Supplementary Information

**Supplementary Figure 1.** Shap feature value distributions and their impact on modeling Failure across countries Azerbaijan, Romania and Ukraine (the next set of populated countries after Moldova, Georgia and Belarus (Fig 3g). Each dot represents a single patient, and the colors range from blue (lower values) to red (higher values).
**Supplementary Figure 2.** External validation of CXR modeling on new patient data

**Supplementary tables (Supplementary_tables.xlsx).** Table S1. MTB families seen in the data. Table S2. Drug-interaction FIC scores computed by INDIGO-MTB for all drug combinations in treatment regimens. Table S3. Feature associations among top features across all modalities with FDR corrected p-values.