

HEIM: Health Equity Informative Metrics

Framework for Evaluating Alignment Between Genomic Research Output and Global Disease Burden

A Core Formulation

Equity Alignment Score (EAS)

$$\text{EAS} = f(\text{Gap}, \text{Burden}, \text{Capacity})$$

Gap Severity

Mismatch between research output and disease burden

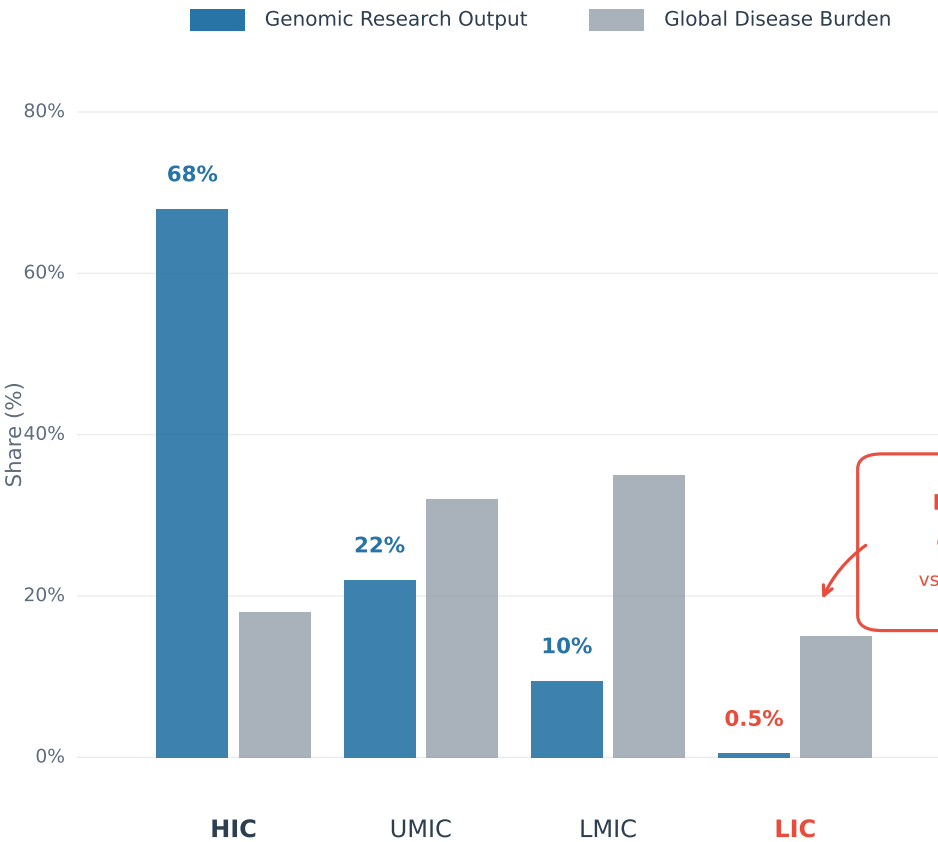
Burden Miss

High-burden diseases with little or no genomic research coverage

Capacity Penalty

Underutilization of research capacity in underrepresented settings

B Distribution of Genomic Clinical Studies by Income Group



LIC: 0.5%
of research
vs 15% burden

C Key Finding

322:1

HIC to LIC

Publication Ratio

High-income countries

produce 322× more
genomic studies

D Summary: WHO Genomic Clinical Studies (1990–2024)

6,513

Total Studies

70%

Top 10 Countries

68%

High-Income Countries

<0.5%

Low-Income Countries

Data source: World Health Organization (2025). Human genomics technologies in clinical studies – the research landscape: report on the 1990–2024 period.

Framework note: HEIM (Health Equity Informative Metrics) methodology — manuscript currently under revision.