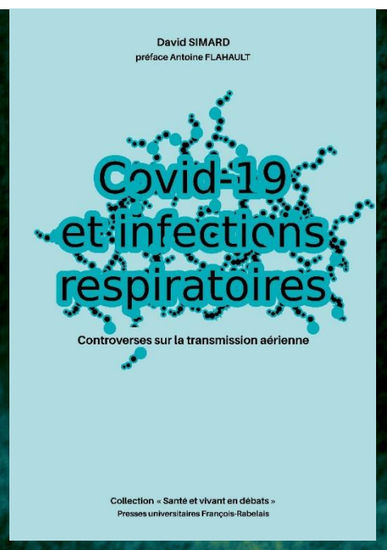
Rethinking Global Health Cooperation: lessons from COVID-19 on respiratory transmission and interdisciplinary knowledge integration

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Introduction - Objectives

The COVID-19 pandemic exposed a key global health challenge: rapidly translating scientific knowledge into coherent public health guidance under uncertainty. The controversy over respiratory transmission routes (contact, droplets, aerosols) revealed limitations in interdisciplinary cooperation and knowledge integration within international health institutions. My forthcoming book analyzes how disciplinary frameworks shaped early recommendations and how their evolution informs improved global health cooperation. It is grounded in a broader historical reflection on infectious disease transmission theories.

Methodology

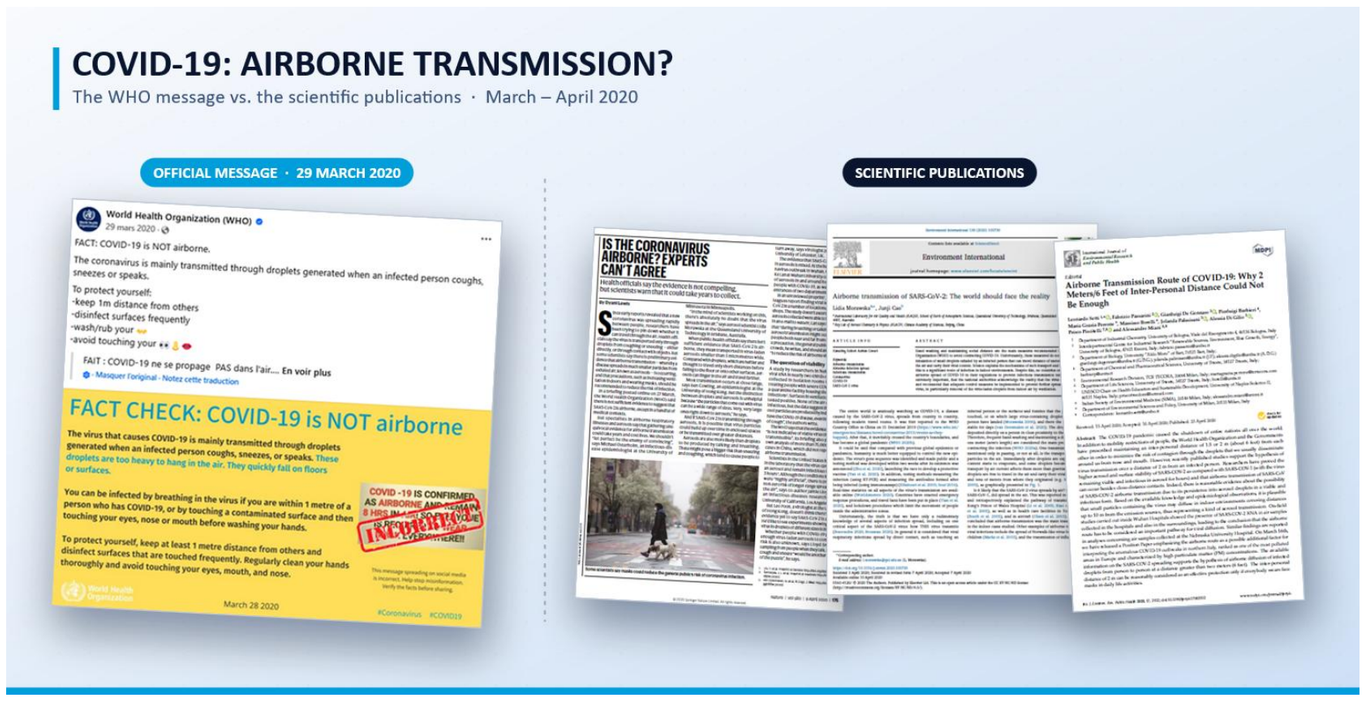
A historical epistemology approach was used to analyze the evolution of respiratory transmission models and their influence on public health decision-making. The study combines historical analysis of epidemiological frameworks with a review of twentieth-century aerosol science, particularly on tuberculosis and influenza. International guidance documents during the pandemic were examined to assess the integration of disciplinary knowledge into global health governance.

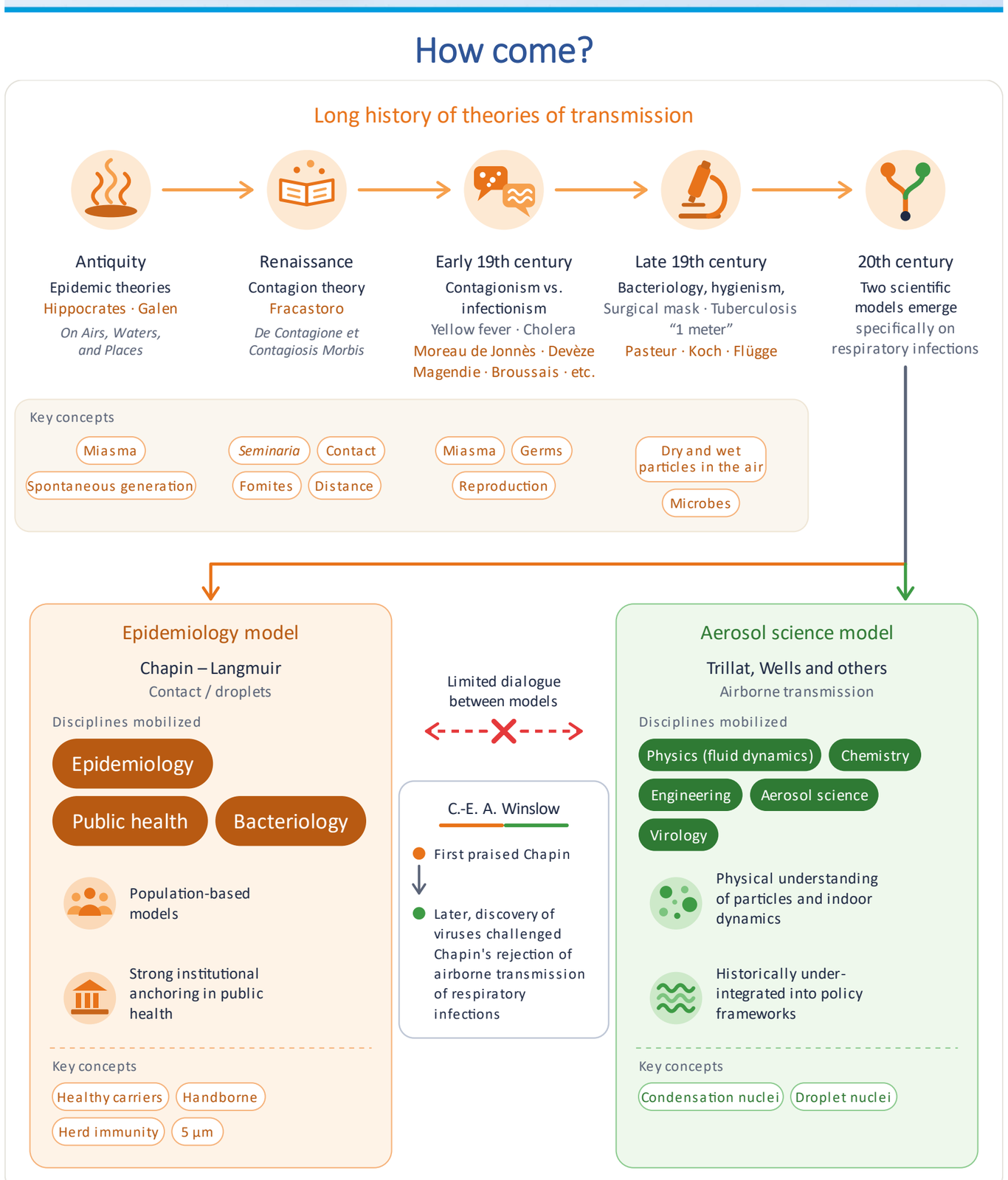
Results and Discussion

The results show that early recommendations were based on epidemiological paradigms centered on contact and droplet transmission, historically embedded in public health practice. In parallel, aerosol science knowledge remained insufficiently integrated into international decision-making frameworks. During the pandemic, increasing convergence between epidemiology, aerosol science, and environmental disciplines led to revised guidance, particularly on indoor transmission risks and ventilation. This process highlights an initial deficit in interdisciplinary cooperation, followed by accelerated institutional learning in a crisis context.

Conclusions

This study shows that the quality of global health policy depends as much on interdisciplinary integration as on data availability. The COVID-19 pandemic illustrates how insufficient interdisciplinary cooperation can delay adaptation of guidance, while better knowledge integration improves system responsiveness. **Strengthening interdisciplinary synthesis mechanisms is a key lever for improving global health governance and pandemic preparedness**.





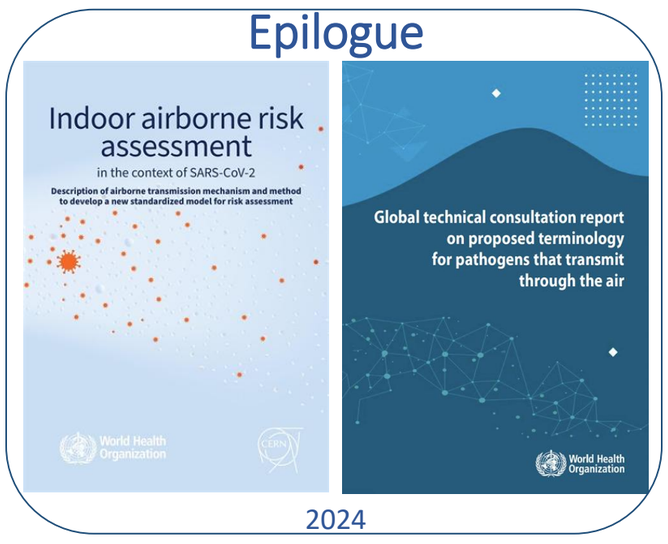
Effective global health governance requires integration of diverse scientific models beyond institutional coordination.

Interdisciplinary mechanisms must be strengthened before crises occur.

Knowledge integration improves the relevance, timeliness and legitimacy of public health guidance.

This approach is essential to better prepare and respond to future pandemics.

Epilogue



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This poster was presented at the conference of the Geneva Health Forum 2026

Geneva Health Forum