponsive practices into the digital realm . This approach fails to recognize that technology adoption in Indigenous contexts is not merely a matter of functional utility but is fundamentally mediated by historical relationships of trust or distrust with healthcare institutions, cultural values regarding health and healing, and the role of elders and community leaders in validating new practices .

Furthermore, the generational dimension of telemedicine adoption has received insufficient attention. Indigenous communities are experiencing rapid technological change alongside intergenerational transmission of cultural knowledge, creating complex dynamics where younger, more digitally fluent members often mediate technology access for older generations . The extent to which this intergenerational dynamic serves as a barrier or enabler of tele-oncology adoption remains poorly understood.

No validated framework exists that specifically models the relationship between digital literacy, cultural trust, and generational divides in predicting tele-oncology adoption among Indigenous populations. Such a framework is essential for designing interventions that move beyond one-size-fits-all approaches to genuinely community-centered, culturally safe tele-oncology implementation.

1.3 Objectives of the Study

General objective:

To investigate the relationship between digital literacy, cultural trust, and generational divides in

predicting tele-oncology adoption among Indigenous populations, and to develop a culturally responsive framework for tele-oncology implementation.

Specific objectives:

1. To identify key predictors of tele-oncology adoption among Indigenous populations, including the relative contribution of digital literacy, cultural trust, infrastructure access, and demographic factors.
2. To examine how generational differences moderate the relationship between digital literacy, cultural trust, and tele-oncology adoption intention.
3. To explore the role of culturally trusted intermediaries and Indigenous knowledge systems in facilitating or impeding tele-oncology adoption across generations.
4. To develop and validate a Culturally-Responsive Tele-Oncology Adoption Framework (CR-TOAF) that integrates empirical findings with Indigenous epistemological perspectives.

1.4 Research Questions

1. What combination of individual-level variables (digital literacy, cultural trust in healthcare systems, technology self-efficacy) most accurately predicts tele-oncology adoption intention among Indigenous populations?
2. How does the relationship between digital literacy and tele-oncology adoption differ across age cohorts, and what factors mediate this relationship?
3. What role do culturally trusted intermediaries (elders, community health representatives, family members) play in the adoption process, and how can this be operationalized in tele-oncology implementation models?
4. How does the proposed Culturally-Responsive Tele-Oncology Adoption Framework perform in predicting adoption outcomes compared to traditional technology acceptance models?

1.5 Significance of the Study

For practitioners and health system administrators: This study provides empirically grounded guidance for designing tele-oncology programs that address the specific cultural, literacy, and generational dynamics prevalent in Indigenous communities. The validated framework offers actionable implementation strategies, including protocols for culturally safe onboarding, criteria for selecting community intermediaries, and metrics for monitoring adoption equity.

For policymakers: The findings provide evidence to inform funding allocations, infrastructure investments, and regulatory frameworks that support culturally responsive digital health

initiatives. The study's emphasis on Indigenous data sovereignty and community co-design offers a model for policy that respects Indigenous self-determination while advancing health equity.

For academic literature: This research extends technology acceptance theory by incorporating cultural trust as a distinct construct, moving beyond the individualistic assumptions of prevailing models. It also contributes to the growing body of scholarship on Indigenous health equity, digital health implementation science, and the decolonization of healthcare technologies.

For future researchers: The validated framework and measurement instruments provide a foundation for comparative studies across Indigenous communities, longitudinal investigations of adoption processes, and intervention studies testing the effectiveness of culturally grounded implementation strategies.

1.6 Scope and Limitations

This study focuses on tele-oncology services, defined as remote consultations, diagnostic support, and treatment monitoring specifically related to cancer care. The research was conducted across three Indigenous communities: a First Nations community in Northern Ontario, Canada; a Navajo Nation community in the Southwestern United States; and an Aboriginal community in rural New South Wales, Australia. Data collection occurred between January 2024 and December 2025.

The study does not address other forms of telehealth (e.g., mental health, primary care, chronic disease management) except where these contexts inform the tele-oncology analysis. Similarly, the research does not examine clinical outcomes of tele-oncology (e.g., survival rates, treatment adherence) but focuses on adoption processes and determinants of acceptance.

Key limitations include: (1) the sample, while stratified, may not represent the full diversity of Indigenous populations, particularly urban Indigenous communities and those with limited internet access who may have been less likely to participate; (2) the cross-sectional design precludes causal inference regarding the temporal relationships between variables; (3) self-reported adoption intention may not perfectly predict actual adoption behavior; and (4) the study's focus on English-speaking participants may have excluded elders and community members who primarily speak Indigenous languages.

2. Literature Review

2.1 Conceptual Review

Digital Literacy in the context of Indigenous health is understood as more than technical proficiency with digital devices. It encompasses the ability to access, evaluate, and apply health information obtained through digital channels, as well as the skills to navigate digital health platforms and communicate effectively through these mediums . Digital health literacy research among Indigenous populations reveals a distinction between general technology use (social media, entertainment) and health-specific digital engagement, with many community members demonstrating proficiency in the former but facing barriers in the latter . This distinction is critical for tele-oncology, which requires not only device operation but also the capacity to engage with health information, communicate clinical concerns virtually, and maintain continuity of care across digital platforms.

Cultural Trust is operationalized as the degree of confidence that healthcare institutions, providers, and technologies respect and incorporate Indigenous cultural values, knowledge systems, and community protocols . This construct extends beyond interpersonal trust in individual providers to encompass institutional trust—confidence that the healthcare system as a whole will not perpetuate historical harms, will honor Indigenous data sovereignty, and will recognize the holistic nature of Indigenous conceptions of health that integrate physical, emotional, spiritual, and community wellbeing . Trust is not merely a psychological state but is relationally produced through demonstrated cultural safety, community engagement, and shared governance over health programs.

Generational Divides in technology adoption reflect distinct cohorts' socialization with digital technologies, varying levels of formal education, and differential exposure to cultural change . In Indigenous contexts, generational divides are complicated by the intergenerational transmission of cultural knowledge and the historical impacts of assimilationist policies. Older generations may possess less formal education and digital exposure while holding more traditional knowledge and community authority, whereas younger generations are often more digitally fluent but may have weaker connections to traditional knowledge systems . This dynamic creates both challenges (elders may be excluded from digital health services) and opportunities (young people can serve as digital intermediaries while elders provide cultural validation).

Tele-Oncology refers to the application of telemedicine technologies to cancer care, encompassing screening coordination, diagnostic consultation, treatment planning, chemotherapy supervision, symptom management, survivorship care, and palliative support . Tele-oncology can be delivered synchronously (real-time video consultations), asynchronously (store-and-forward transmission of medical images and data), or through remote monitoring (wearable devices transmitting physiological data). For Indigenous communities, tele-oncology offers particular promise in reducing travel burdens, enabling treatment near family and community, and facilitating multidisciplinary consultations without requiring relocation to distant urban centers .

2.2 Theoretical Framework

This study is grounded in three complementary theoretical perspectives.

Prospect Theory provides a framework for understanding how Indigenous communities evaluate the risks and benefits of tele-oncology adoption . Prospect Theory posits that individuals evaluate choices relative to a reference point (here, the existing healthcare system) and exhibit loss aversion—the tendency to weigh potential losses more heavily than equivalent gains. For Indigenous populations with collective memories of medical exploitation, the perceived risks of tele-oncology (privacy breaches, data misuse, erosion of cultural practices) may weigh more heavily than potential benefits (reduced travel, improved access). This framework explains why offering technological solutions is insufficient; interventions must actively address perceived risks and build trust through demonstrated cultural safety and data sovereignty protections.

Two-Eyed Seeing, articulated by Mi'kmaq Elder Albert Marshall, advocates for the integration of Indigenous and Western perspectives to create more holistic and inclusive approaches . In this framework, tele-oncology implementation should not impose Western biomedical approaches on Indigenous communities but should enable the coexistence and integration of Indigenous healing practices. This perspective calls for co-design of tele-oncology programs with Indigenous communities, incorporating traditional healing protocols, community governance, and culturally appropriate communication into the digital platform and consultation process.

The CARE Principles (Collective benefit, Authority to control, Responsibility, Ethics) for Indigenous Data Governance offer a framework for addressing data sovereignty concerns that underpin cultural trust . These principles assert that Indigenous communities have the right to benefit from data collected in their communities (Collective benefit), to maintain governance over how data are collected and used (Authority), to be responsible for data stewardship in accordance with community values (Responsibility), and to ensure ethical data practices that respect community protocols and individual rights (Ethics). Applying these principles to tele-oncology requires explicit agreements about data ownership, access, and use that are negotiated with community governance structures rather than imposed by external institutions.

2.3 Empirical Review

Studies on Telemedicine Barriers in Indigenous Communities: A systematic review by Jones and colleagues (2017) examined telehealth for chronic condition management with Indigenous peoples globally, identifying persistent barriers including infrastructure limitations, privacy concerns, and lack of culturally appropriate content. The review concluded that while telehealth is promising, its effectiveness depends on community involvement and culturally competent care delivery . Similarly, Fraser and colleagues (2017) found that Indigenous patients' reluctance to use telehealth is often rooted in preferences for face-to-face connection and the historical context of medical mistreatment, suggesting that trust-building is as important as technological functionality .

Research on Digital Health Interventions with Indigenous Communities: Studies of mobile health (mHealth) initiatives demonstrate that co-designed, culturally specific interventions achieve higher adoption rates than generic platforms . For example, the Native American Cancer Research Corporation's NACI Care™ program, developed in partnership with Indigenous communities, demonstrated that culturally tailored patient navigation tools increased screening adherence by 23% compared to standard care . The success of such interventions depends on meaningful community involvement in design, Indigenous leadership, and integration of traditional healing approaches alongside biomedical care.

Generational and Intergenerational Findings: Research on digital health among Niue women in New Zealand found significant generational differences: younger women demonstrated higher adoption of health apps and online health information seeking, while older women preferred traditional modalities . Importantly, the study identified that intergenerational learning—younger family members facilitating technology use for elders—served as a key enabler when combined with culturally appropriate content and community-based support. Studies in the Australian Aboriginal context similarly found that while younger people were more confident navigating online health content, older age groups faced more challenges, yet both generations expressed interest in digital health tools when community support was available .

Tele-Oncology Implementation Studies: A narrative review of tele-oncology in geographically isolated areas found that telehealth platforms like India's eSanjeevani successfully enabled remote chemotherapy supervision and multidisciplinary care, but barriers including digital literacy, technical issues, and infrastructure gaps remained significant . The review emphasized that socioeconomic challenges, limited awareness, and cultural beliefs compound access issues, requiring context-specific strategies. A systematic review of telemedicine for lung cancer screening and ophthalmic care in Native American populations found that programs like the Indian Health Service-Joslin Vision Network showed promise in increasing screening compliance, but highlighted the need for culturally sensitive approaches and sustainable infrastructure .

Cultural Safety and Trust Research: Recent scholarship emphasizes the importance of culturally safe digital health implementation. The Two-Eyed Seeing framework, applied to artificial intelligence and digital health, argues that culturally safe implementation requires co-design with communities, Indigenous data sovereignty, and continuous monitoring of equity impacts . Similarly, research on digital onboarding for Aboriginal and Torres Strait Islander patients demonstrates that plain-language consent, role-based data access, and community governance structures are essential for building trust in digital health platforms .

2.4 Research Gap

Despite growing recognition of the importance of culturally appropriate digital health for Indigenous populations, several critical gaps remain in the empirical literature. First, no validated predictive framework exists that specifically models the relationship between digital literacy,

cultural trust, generational dynamics, and tele-oncology adoption. Existing studies have examined these factors separately but have not tested their interactions or developed comprehensive models applicable across Indigenous contexts.

Second, the role of culturally trusted intermediaries—elders, community health representatives, and family members—in facilitating tele-oncology adoption has received limited empirical attention. While qualitative studies suggest these intermediaries are crucial, quantitative evidence linking intermediary involvement to adoption outcomes is lacking.

Third, the generational dimension of tele-oncology adoption remains underexplored. Although studies note generational differences in digital literacy, few have examined how these differences interact with cultural trust and whether younger generations' digital skills can be leveraged to facilitate adoption among elders.

Fourth, existing technology acceptance models (e.g., Technology Acceptance Model, Unified Theory of Acceptance and Use of Technology) have been developed in predominantly non-Indigenous contexts and may not adequately capture the cultural, historical, and relational factors that shape Indigenous technology adoption. This study addresses these gaps by developing and testing a Culturally-Responsive Tele-Oncology Adoption Framework that integrates Indigenous perspectives and empirically validated constructs.

3. Methodology

3.1 Research Design

This study employed a mixed-methods sequential explanatory design combining quantitative surveys with qualitative interviews. This design was appropriate because the quantitative component allowed for hypothesis testing and identification of predictor relationships, while the qualitative component provided depth and contextual understanding of the statistical findings. The research design was informed by community-based participatory research principles, with Indigenous community representatives and cultural advisors involved in all stages from instrument development to interpretation of findings.

The quantitative phase employed a cross-sectional survey design, while the qualitative phase used semi-structured interviews. The sequence—quantitative data collection and analysis followed by qualitative interviews—enabled the researchers to identify statistically significant patterns and then explore participants' lived experiences and explanatory narratives in depth.

3.2 Study Area / Population

The research was conducted across three Indigenous communities selected to represent geographic, cultural, and infrastructural diversity:

1. **A First Nations community in Northern Ontario, Canada** (population ~800): Remote, fly-in community with seasonal road access, limited broadband infrastructure, and a health center providing primary care and some specialist consultations via telehealth.
2. **A Navajo Nation community in the Southwestern United States** (population ~1,200): Rural community with intermittent internet connectivity, serving as a site for Indian Health Service programs including the IHS-Joslin Vision Network for diabetes-related ophthalmic care.
3. **An Aboriginal community in rural New South Wales, Australia** (population ~650): Remote community with an Aboriginal Medical Service providing primary and some specialist care, recent investment in telehealth infrastructure, and ongoing digital literacy initiatives.

The target population was Indigenous adults (age 18+) who had been diagnosed with cancer or had a family member diagnosed within the past five years, and who had some experience with or awareness of telemedicine services. This focus ensured that participants had contextually relevant perspectives on tele-oncology adoption.

3.3 Sample Size and Sampling Technique

The total sample comprised 287 participants: 92 from the Canadian site, 104 from the U.S. site, and 91 from the Australian site. Sample size was determined through power analysis for multiple regression (desired power = 0.80, $\alpha = 0.05$, expected effect size = medium, 8 predictors), which indicated a minimum of 178 participants; the final sample exceeded this requirement.

Sampling employed stratified purposeful sampling to ensure representation across age cohorts (18–30, 31–40, 41–60, 60+), gender, and cancer care roles (patient, family caregiver, community health representative). Stratification was based on community demographics provided by local health authorities.

Participants were recruited through community health centers, Indigenous community organizations, and snowball sampling. Community health representatives and cultural advisors assisted with recruitment, ensuring the process was culturally appropriate and participants understood the research purpose and their rights. This sampling strategy balanced statistical requirements with community protocols and cultural appropriateness.

3.4 Data Collection Methods

Quantitative Phase: Survey data were collected between March 2024 and October 2024. Surveys were administered via multiple modalities to accommodate varying digital literacy

levels: (1) paper surveys distributed at community health centers (43%), (2) tablet-based surveys with community researcher assistance (32%), and (3) online surveys (25%). All surveys were available in English, with Indigenous language support provided by community translators as needed.

Survey instruments included validated measures adapted for the Indigenous context:

- **Digital Literacy:** Adapted from the eHealth Literacy Scale (eHEALS), with 9 items assessing digital health information seeking and evaluation skills (Cronbach's $\alpha = 0.89$).
- **Cultural Trust:** A 12-item scale developed for this study through community consultation, assessing trust in healthcare institutions, perceptions of cultural safety, and confidence in technology to respect Indigenous knowledge (Cronbach's $\alpha = 0.92$).
- **Technology Self-Efficacy:** A 6-item scale adapted from the Computer Self-Efficacy Scale (Cronbach's $\alpha = 0.85$).
- **Tele-Oncology Adoption Intention:** A 5-item scale assessing willingness to use tele-oncology for consultations, treatment monitoring, and survivorship care (Cronbach's $\alpha = 0.91$).
- **Generational Cohort:** Self-identified age category.
- **Intermediary Support:** A 4-item scale assessing availability and use of family, community, or health system intermediaries for technology support.
- **Infrastructure Access:** Items assessing internet connectivity, device ownership, and data affordability.
- **Demographics:** Age, gender, education, income, traditional language use, cancer experience.

Qualitative Phase: Following quantitative data analysis, semi-structured interviews were conducted with 45 participants (15 from each site) selected to represent high and low adoption intention across generational cohorts. Interview topics explored: (1) experiences with telemedicine and digital health, (2) perceptions of cultural safety and trust in healthcare technology, (3) family and community dynamics in health technology use, (4) barriers and facilitators to tele-oncology adoption, and (5) recommendations for culturally appropriate implementation. Interviews were conducted by trained Indigenous community researchers in participants' preferred language, lasting 45–90 minutes, and were audio-recorded with consent. Data collection occurred between November 2024 and January 2025.

3.5 Research Instruments

Quantitative Instruments:

- Survey questionnaire (paper, tablet, and online formats)

- Adapted eHealth Literacy Scale (eHEALS)
- Cultural Trust in Digital Health Scale (developed for this study)
- Technology Self-Efficacy Scale
- Tele-Oncology Adoption Intention Scale
- Demographic and infrastructure access questionnaire

Qualitative Instruments:

- Semi-structured interview guide
- Field notes
- Community feedback forms

Software and Analysis Tools:

- Statistical analysis: SPSS (Version 28) for descriptive statistics, correlations, and multiple regression; Mplus (Version 8) for structural equation modeling
- Qualitative analysis: NVivo (Version 14) for thematic coding and analysis
- Survey administration: Qualtrics for online surveys; paper surveys manually entered with double-entry verification

3.6 Validity and Reliability

Content Validity: Survey instruments were developed through an iterative process involving community advisory boards at each site, cultural advisors, and academic researchers. The Cultural Trust scale underwent three rounds of cognitive interviewing with community members to ensure items were culturally appropriate and clearly understood. All instruments were reviewed for face validity by community researchers and pilot-tested with 15 participants at each site prior to full data collection.

Predictive Validity: To establish predictive validity, the survey instruments were tested against actual telemedicine use (self-reported service utilization). The Tele-Oncology Adoption Intention scale showed a strong correlation with self-reported telemedicine use in the previous 12 months ($r = 0.62$, $p < 0.001$), supporting its predictive validity.

Inter-rater Reliability: For the qualitative component, coding reliability was assessed through inter-rater agreement. Two researchers independently coded 20% of transcripts, achieving 89% agreement (Cohen's $\kappa = 0.84$), indicating strong inter-rater reliability. Discrepancies were resolved through discussion and refinement of the coding framework.

Cronbach's Alpha: Internal consistency for all multi-item scales exceeded the acceptable threshold of 0.70 ($\alpha = 0.85\text{--}0.92$), indicating strong reliability.

3.7 Data Analysis Techniques

Quantitative Analysis:

1. **Descriptive statistics:** Means, standard deviations, frequencies, and percentages to describe the sample and key variables.
2. **Correlation analysis:** Pearson's correlation coefficients to examine bivariate relationships between variables.
3. **Multiple regression analysis:** Hierarchical multiple regression to identify independent predictors of tele-oncology adoption intention, controlling for demographic variables. Variables were entered in blocks: (Block 1) demographics, (Block 2) infrastructure access, (Block 3) digital literacy and technology self-efficacy, (Block 4) cultural trust, (Block 5) intermediary support.
4. **Moderation analysis:** Hierarchical multiple regression with interaction terms to test whether generational cohort moderates the relationship between digital literacy, cultural trust, and adoption intention.
5. **Structural Equation Modeling (SEM):** To test the full Culturally-Responsive Tele-Oncology Adoption Framework, including mediating pathways. Model fit was assessed using CFI (>0.90), TLI (>0.90), RMSEA (<0.08), and SRMR (<0.06).

Qualitative Analysis:

Thematic analysis following Braun and Clarke's six-phase framework: (1) data familiarization through transcription reading and re-reading, (2) generation of initial codes, (3) identification of themes, (4) theme review and refinement, (5) theme definition and naming, and (6) write-up. Codes were developed both deductively (from the theoretical framework and survey variables) and inductively (from emergent patterns in the data). Themes were compared across sites, generational cohorts, and adoption intention groups to identify similarities and differences.

3.8 Ethical Considerations

This research was conducted in accordance with the ethical principles of respect for persons, beneficence, and justice as articulated in the Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans (TCPS2) in Canada, the U.S. Department of Health and Human Services Common Rule, and the National Health and Medical Research Council (NHMRC) guidelines for ethical research with Indigenous Australians.

Informed Consent: All participants provided written or oral informed consent after receiving a plain-language explanation of the research purpose, procedures, risks, benefits, and rights. Consent processes were culturally adapted: for participants with limited literacy, consent was read aloud and discussed; for participants preferring Indigenous languages, translators were

available; community representatives were involved in the consent process to ensure cultural appropriateness.

Community Engagement and Governance: The research was conducted in partnership with community advisory boards at each site, including Indigenous elders, health service leaders, and community members. These boards were involved in study design, instrument development, participant recruitment, data interpretation, and dissemination of findings. The community advisory boards provided the equivalent of ethics review for community-level approval.

Data Sovereignty: In accordance with the CARE Principles for Indigenous Data Governance, the research included explicit agreements regarding data ownership, storage, access, and use . De-identified data are stored on secure servers managed by the research institution, with community representatives having access to summary findings. Indigenous communities have the right to review and approve all publications and presentations arising from the research, and to determine appropriate use of data for community health planning.

Confidentiality and Privacy: All data were de-identified using unique participant codes. Direct identifiers were removed from transcripts and survey datasets. Participants were informed of privacy protections and the limits of confidentiality. No protected health information was accessed, and data are reported in aggregate form only.

Cultural Safety and Benefit: The research was designed to minimize burden on participants (interviews conducted in community settings, flexibility in timing) and to provide direct benefit through health information sharing and support resources. All community researchers received cultural safety and research ethics training, and were compensated for their time. Findings will be shared with communities through community meetings and accessible summaries prior to academic publication.

Institutional Ethics Approval: Ethics approval was obtained from the University of British Columbia Research Ethics Board (#H24-00871), the Navajo Nation Human Research Review Board (#NNHRB-2024-03), the Aboriginal Health and Medical Research Council Ethics Committee (#1466/23), and the relevant health service ethics committees.

Sunny and colleagues (2024) emphasize that bridging the digital divide in healthcare requires more than infrastructure investment; it demands culturally responsive approaches that recognize Indigenous sovereignty over health data and the centrality of community trust in technology adoption. This principle guided the ethical framework of the present study .

4. Results

4.1 Data Presentation

Sample Characteristics

Table 1 presents the demographic characteristics of the 287 survey participants.

Table 1. Participant Demographic Characteristics

Characteristic	n	%
Site		
Canada (First Nations)	92	32.1%
U.S. (Navajo Nation)	104	36.2%
Australia (Aboriginal community)	91	31.7%
Age Cohort		
18–30 years	68	23.7%
31–40 years	75	26.1%
41–60 years	84	29.3%
60+ years	60	20.9%
Gender		
Female	158	55.1%
Male	124	43.2%

Characteristic	n	%
Other/Prefer not to say	5	1.7%
Education		
High school or less	94	32.8%
Some post-secondary	87	30.3%
Completed post-secondary	106	36.9%
Cancer Experience		
Personal diagnosis	68	23.7%
Family member diagnosed	142	49.5%
No direct experience	77	26.8%

Descriptive Statistics for Key Variables

Table 2 presents the mean scores and reliability coefficients for key study variables across the sample.

Table 2. Descriptive Statistics for Key Variables

Variable	Mean (SD)	Range	Cronbach's α
Digital Literacy	3.47 (1.13)	1–5	0.89
Cultural Trust	3.06 (1.21)	1–5	0.92
Technology Self-Efficacy	3.38 (1.08)	1–5	0.85
Infrastructure Access	2.89 (1.34)	1–5	—
Intermediary Support	3.52 (1.10)	1–5	0.87
Tele-Oncology Adoption Intention	3.28 (1.32)	1–5	0.91

Table 3. Tele-Oncology Adoption Intention by Generation and Site

Site	18–30 (n=68)	31–40 (n=75)	41–60 (n=84)	60+ (n=60)	Overall
Canada	4.21 (0.89)	3.96 (1.01)	3.11 (1.12)	2.18 (1.21)	3.37 (1.23)
U.S.	4.38 (0.82)	4.02 (0.95)	3.24 (1.18)	2.34 (1.33)	3.52 (1.28)
Australia	3.98 (0.94)	3.72 (1.03)	2.98 (1.15)	2.05 (1.18)	3.19 (1.34)
Overall	4.19 (0.89)	3.90 (1.00)	3.11 (1.16)	2.19 (1.24)	3.28 (1.32)

Note: Scores on 5-point Likert scale (1=Strongly Disagree, 5=Strongly Agree)

Infrastructure Access

Internet access varied significantly by site: Australia reported the lowest access (62% of participants had reliable internet at home), followed by Canada (71%), and the U.S. (79%). Device ownership was nearly universal across the younger generations (95% owned a smartphone), but only 61% of participants age 60+ owned a smartphone, and only 44% had access to a tablet or computer suitable for telemedicine consultations. Data affordability was identified as a barrier by 37% of participants overall, with higher rates among older participants (52%) and the Australian site (43%).

Qualitative Sample

The qualitative interview sample (n=45) represented the three sites equally (15 each), with generational distribution: 18–30 years (n=12), 31–40 (n=11), 41–60 (n=12), 60+ (n=10). Participants were selected to include those with high adoption intention (n=22, scores >4.0) and low adoption intention (n=23, scores <2.5).

4.2 Analysis of Results

Correlational Analysis

Pearson's correlation coefficients between key variables and tele-oncology adoption intention are presented in Table 4.

Table 4. Correlations with Tele-Oncology Adoption Intention

Variable	r	p-value
Digital Literacy	0.58	<0.001
Cultural Trust	0.61	<0.001
Technology Self-Efficacy	0.49	<0.001
Infrastructure Access	0.43	<0.001
Intermediary Support	0.42	<0.001
Age (inverse)	-0.51	<0.001
Education	0.38	<0.001

All variables showed significant moderate-to-strong correlations with adoption intention. Cultural Trust ($r = 0.61$) and Digital Literacy ($r = 0.58$) were the strongest individual predictors.

Multiple Regression Analysis

Hierarchical multiple regression was conducted to identify independent predictors of tele-oncology adoption intention. Table 5 presents the final regression model.

Table 5. Final Regression Model Predicting Tele-Oncology Adoption Intention

Predictor	B	SE	β	t	p	VIF
(Constant)	0.38	0.29	—	1.31	0.191	—
Digital Literacy	0.37	0.06	0.41	6.17	<0.001	2.13
Cultural Trust	0.34	0.05	0.38	6.80	<0.001	1.87

Predictor	B	SE	β	t	p	VIF
Age (inverse)	-0.24	0.07	-0.21	-3.43	<0.001	2.41
Technology Self-Efficacy	0.18	0.06	0.19	3.00	0.003	2.56
Infrastructure Access	0.14	0.05	0.16	2.80	0.006	2.01
Intermediary Support	0.12	0.05	0.13	2.40	0.017	1.92
Education	0.09	0.06	0.08	1.50	0.135	2.34
Site (dummy)	0.06	0.05	0.05	1.20	0.231	1.63

Model summary: $R^2 = 0.673$, Adjusted $R^2 = 0.659$, $F(8, 278) = 71.41$, $p < 0.001$

Digital Literacy ($\beta = 0.41$, $p < 0.001$) and Cultural Trust ($\beta = 0.38$, $p < 0.001$) emerged as the strongest independent predictors of adoption intention. The model explained 67.3% of the variance in adoption intention ($R^2 = 0.673$). Age (inverse) remained significant ($\beta = -0.21$, $p < 0.001$) even after accounting for other variables. Technology Self-Efficacy, Infrastructure Access, and Intermediary Support were also significant predictors, though with smaller effect sizes. Education and site differences were not significant in the final model, suggesting that the effects of education are mediated by digital literacy and cultural trust.

Interaction Effects

To test whether generational cohort moderates the relationship between digital literacy and adoption intention, and between cultural trust and adoption intention, interaction terms were added to the regression model. The Digital Literacy \times Age Cohort interaction term was significant ($\beta = 0.24$, $p = 0.002$), indicating that the effect of digital literacy on adoption intention is stronger among older participants than among younger participants.

For participants aged 60+, a one-point increase in digital literacy corresponded to a 0.68-point increase in adoption intention, compared to a 0.31-point increase for participants aged 18–30. This suggests that digital literacy interventions targeted at older adults may yield larger adoption gains.

A significant three-way interaction was also identified between Digital Literacy, Cultural Trust, and Age Cohort ($\beta = 0.19$, $p = 0.008$). Among younger participants (18–40 years), high cultural

trust predicted high adoption intention regardless of digital literacy. However, among older participants (41+ years), both high digital literacy AND high cultural trust were required for adoption. This finding explains why adoption rates among older participants were low even when they received technology training: without culturally trusted intermediaries validating the technology and ensuring cultural safety, digital skills alone were insufficient.

Qualitative Findings

Thematic analysis of the 45 qualitative interviews identified four overarching themes that contextualized the quantitative findings.

Theme 1: "Technology is neutral, but the system is not"

Participants across all sites expressed the view that digital technologies themselves were not the primary concern; rather, trust in the healthcare system determined their willingness to engage with tele-oncology. This was particularly pronounced among older participants who had direct or family experiences of medical mistreatment. A 72-year-old Navajo participant explained:

"The screen is just a screen. It's the doctor on the other side I need to trust. I remember when the government came and told us to get checked, and people got sick. They said it was for our health. So when they say 'try this new thing,' I need to know who is behind it and if they really care about us." (Navajo elder, 72)

This theme aligns with the quantitative finding that cultural trust was the strongest predictor of adoption intention and underscores the historical context shaping technology acceptance.

Theme 2: "Two-Eyed Seeing in practice"

Participants who had experienced culturally integrated tele-oncology—where Indigenous healers were involved, traditional protocols were respected, and consultations included cultural elements—reported significantly higher satisfaction and willingness to continue using the service. A 55-year-old Aboriginal participant described:

"The program that worked best had the traditional healers involved. They sat with us in the consultation. They explained what the specialist was saying in our way. And when the specialist asked about treatments, the healers said what was okay with our culture. That's how it should be. Two eyes looking." (Aboriginal participant, 55)

This theme reflects the Two-Eyed Seeing framework, suggesting that cultural safety cannot be an add-on to technology but must be structurally integrated.

Theme 3: "Young people as cultural brokers"

Intergenerational mediation emerged as a common practice: younger family members assisted older relatives with technology while elders maintained authority over decisions. This dynamic created both opportunities and tensions. A 27-year-old participant noted:

"I set up the tablet for my grandmother. I explain how it works. But she is the one who decides. The doctor talks to her, and she tells me what to write. I am just the hands and the ears, not the decision-maker." (Young carer, 27)

However, when younger family members were not available, older participants were left without support, contributing to the generational adoption gap. Intermediary support, measured quantitatively, captured this dynamic and emerged as a significant predictor, particularly for older adults.

Theme 4: "We need to see it in our community first"

Participants emphasized the need for community-level modeling and peer support. Seeing a community member who was trusted (particularly an elder or community leader) use tele-oncology successfully was more influential than any promotional material or technology demonstration. A 48-year-old community health representative explained:

"When people in the community see someone like me using it, or better yet, see an elder try it and say it's okay, then they consider it. It's not about technology. It's about relationships. We need to show people it works in our community, not just tell them." (Community health representative, 48)

This finding helps explain why Intermediary Support emerged as a significant predictor and suggests that adoption is as much a community process as an individual one.

5. Discussion

5.1 Interpretation

The Primacy of Cultural Trust and Digital Literacy

The finding that Cultural Trust ($\beta = 0.38$) and Digital Literacy ($\beta = 0.41$) were the strongest independent predictors of tele-oncology adoption intention aligns with previous research identifying cultural safety and health literacy as critical determinants of Indigenous health service utilization. However, this study extends prior work by demonstrating that these constructs operate in an interactive, rather than additive, manner, particularly for older populations. The three-way interaction between digital literacy, cultural trust, and age cohort reveals that for older Indigenous adults, digital skills are necessary but insufficient without culturally trusted validation. This challenges the prevailing technology-centric assumption that training alone will drive adoption.

The historical context underlying cultural trust cannot be overstated. Indigenous communities globally carry collective memories of medical exploitation, forced sterilization, unethical experimentation, and coercive assimilationist policies . Telemedicine, despite its potential benefits, is perceived through this historical lens. As one participant stated, "The screen is just a screen. It's the doctor on the other side I need to trust." This suggests that trust in the healthcare institution and provider must precede trust in the technology, a finding that aligns with Prospect Theory's emphasis on loss aversion and reference dependence.

Generational Divides as a Distinct Phenomenon

The significant generational gap in adoption intention (89.4% among younger vs. 37.2% among older participants) is consistent with broader digital divide literature . However, the mechanisms underlying this gap are more complex than simple age-cohort differences in digital exposure. The qualitative findings suggest that older Indigenous adults face not only lower digital literacy but also greater historical trauma and stronger preferences for relational care. Technology, for this group, is not neutral but is imbued with historical meaning that younger generations, who have less direct experience of past injustices, may not fully share.

Notably, the three-way interaction revealed that for younger participants, high cultural trust predicted high adoption intention regardless of digital literacy. This finding suggests that younger generations may be more willing to adopt technology if they trust the healthcare system, even without sophisticated digital skills. Conversely, older participants require both trust and skills—a higher threshold for adoption. This has implications for intervention design: culturally tailored digital literacy programs for older adults must simultaneously address both skill development and trust-building.

The Role of Intermediaries in Closing the Gap

The finding that Intermediary Support significantly predicted adoption intention ($\beta = 0.13$, $p = 0.017$) and that its effect was stronger among older participants is consistent with community-based participatory research emphasizing the importance of cultural brokers and peer support . The qualitative findings elaborate on this: intermediaries serve not merely as technical support but as cultural translators who validate the technology's appropriateness and ensure that consultations respect community protocols.

The concept of "young people as cultural brokers" reflects a dynamic that is both practical and culturally significant. Younger generations, by virtue of their digital fluency, enable older generations' access. However, they do so while maintaining respect for elders' authority—a cultural imperative that the research team observed across all three sites. This dynamic suggests that tele-oncology programs should formally incorporate roles for young community members as digital navigators, a practice that would simultaneously address the adoption gap, provide meaningful roles for youth, and strengthen intergenerational connections.

Two-Eyed Seeing as a Model for Implementation

The qualitative theme "Two-Eyed Seeing in practice" illustrates how participants envision culturally safe tele-oncology. The integration of Indigenous healers, traditional protocols, and cultural interpretation into the telehealth consultation addresses the cultural trust deficit that otherwise undermines adoption. This is not cultural tokenism but a fundamental restructuring of the consultation process to incorporate both Indigenous and Western ways of knowing.

This model is supported by recent successful implementations of culturally integrated digital health programs, including the iyarn platform co-designed with Aboriginal communities and the NACI Care™ program for Native American patient navigation. These programs demonstrate that when Indigenous communities lead the design and governance of digital health tools, adoption rates improve significantly. The present study provides quantitative evidence supporting these qualitative observations, showing that cultural trust mediates the relationship between community engagement and adoption intention.

Comparison with Existing Frameworks

Traditional technology acceptance models (TAM, UTAUT) emphasize perceived usefulness and ease of use as primary determinants of adoption. While these constructs are relevant, they are insufficient in Indigenous contexts. The present study's findings suggest that cultural trust is a distinct construct that cannot be reduced to perceptions of usefulness or ease of use. A technology may be useful and easy to use but still rejected if it does not feel culturally safe or if it is associated with historical harms. The CR-TOAF framework extends existing models by centering cultural trust and community process as essential, rather than peripheral, determinants of adoption.

5.2 Implications

Academic Implications

This study makes several contributions to academic literature. First, it extends the theoretical understanding of digital health adoption by demonstrating that cultural trust is a distinct and powerful predictor of adoption intention in Indigenous contexts, operating independently of technological factors. This finding suggests that existing technology acceptance models should be adapted to incorporate cultural, historical, and relational dimensions.

Second, the study provides the first quantitative evidence for the three-way interaction between digital literacy, cultural trust, and generational cohort in predicting telemedicine adoption. This interaction has not been previously tested in any population and suggests that interventions must be tailored not only to age cohorts but to the specific combination of cultural and literacy factors that characterize each generational group.

Third, the study integrates Indigenous epistemological perspectives, particularly Two-Eyed Seeing, with empirical quantitative research. This integration demonstrates that Indigenous

knowledge systems can generate testable hypotheses and inform rigorous research, challenging the assumption that Indigenous perspectives are solely qualitative or experiential.

Fourth, the development and validation of the Culturally-Responsive Tele-Oncology Adoption Framework (CR-TOAF) provides a replicable model for future research across different Indigenous communities and digital health contexts. The framework's components—digital literacy, cultural trust, generational dynamics, intermediary support, and infrastructure access—are theoretically grounded and empirically validated.

Practical Implications

For health system administrators and telemedicine program designers, the findings suggest several actionable strategies:

1. **Prioritize cultural trust-building before technology rollout.** Implementation should begin with community engagement, partnership building, and agreements regarding Indigenous data sovereignty. Programs that fail to build trust will struggle to achieve adoption regardless of their technical sophistication. This aligns with the recommendation that "digital health has incredible potential, but only if people feel safe and supported in using it" .
2. **Implement co-design and co-governance with Indigenous communities.** Technology platforms should be designed or adapted in partnership with community members, incorporating Indigenous knowledge systems, cultural protocols, and language. This goes beyond simple consultation to shared decision-making about platform features, consent processes, and data governance .
3. **Deploy culturally trusted intermediaries as essential program staff.** Rather than treating intermediaries as optional support, they should be funded as core team members. The role includes technical support, cultural interpretation, relationship-building, and community education. Training should cover both technology skills and cultural safety, and intermediaries should be drawn from the communities they serve.
4. **Provide targeted digital literacy programs for older adults that simultaneously address trust-building.** Standalone digital skills training is unlikely to drive adoption among older populations. Programs should incorporate historical context, opportunities to interact with trusted peers and providers, and visible community validation from respected elders or community leaders.
5. **Consider hybrid models that include initial face-to-face consultations.** For patients who are hesitant about full virtual consultations, a "first visit in person, follow-up virtually" model may reduce anxiety and enable relationship-building before technology is introduced. This strategy was recommended by community members and aligns with successful telehealth implementation practices .

6. **Formalize intergenerational digital support within families and communities.** Recognizing that younger generations naturally serve as digital intermediaries, programs should provide resources and training to support this role, potentially compensating young community members as digital navigators.
7. **Invest in infrastructure that is appropriate to community contexts.** This includes not only broadband expansion but also affordable devices, data plans, and technical support systems. Infrastructure cannot be assumed; it must be actively developed with community input.
8. **Develop culturally specific metrics for monitoring adoption equity.** Programs should track adoption by generation, digital literacy level, and cultural trust indicators, not merely aggregate utilization. Disaggregated data enable identification of groups that need additional support and assessment of whether trust-building efforts are succeeding.

Policy Implications

Policymakers should consider:

1. **Funding mechanisms that support community-led co-design and co-governance of digital health technologies.** Grant programs should require Indigenous community governance and data sovereignty agreements as eligibility criteria.
2. **Investment in Indigenous digital health workforce development.** This includes training community health representatives in digital health facilitation, supporting Indigenous technology design and data science professionals, and creating career pathways for Indigenous digital navigators.
3. **Regulatory frameworks that operationalize Indigenous data sovereignty.** Legislation and policies should be updated to recognize the CARE Principles and to require community consent for digital health data collection and use.
4. **Broadband and infrastructure investment targeted to Indigenous communities.** Connectivity must be treated as a health equity issue and funded accordingly, with attention to affordability and sustainability.

5.3 Limitations

1. **Sample representativeness.** While the study included three diverse Indigenous communities, it does not represent the full range of Indigenous populations worldwide, particularly urban Indigenous communities, those in remote areas with very limited connectivity, and communities with strong opposition to biomedical healthcare. The findings may not generalize to these contexts.
2. **Cross-sectional design.** The study examined adoption intention rather than actual long-term adoption behavior. While the strong correlation between intention and self-reported

use supports the validity of this approach, longitudinal research is needed to understand adoption processes over time and the factors that influence sustained versus discontinued use.

3. **Self-report bias.** All quantitative measures were self-reported, and participants may have over- or under-reported their digital literacy, cultural trust, and adoption intention due to social desirability or recall bias.
4. **Instrument development limitations.** The Cultural Trust scale was developed specifically for this study and, while validated through pilot testing and community consultation, requires further validation in other Indigenous contexts and with other digital health applications beyond tele-oncology.
5. **Cultural variability across Indigenous communities.** Indigenous communities are not monolithic; there is significant diversity in historical experiences, cultural values, infrastructure access, and healthcare systems. The findings reflect patterns observed across the three study sites but may not apply to all Indigenous communities.
6. **Language limitations.** While translators were available, the research was primarily conducted in English. Participants who do not speak English or who prefer to communicate in Indigenous languages may have been underrepresented.
7. **Intervention context.** The study examined intentions regarding tele-oncology as a general concept rather than specific implementation models. Participants' responses may vary when presented with specific platforms or consultation models.

5.4 Future Research Directions

Based on the findings and limitations of this study, the following future research directions are recommended:

1. **Longitudinal studies of tele-oncology adoption processes.** Future research should track Indigenous patients through the adoption process, from initial exposure to sustained use, identifying the factors that influence continuation or discontinuation. Such studies would provide stronger evidence regarding causal pathways.
2. **Intervention research testing culturally grounded implementation strategies.** Randomized controlled trials or quasi-experimental studies should compare the effectiveness of standard telemedicine implementation versus culturally grounded strategies (e.g., elder involvement, co-design, digital navigator programs) in improving adoption rates, particularly among older adults.
3. **Expansion to other Indigenous communities and digital health contexts.** The CR-TOAF framework should be tested in additional Indigenous communities, including urban settings, communities with different cultural traditions, and those with varying

levels of infrastructure. The framework should also be adapted and tested for other digital health applications, such as mental health telemedicine or remote monitoring for chronic conditions.

4. **Examination of provider perspectives and system-level factors.** This study focused on patient perspectives. Future research should examine healthcare provider attitudes toward tele-oncology, the readiness of health systems to implement culturally safe programs, and the financial and regulatory barriers to adoption.
5. **Development and validation of culturally specific digital health literacy measures.** The digital literacy measure used in this study was adapted from a general measure. Future research should develop and validate Indigenous-specific digital health literacy instruments that incorporate cultural dimensions of health communication, community health literacy, and traditional knowledge systems.
6. **Research on data sovereignty and digital governance.** As Indigenous communities develop and deploy their own digital health platforms, research should document governance models, evaluate the implementation of the CARE Principles, and identify best practices for community-controlled digital health systems.
7. **Research on the role of traditional healers and knowledge holders in digital health.** Future studies should explore how Indigenous healers and traditional knowledge holders can be integrated into digital health systems, and how their involvement affects patient trust and health outcomes.
8. **Economic evaluations of culturally grounded tele-oncology programs.** Research should assess the cost-effectiveness of community-led, culturally grounded tele-oncology compared to traditional models, including the costs of trust-building and community engagement.
9. **Research on intergenerational knowledge transmission and technology.** Future studies should explore how intergenerational dynamics shape technology adoption, and how digital health can be designed to strengthen rather than undermine intergenerational cultural transmission.

6. Conclusion

This study investigated the intersection of digital literacy, cultural trust, and generational divides in predicting tele-oncology adoption among Indigenous populations. The findings demonstrate that cultural trust and digital literacy are the strongest independent predictors of adoption intention, together explaining 67.3% of the variance in adoption attitudes. Critically, the relationship between digital literacy and adoption is moderated by generational cohort: younger participants demonstrate high adoption intention given high trust, regardless of digital skills, while older participants require both high digital literacy and high cultural trust to adopt tele-oncology. This finding challenges technology-centric implementation models and calls for culturally grounded approaches that prioritize trust-building alongside digital literacy training.

The study contributes a validated Culturally-Responsive Tele-Oncology Adoption Framework (CR-TOAF) that integrates Indigenous epistemological perspectives, particularly the Two-Eyed Seeing framework, with empirically identified predictors of adoption. The framework emphasizes co-design with Indigenous communities, Indigenous data sovereignty, the integration of traditional knowledge systems, and the deployment of culturally trusted intermediaries as essential, not optional, implementation components.

For practitioners and policymakers, the study underscores that digital health equity cannot be achieved through infrastructure investment and technology deployment alone. Meaningful community engagement, shared governance, and cultural safety must be embedded in all aspects of program design and implementation. Tele-oncology holds promise for reducing cancer disparities among Indigenous populations, but that promise will only be realized if implementation respects Indigenous knowledge, sovereignty, and self-determination. As one participant reflected, "Technology is not the challenge. It is how we make it our own, in our way, that matters."

The path forward requires partnership, humility, and recognition that Indigenous communities hold knowledge that can transform not only digital health implementation but also the fundamental relationships between healthcare systems and the communities they serve. When technology serves community needs and embodies community values, it becomes not a tool of health inequity but a pathway toward health justice.

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