

HEIM: Health Equity Informative Metrics

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

A Core Formulation

Equity Alignment Score (EAS)

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

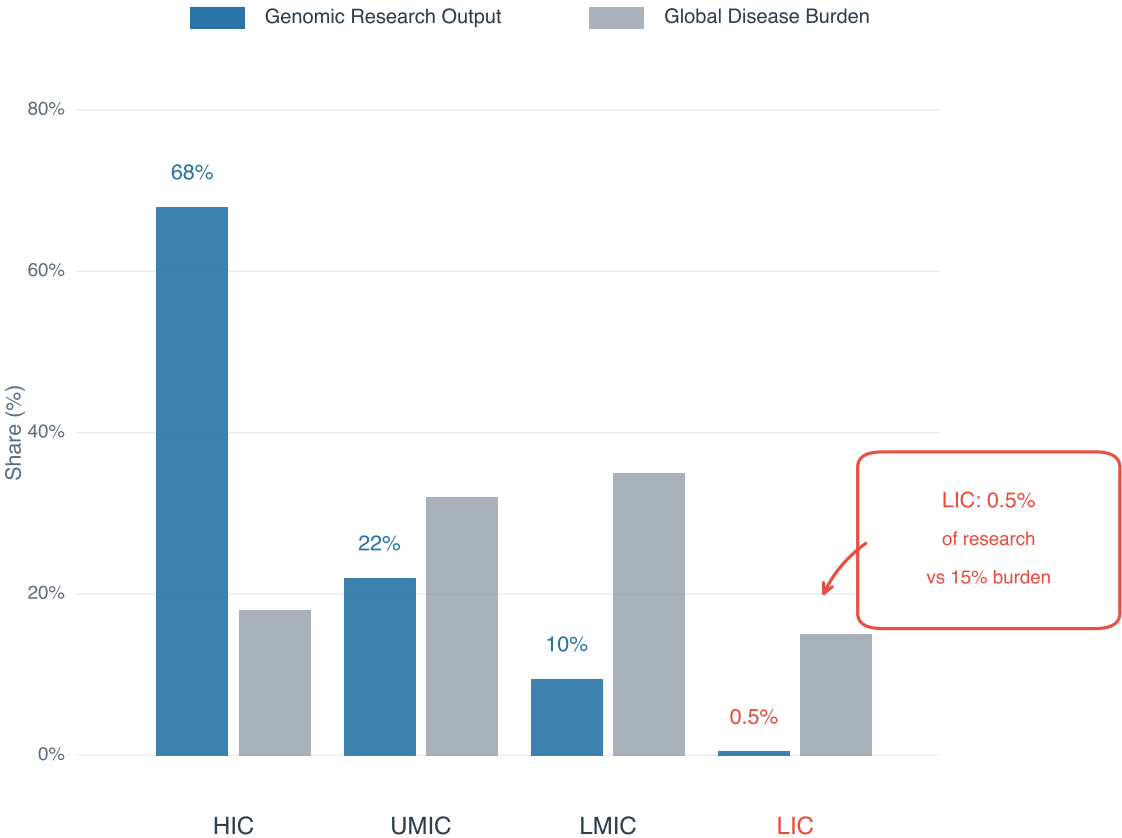
- Gap Severity

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



C Key Finding

322:1

HIC to LIC
Publication Ratio

High-income countries
produce 322x 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