

Ethics, Integrity and Retributions of Digital Detection Surveillance Systems on Infectious Diseases: Systematic literature review

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BACKGROUND

- COVID-19 pandemic raises the importance of the deployment of digital detection surveillance systems to support infectious diseases' (ID) early warning and monitoring.
- These opportunities create a “double-edge” sword as if not carefully considered, it could infringe on human and civil rights, freedom of choice, and social justice.

OBJECTIVES

- The aim was to investigate ethical issues utilizing AI augmented surveillance or early warning system to monitor and detect potential outbreaks or novel ID using patient's eHR.
- To explore the intersection of individuals' autonomy and healthcare rights specific to ID control and prevention.

METHODS

Search strategy and selection criteria

- Search terms included “Ethic*” and “AI” and “Infectious Disease”.
- CINAHL, Pub Med, Science Direct, Medline, Google Scholar and Scopus, also the bibliography were searched until December 8, 2020.
- All peer-reviewed, empirical research articles, review reports and grey reports were considered.

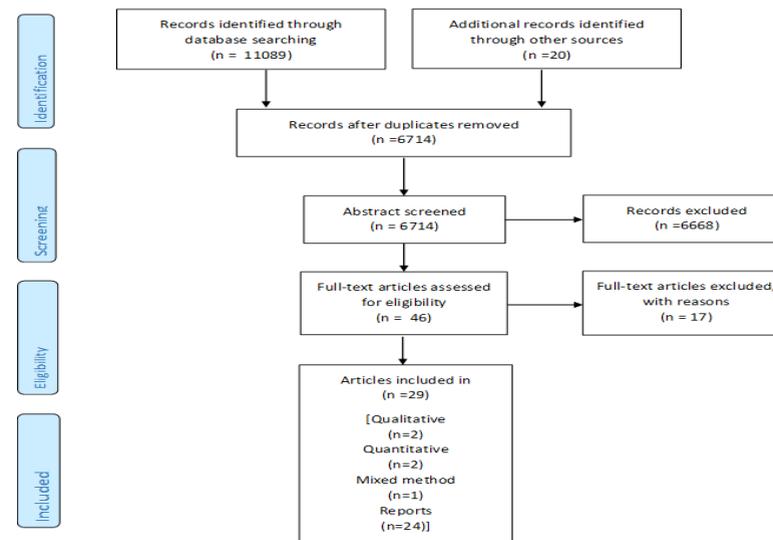
Data extraction and quality assessment

- Approaches, methodologies, samples and findings were extracted. Study quality was evaluated by modified mixed-methods appraisal tool (MMAT).

Procedure

- Drew on theoretical framework developed by Asadi, Breidbach that frames ethical issues of using BDA.
- Two authors independently screened the titles and abstracts, examined the full texts. Discrepancies were resolved by third author.
- Followed the PRISMA guideline.

Figure 1 PRISMA format (Whittemore & Knaf, 2005)



RESULTS

- Identified 29 articles clustered under individual, organizational and societal levels.
- **Six major themes:**
 - Awareness of implementing digital surveillance;
 - Digital integrity;
 - Trust;
 - Privacy and confidentiality;
 - Civil rights;
 - Governance.
- The informants reported insufficient understanding at every stage of data collection and distribution of digital ID surveillance systems.
- Contact tracing that linked a potential ID with patients' movements, locations or social networks was seen as a considerable threat to individual's rights to privacy and confidentiality.
- Digital ID surveillance system would widen existing healthcare disparities by underrepresenting vulnerable and at-risk populations such as older and children.

RECOMMENDATION

These ethical problems span a wide spectrum, ranging from civil rights, risks of privacy and trust, technical breaches to the human good and ethical oversights. It is vital to consider these challenges as a part of AI-augmented surveillance development.

Retributions vs common good for public health

- Public Health interventions should be predicated upon promoting and protecting the health of communities. Long-term impact evaluations are required. An ethical governance framework to support AI-augmented ID surveillance are required.

Trust building and privacy protection

- Public opt-in and well-founded trust in the digital system, its implementation and the governance framework are essential.
- The scope of the de-identification strategy needs to be assessed in the development of AI-augmented ID surveillance.
- An effective, transparent, accountable and independent oversight is necessary across the globe.

Generation of an ethical framework and global governance structures

- Cross-border sharing must be framed within strict safeguards and need to be mandated globally.

CONCLUSIONS

- Our findings provide ethical frameworks for informing services delivery for medical practitioners and policymakers implicated in the use of digital surveillance for ID spread and a basis for global governance structure.

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