Low Predictability of AI for Readmissions and Death In Cirrhosis

2642 inpatients with cirrhosis → 472 died/hospice
2170 discharged alive → 28% 30-day readmission
47% 90-day readmission & 13% death

Design
Population: Inpatients with cirrhosis in NACSELD (14 North American sites) followed for 90-days post-discharge
Method: Predict 30/90-day readmission & death using 3 AI models -- Logistic regression, kernel SVM, Random forest

Artificial Intelligence
- Large datasets
- Multiple techniques to enhance prediction

Inpatients with Cirrhosis
Rovelling door of admissions and re-admissions
Difficult to predict and expensive
Unmet need

Individual's variables
AI models (by sex) → Readmitted in 30-days?
AI models (by sex) → Readmitted in 90-days?
AI models (by sex) → Alive in 90-days?

Max AUC (AI models): 1 0.61 2 0.69 3 0.73
Max AUC [MELD-Na only]: 1 0.58 2 0.58 3 0.69

Conclusions: AI methods do not improve prediction of 30- or 90-day readmissions or 90-day death over MELD-Na alone. All AUCs calculated are modest.

Hu et al. Am J Gastroenterol. 2020 [doi]
All icons above are from PowerPoint.