



## **TRAPPED BY THE ALGORITHM: WHO CONTROLS HEALTH IN THE AI AGE?**

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### **Abstract**

*The rapid incorporation of artificial intelligence (AI) into the main public health aspects by means of predictive analytics, digital surveillance, wearable technologies, and algorithmic decision-making has transformed how health is understood, managed, and experienced. The technologies, while promising efficiency, accuracy and preventive care, also raise profound philosophical issues of knowledge, power and control. This paper examines AI-driven public health systems through the philosophical lens of Plato's Allegory of the Cave, using it as a critical framework to interrogate contemporary forms of epistemic control.*

*This paper draws parallels between Plato's prisoners, who see only shadows and think that they are real, and today's inhabitants of the world who trust the algorithmic representations of their health, arguing that AI can be both a means to enlightenment and a mode of control at the same time. Health data dashboards, risk scores, and predictive models might uncover patterns that are otherwise invisible to human eyes, but on the other hand, they can also hide the real-life situation, treat intricate human bodies merely as data points and give power to the invisible tech systems. This risks creating an "algorithmic cave" in which machine-generated outputs are accepted as unquestionable truth.*

*The study further explores ethics being the main topics of data privacy, algorithmic bias, surveillance, and the transition of power from the medical professionals and patients to the corporations and state-sponsored technologies. It gives a clear warning of how one may easily mistake the outputs of the machine for the objective truth while ignoring the social, cultural, and moral aspects of health. Reassessing the Platonic ideal of reflective knowledge, it urges to give up the usual route of just listening to the algorithms and to go toward a more freeing, human-centered comprehension of health in the AI period.*

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**Keywords:** *Artificial Intelligence, Public Health, Epistemic Control, Algorithmic Governance, Health Ethics, Plato's Allegory of the Cave*

## INTRODUCTION

Artificial Intelligence (AI) has swiftly integrated into public health through various means, such as predictive analytics, digital surveillance, wearable devices, and algorithmic decision-making. These systems are believed to provide quicker diagnosis, better preventive strategies, and personalized health recommendations. Nevertheless, these developments have raised deep philosophical issues regarding knowledge, control, and power. When public trust changes from human judgment to algorithms, who then decides what is the “health truth”? This paper, using Plato’s Allegory of the Cave as a theoretical framework, will assess the dual role of AI as the source of insight and the control mechanism simultaneously.

## RATIONALE

Relying more and more on AI in public health causes not only technical or ethical problems but also epistemological ones—meaning issues related to what is considered valid knowledge and who decides its validity. In a data streams and machine learning models world, it is possible that the algorithmic representations of health experiences would take over the lived, contextual, and socially grounded understandings. The present study refers to the old metaphor of Plato’s cave to examine the question whether AI frees us from ignorance or unwittingly holds us in a new kind of epistemic dependence.

## OBJECTIVES

- To analyze the significant philosophical aspects of AI in public health through the lens of Plato’s Allegory of the Cave.
- To examine the role of algorithmic systems in shaping and controlling the public’s perception of health knowledge.
- To identify out the ethical issues, like privacy, bias, and changing power relations within AI-assisted healthcare, that arise.
- To offer suggestions for implementing an AI health integration that is ethically managed and focused on human needs.

## RESEARCH METHODOLOGY

This research adopts an interpretive and qualitative method:

- Interpretation of Plato's Allegory of the Cave in context to AI knowledge systems through **conceptual analysis**.
- **Critical literature review** of the latest academic articles, policy reports, and case studies on AI applications in public health.

- **Comparative study** of technological practices and philosophical theories to expose possible risks and power dynamics.
- There was no main statistical analysis; illustrative **secondary data** from existing reports and documented AI outcomes are referenced where relevant.

## SCOPE & LIMITATIONS

### Scope:

- Philosophical exploration of AI's role in public health epistemology.
- Ethical discussion on bias, privacy, and governance.
- A recent real-world case study is included to connect theory with practice.

### Limitations:

- No original empirical data collection or statistical modeling.
- The case study is illustrative rather than exhaustive.
- Rapid technological change means conclusions are conditional and evolving.

## MAIN RESEARCH

### 1. Artificial Intelligence in Public Health: Promise and Transformation

Artificial Intelligence (AI) has become an integral component of contemporary public health infrastructure. AI is utilizing predictive analytics, digital surveillance systems, wearable health technologies, and decision-making based on algorithms to completely change the way diseases are predicted, the health of a population is monitored, and the health risks are evaluated. Governments and healthcare institutions increasingly rely on dashboards, risk scores, and automated alerts to guide public health interventions. These systems promise efficiency, scalability, and preventive capacity, particularly in managing large populations.

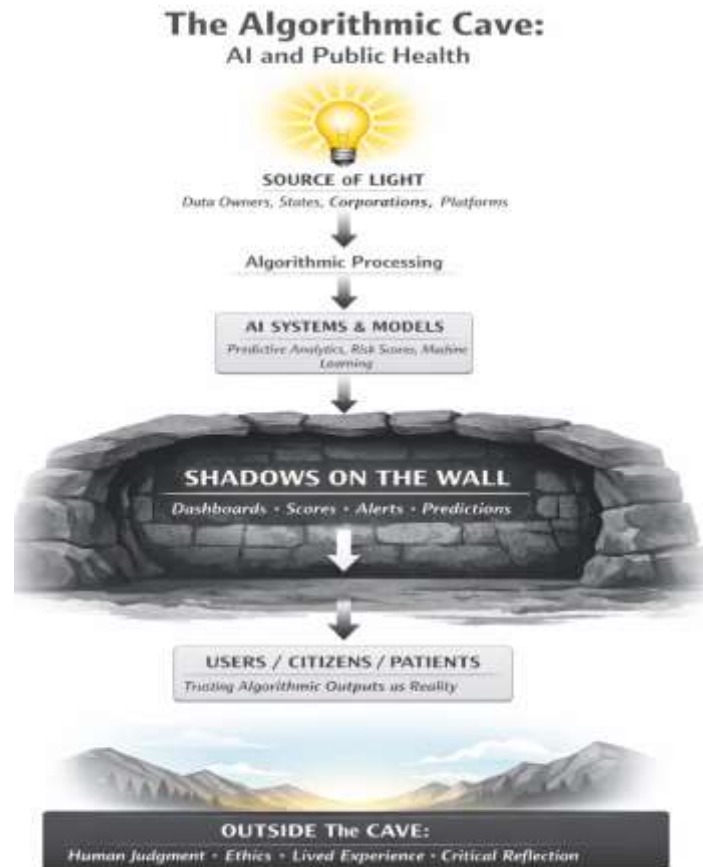
However, this transformation indicates the renunciation of **the old epistemic authority** and a new one taking over. Health knowledge is no longer derived primarily from clinical encounters or lived bodily experiences but from abstract data patterns processed by opaque computational systems. This raises the central philosophical question: *When AI is the mediator for health knowledge, what kind of truth is being produced, and who controls it?*

The overarching concern is not just technological but epistemological and ethical—about how knowledge is framed, legitimized, and accepted in the AI age.

### 2. Plato's Allegory of the Cave and the "Algorithmic Cave"

Plato's *Allegory of the Cave* offers a powerful philosophical framework to analyze AI-driven public health. In the allegory, prisoners confined to a cave see only shadows on the wall and

think these shadows are the only reality for them. They are not aware of the deeper truths that are beyond their limited perception. Plato considers knowledge as a critical ascent towards the light of reason.



**Figure 1. The Algorithmic Cave: A Platonic Model of AI-Driven Public Health**

*(Author's own conceptual illustration)*

**Figure 1: The Algorithmic Cave: A Platonic Model of AI-Driven Public Health** visualizes this analogy in the context of AI-driven public health. The **data owners, corporations, and state institutions** are depicted as the “source of light” in this model, feeding vast datasets into algorithmic systems. AI models process this data and project outputs—dashboards, risk scores, alerts, and predictions—which are depicted as “shadows on the wall.” Citizens, patients, and even healthcare professionals may come to accept these outputs as authoritative representations of health reality.

While these algorithmic shadows can reveal patterns invisible to the human eye, they can also obscure lived realities. Complex human bodies, social contexts, and cultural meanings of health risk being reduced to mere numbers. When algorithmic outputs are accepted without critical

reflection, societies risk living in an “**algorithmic cave**”, mistaking machine-mediated representations for complete and objective truth.

### 3. Epistemic Control: Knowledge, Power, Technology, and Ethics

The question of who controls health in the AI age cannot be answered by technology alone. It requires an examination of the interaction between **knowledge production, institutional power, technological systems, and ethical governance**.



**Figure 2: Epistemic Control in AI-Driven Public Health**

*(Author’s own conceptual illustration)*

**Figure 2: Epistemic Control in AI-Driven Public Health** illustrates this relationship through a triangular framework. At one vertex lies **knowledge**—what is accepted as legitimate health truth. At second vertex lies **power**—state institutions, corporations, and policy-makers who decide how AI systems are deployed. The third vertex represents **technology**—algorithms, data infrastructures, and surveillance tools. **Ethics** is the stabilizing force that operates by mediating these elements through principles of privacy, justice, accountability, and agency.

In the absence of a strong ethical framework, technological efficiency along with institutional power takes over, leading to a situation where health knowledge is controlled and used for the governance or commercial interests rather than the well-being of humans. Algorithmic bias,

lack of explainability, and exclusion of marginalized populations are not just failures of the technology but rather are the expressions of the unequal power that is deeply rooted in the data systems.

#### 4. From Algorithmic Shadows to Enlightened Use

It is important to avoid framing AI in public health as inherently oppressive or liberating. Instead, AI is on a continuum line, working in varying ways.



**Figure 3: From Shadows to Enlightenment**

(Author's own conceptual illustration)

**Figure 3: From Shadows to Enlightenment** presents AI use in public health as a gradual progression. At one end lies *algorithmic shadows*, characterized by blind trust in opaque models and passive users. The middle stage, *assisted judgment*, integrates AI insights with human expertise, emphasizing explainability and contextual awareness. At the far end lies *enlightened use*, where AI is governed by ethical oversight, transparency, and public accountability.

This continuum reflects a **Platonic movement toward reflective knowledge**, where AI supports human reasoning rather than replacing it. In this way, enlightenment does not refer to the abandoning of AI but rather to its critical positioning within the moral and social frameworks.

## 5. Mapping Control in the AI Age



**Figure 4: Who Controls Health in the AI Age?**

*(Author's own conceptual illustration)*

Finally, the multidimensional nature of control is summarized in **Figure 4: Who Controls Health in the AI Age?** This mind map captures five interrelated domains: data ownership and consent, algorithmic opacity and bias, institutional governance, patient agency, and ethical trust. Together, these dimensions reveal that control over health is distributed but uneven—often concentrated in technological and institutional centers far removed from individual lived experience.

### Synthesis

Taken together, these four figures support the paper's central argument: AI-driven public health systems risk creating a new epistemic enclosure unless guided by philosophical reflection and ethical governance. Plato's allegory indicates that the true freedom does not consist in the refusal of the tools, but rather in the posing of questions about the tools, the critical examination of the sources of knowledge and the reassertion of the human role in the search for truth.

### CONCLUSION

The increasing reliance on artificial intelligence in public health has fundamentally reshaped how health knowledge is produced, interpreted, and governed. AI-based systems can predict, monitor, and provide preventive care at an unprecedented level of power, but at the same time, they bring in new kinds of epistemic control that can cut off health knowledge from human experience, judgment, and ethical considerations. Through the philosophical lens of Plato's *Allegory of the Cave*, this paper has argued that algorithmic representations of health may

function as contemporary “shadows,” which, if accepted uncritically, can obscure deeper social, cultural, and moral dimensions of well-being.

The analysis demonstrates that AI in public health is neither inherently liberating nor intrinsically oppressive. Instead, its impact depends on how knowledge, power, technology, and ethics are configured and governed. Without transparency, accountability, and critical engagement, AI risks creating an “algorithmic cave” where machine-generated outputs are mistaken for objective truth. The study, by reaffirming the Platonic ideal of reflective knowledge, insists that one should not solely rely on the algorithms, but rather, seek a more enlightening and human-oriented understanding of health in the AI era.

### **SUGGESTIONS**

1. Philosophical and ethical reflection should be integrated into public health policy discussions on AI adoption.
2. Interdisciplinary collaboration between philosophers, health professionals, technologists, and policymakers should be encouraged.
3. AI literacy programs should be developed for healthcare professionals and the public to promote critical engagement with algorithmic outputs.
4. Greater emphasis should be placed on explainable AI to ensure interpretability and trust.
5. Lived experience and contextual health knowledge should complement data-driven insights.

### **RECOMMENDATIONS**

1. Establish robust ethical governance frameworks to regulate AI use in public health, focusing on privacy, justice, and accountability.
2. Mandate regular audits of AI systems to identify and correct algorithmic bias and data exclusion.
3. Ensure human-in-the-loop decision-making models where AI assists rather than replaces clinical and public health judgment.
4. Promote transparency regarding data ownership, algorithmic design, and institutional control.
5. Encourage policy frameworks that prioritize human dignity and agency over technological efficiency alone.

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