THE HIDDEN INEQUITIES OF ARTIFICIAL INTELLIGENCE IN CANCER CARE

BY SV

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In communities across Washington, cancer is often detected too late—not because of biology, but because of barriers like housing instability, limited access to care, and systemic inequities. These delays are not accidents. They are the consequence of healthcare systems and emerging technologies built without adequately representing all populations.

Artificial intelligence (AI) is continually developing and proving useful in cancer diagnosis, with many saying that it is the solution to these health disparities. As a research intern in computational oncology, I've seen how AI is revolutionizing the oncology field. These tools trained on genomic data can help identify a cancer's origin, support clinical decisions, and reduce delays that cost patients valuable time. For metastatic cancers like Cancer of Unknown Primary, these tools are transformative (Vellanki et al.).

Yet, there is another side to the story. When the data behind these models doesn't reflect the differences and characteristics of every patient it is meant to serve, AI can quietly reinforce the very inequalities it aims to resolve (Dankwa-Mullan et al.).

Health outcomes aren't shaped only by biology. They're shaped by access to quality care, insurance coverage, geography, income, and much more. These same forces determine who gets genomic testing, who enrolls in clinical trials, and whose data ends up training the next generation of these very advanced cancer-AI tools. Patients from underrepresented communities are less likely to receive premium healthcare, meaning their data isn't included in the datasets that drive modern computational oncology (AACR).

As a result, AI models may perform well for some patients and less reliably for others. In cancer care, "less reliable" isn't a small problem—it can lead to wrong diagnoses, all of which can be life-threatening (Nature Reviews Clinical Oncology).

AI is not fundamentally harmful. It reflects the systems that create it. If the underlying data is skewed, the model will be too. Fixing this requires more than tweaking algorithms. It requires a change that begins from ground zero: expanding access to genomic testing, diversifying clinical trial sites, and involving communities early in research rather than treating them as an afterthought (SIREN).

Medical institutions, researchers, and policymakers all have a role. Institutions can prioritize data collection and validate models spanning diverse populations. Researchers can treat equity as a research requirement, not an optional add-on. Policymakers can support funding and infrastructure that ensure advanced diagnostics reach underserved communities, not just those with the best insurance or the closest to major cancer centers.

The future of oncology will be shaped by artificial intelligence. The real question is whether we choose to build that future in a way that is not only smarter, but fairer with every individual in mind.

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