Predictive Analytics in Nursing Homes IU Center for Aging Research Dr. Kathleen Unroe, MD, MHA

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Disclosures

 CEO and Founder of Probari, Inc., a healthcare start up designed to disseminate clinical care models to reduce hospital transfers



Background

- >15,600 nursing homes in the United States
 - Rehabilitation (post-acute), long term care
- > 28,900 Assisted Living Facilities
 - Social care model
- Majority of nursing home residents have dementia
- On average, residents receive: 2 hours of nursing time and 2.64 hours of CNA time per





Background

- Funded by Medicare and Medicaid
- Increasing value based purchasing arrangements, managed care
- Highly regulated Federal and State





POTENTIAL OPPORTUNITY FOR AI APPROACHES

Predicting Avoidable Hospital Transfers

Transfer Background

- ~25% of nursing home residents are transferred to the hospital annually
- Up to 40% of transfers are considered "potentially avoidable"
- Hospitalizations are
 - Expensive
 - Disruptive to care
 - Hazardous to frail patients
- Nursing home patients are particularly vulnerable to the risks in transitions of care



Reducing Avoidable Hospitalizations

- Nursing homes have motivation to reduce avoidable hospitalizations
 - Readmission rates are tracked and reported publicly
 - Liable for both financial penalties and decreases in publicly reported quality scores if there are high rates of readmission to the hospital



Technological Solutions

- Invest in tools and services to improve quality and achieve lower transfer rates
- Invest in technology that improves patient outcomes and enhances efficiency
- Supporting clinical care and streamline processes may help aid staff retention



Potential Opportunities

- Predictive analytics tool to identify high risk residents for hospital transfers
- Target resources to higher risk residents
- Existing clinical programs and initiatives can inform model development and provide a framework for informed *implementation* within nursing homes



Datasets Available

• MDS (Minimum Data Set)

- Demographic information
- Clinical characteristics (comorbidity and cognitive assessments)
- Treatments and therapies received
- Facility EHR datasets
 - Day to day clinical information
 - Content and quality varies
 - Limited interoperability
- Medicare and Medicaid claims data
 - Billing data collected to monitor cost, usage, and quality, and to manage enrollment



Potential End Users

- Front line staff
 - CNAs
- Clinicians
 - ► RNs, NPs, MDs
- Nursing home operators
- Health systems
- Insurance plans
- Policymakers



Challenges and Potential Solutions

- Predictive models may be useful to address high priority issues in nursing homes such as reducing hospital transfers
- If developed with limited clinician input are unable to support staff decisions
- Quality of "data in" must be addressed
- Challenge of implementing into workflow should not be underestimated

