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A comprehensive cancer center in the cloud powered by AI can reduce health disparities

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Recent reports by the American Association for Cancer Research[1,2] have highlighted cancer-associated health inequalities for those who are Black, Indigenous, or people of color. Black Americans have the highest overall death rates from cancer of any racial or ethnic group in the USA: for example, death rates from prostate cancer for Black men are more than double those for every other racial or ethnic group, and Black women over the age of 50 are twice as likely to die of breast cancer as white women. Geography, race, earnings, attitude and technology (sometimes abbreviated 'GREAT') are structural barriers to health equity[2]. Integrated, multilevel and customized interventions are urgently needed to address these health barriers.

The Comprehensive Cancer Center in the Cloud (C4) is a multi-institutional and interdisciplinary collaboration whose inception was catalyzed by presentations and discussions at the Global Health Catalyst (GHC) summit. The C4 is a multilevel community-oriented, patient-empowering, cloud-based health platform that brings together medical institutions, religious and spiritual leaders, Black and Indigenous communities and people of color, and educators to collaborate toward achieving health equity. With the support of technology such as artificial intelligence (AI), this initiative seeks to improve access and the quality of care for underserved communities, to overcome disparities based on residential zip codes, to include cultural and spiritual needs in research models, and to bring healthcare to communities (rather than waiting for people to come to medical centers, often with advanced disease stages).

Our initial model uses religious organizations as C4 health-access hubs. Equipped with technological infrastructure – including laptops as access terminals, broadband and trusted community healthcare assistants, supported by AI tools[3] – these health-access hubs can be used to develop holistic approaches to community health needs and to facilitate the adoption of evidence-based healthcare interventions and programming, in partnership with medical and health institutions.

Insights gleaned from responses to the COVID-19 pandemic showed that collaborations with religious communities and leaders can help with the adoption of healthcare interventions that integrate cultural values, spirituality and community mobilization, to influence decision-making around lifestyle and healthcare. Such multilevel and integrated approaches to care and disease prevention should offer better outcomes, while interdisciplinary collaborations ensure sustainability[4]. The use of technology within a C4 integrative healthcare platform covers physical, social and spiritual care, as well as mental health needs[5]. A central feature of C4 is the 'CARE' app, which offers users a menu of integrated health options, covering care, advocacy, research and education.

The 'Care' menu offers telehealth support for evidence-based cancer prevention and treatment interventions, supported by an AI chatbot assistant[3]. Building on evidence[6–8] that mobile health apps can improve health behaviors, customized interventions in the app will include opportunities for remote consultations, second opinions, follow-up, mental-health support, referral pathways to local healthcare providers, advice on physical activity and healthy diets, early screening and steps to modifying risk behaviors associated with cancer morbidities[6–10]. Attention is given to demographic and contextual needs, with monitoring of patients – including from their own home or community – empowering their access to healthcare and their decision-making.

The 'Advocacy' menu contains links to the GHC summits, with funding support to catalyze collaborations, and policies to eliminate cancer-associated health disparities in the USA and globally. This menu provides outreach to various stakeholders and communities, including religious organizations and health professionals across C4-collaborating organizations, and integrates an online patient support and advocacy community.

The 'Research' menu enables access to opportunities and collaborations for implementation research, to facilitate the adoption of evidence-based interventions and to mobilize multicenter and multicountry collaborations for clinical trials. This includes extending core services of data acquisition, data management, data archiving, case evaluation, remote cancer-treatment planning and quality assurance within geographical and legal jurisdictions. Clinical trials into the effectiveness of hybrid implementation interventions such as hypofractionated radiotherapy – involving cancer centers from the USA and African countries – are reducing treatment time and costs, increasing access and reducing healthcare disparities.

The 'Education' menu integrates the Global Oncology University (GO-U), a collaborative education commitment that has supported the training of thousands of oncology health professionals over past years. The initial priority is to provide continuous education, with certificates for different stakeholders, to build capacity for sustainable collaborations. Participating academic institutions work together with religious organizations to recruit and train healthcare workers and researchers, supported by joint scholarships and internships every summer, providing a pipeline for training more healthcare personnel and community-based health professionals from underrepresented backgrounds. With recent R25 funding support from the National Institutes of Health, this menu will be further developed, building capacity to reduce disparities in the USA and globally.

Preliminary work presented at GHC summits has established that, although the initial focus of the C4 is to build the world's premier comprehensive cancer center in the cloud, there is a tremendous opportunity to use the same tools and platform to address multiple chronic conditions or other disease areas, which would have a broader impact and strengthen healthcare systems. The initial motivation has been to address the GREAT barriers that drive disparities within Black and Indigenous communities and for people of color outside of the USA, but the platform could be extended to benefit other populations that experience disparities within the USA and worldwide.

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Competing interests

The authors declare no competing interests.