Patients admitted to Michigan Medicine’s Physical Medicine and Rehabilitation unit are medically stable; however, patients can sometimes deteriorate unexpectedly after transferring from rehabilitation, and must be moved back to the hospital. These transfers:

- take a psychological toll on the patient
- cost a lot of money
- increase the hospital’s readmission rate

If a patient is flagged early, medical staff within the unit can be assigned to the ailing patient to prevent an acute care transfer.

**UNMET NEED**

**SOLUTION**

**PICTURE** *(Predicting Intensive Care Transfers and other Unforeseen Events)* is a machine learning algorithm that uses electronic health record (EHR) data to passively and accurately predict ICU transfer or death as a proxy for patient deterioration.

**PICTURE-Rehab** is a specialized version of **PICTURE** that predicts deterioration specifically in rehabilitation patients.

In addition to **PICTURE-Rehab**’s powerful analytics and interactive interface, clinicians will receive alerts when a patient becomes at risk of deterioration. These alerts include the specific reasons the analytic predicted the onset of deterioration, allowing clinicians to prioritize care for their patients.

**COMPETITIVE ADVANTAGE**

**PICTURE-Rehab** is designed for seamless integration into any hospital rehabilitation unit.

By harnessing machine learning to more accurately predict patient deterioration, **PICTURE-Rehab** is the only analytic in the market designed to work specifically for patients in rehabilitation.

The ability to explain its predictions using **SHAP** (Shapley Additive exPlanations) provides a layer of invaluable transparency for clinicians.

**Project Team**

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