

# AlCare: An AI–Clinician Interaction System for Transparent and Actionable Clinical Decision Support

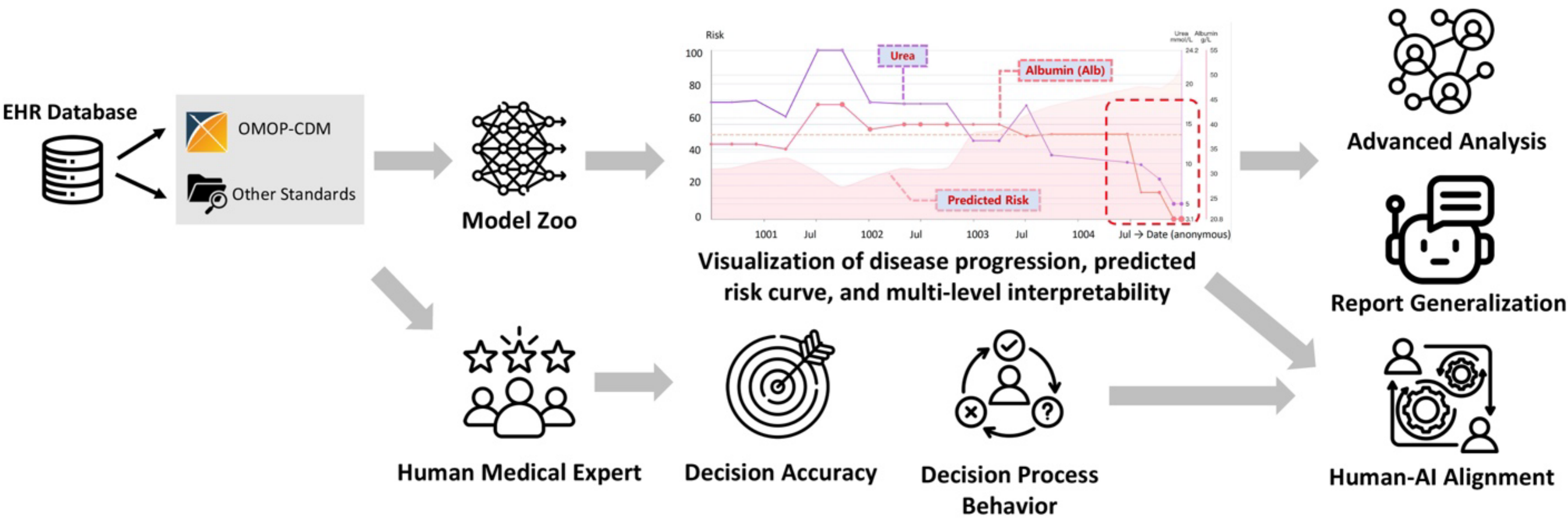
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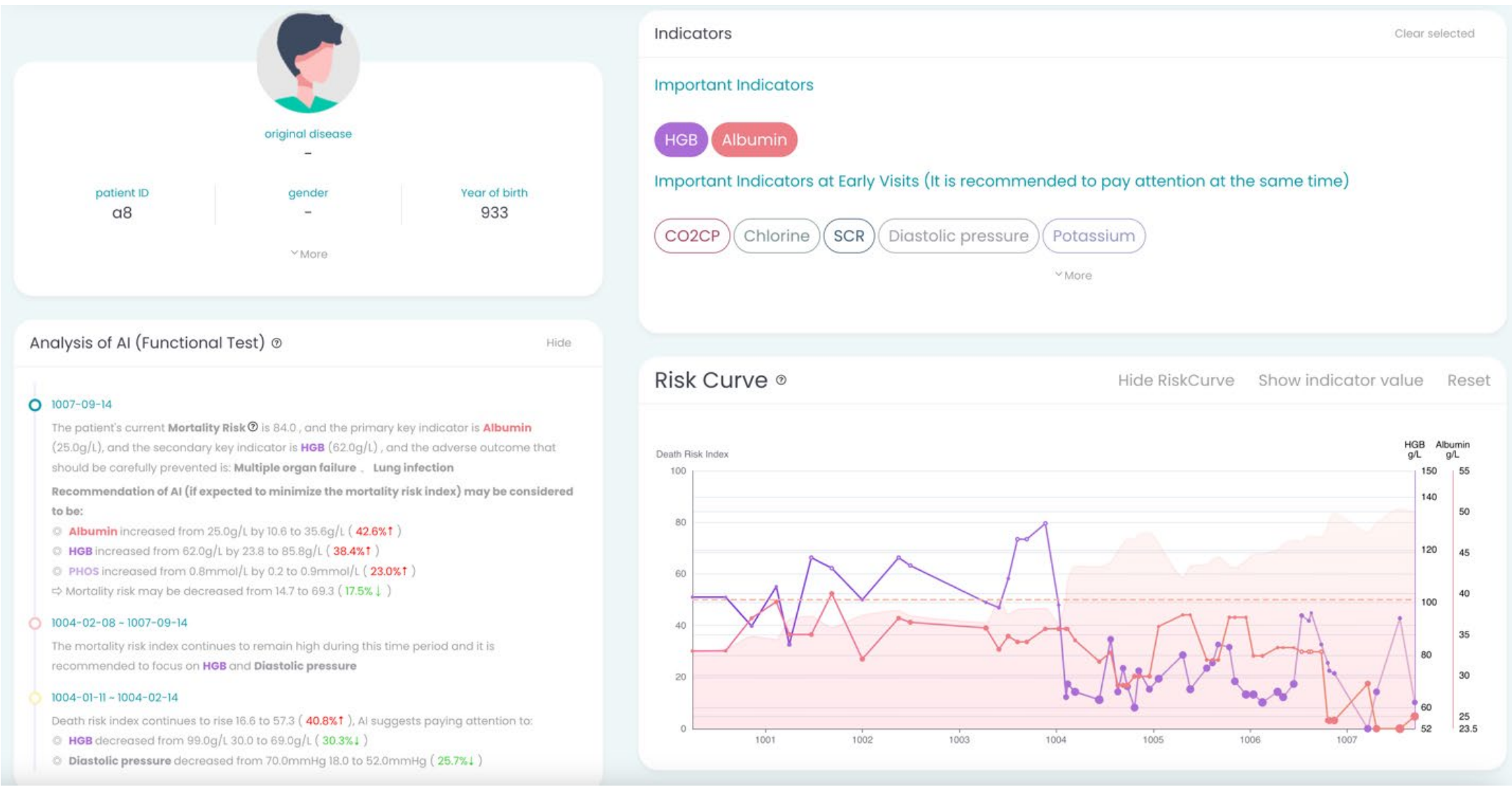
- Artificial Intelligence (AI) shows great promise for enhancing clinical decision-making, but challenges remain regarding interpretability and real-world deployment.
- **Our Solution: AlCare**
- We introduce AlCare, an AI–clinician interaction system designed to improve transparency, gather expert feedback, and boost the deployment potential of deep learning models in healthcare.
- AlCare utilizes emerging standards like OMOP for data structuring, enabling offline deployment in various healthcare settings.

## Motivation

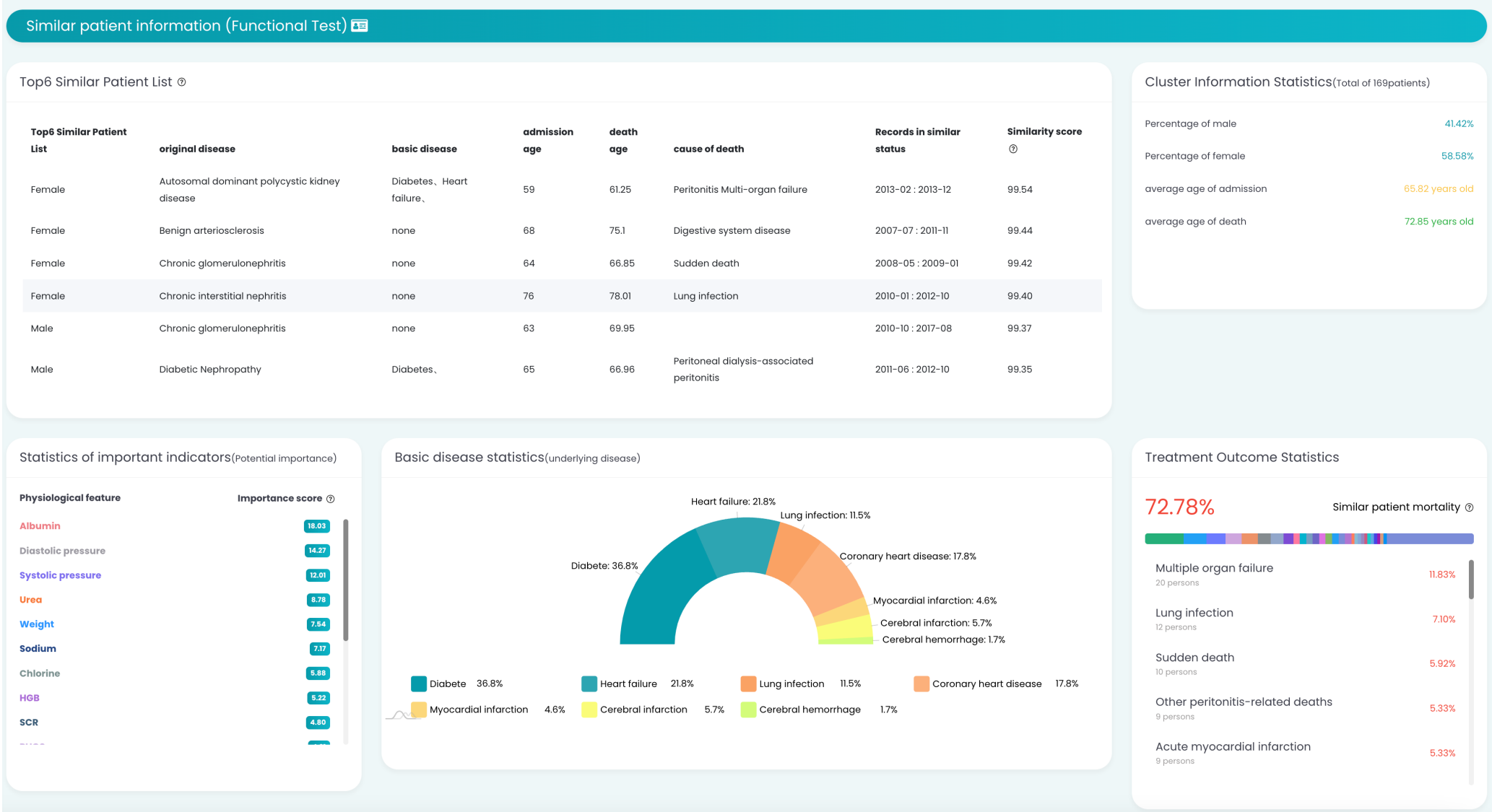


## Pipeline

### Structure and pipeline of AlCare



Clinicians can click on clinical features (right top) to show the progression curve. Predicted risk curve and feature importance (shown as different sizes of the dots in the right bottom figure) are visualized in the figure. Patient report is generated by the LLM (left bottom)



Advanced analysis results generated by AlCare. Similar patients, cohort-level disease statistics, outcome statistics and other results are reported.

## Examples

- AlCare includes a system where clinicians perform prediction tasks using the same EHR features as the model. By analyzing clinician interaction (order/duration of feature inspection), we gain insights into human diagnostic reasoning.
- Comparing human interpretability pathways with model rationales helps identify alignment or divergence, guiding model refinement through Reinforcement Learning from Human Feedback (RLHF).

## Human-AI Alignment



Our Patterns paper: The interpretable deep learning model behind AlCare



Example patient visualization A



Example patient visualization B