

# The Use of Artificial Intelligence for Daily Hospital Malnutrition Screening

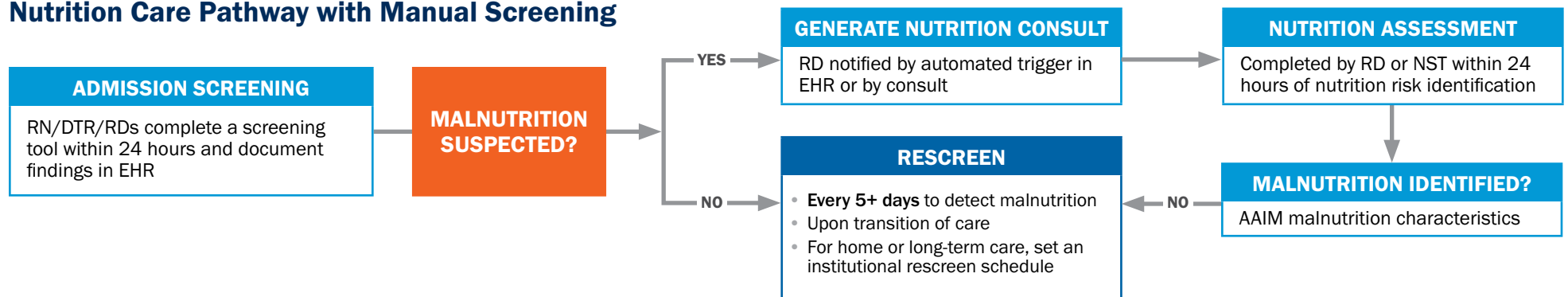
## Malnutrition Screening in Hospitals Can Be Optimized

Malnutrition affects about 30% of hospitalized adults, but is coded in only 8.9% of patients.<sup>1-3</sup> Undiagnosed and thus untreated malnutrition negatively impacts patient health outcomes and hospital quality metrics. Malnutrition-associated outcomes include longer lengths of stay, higher costs, higher readmission rates, and higher inpatient mortality.<sup>2</sup>

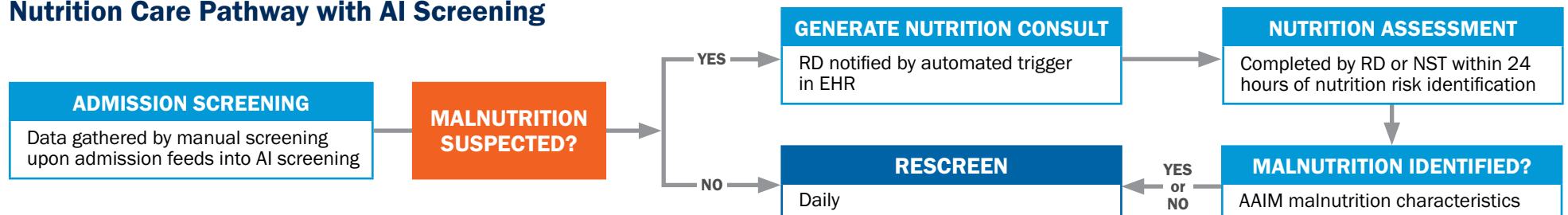
Hospital malnutrition remains under-detected despite its prevalence and impact on patient outcomes. Traditional manual screening methods face several challenges:

- **Time constraints:** RDs spend significant time on false negatives and patients who are lower priority
- **Inconsistent application:** Screening quality varies based on who is asking the questions and how patients interpret the questions
- **Delayed identification:** High-risk patients may be missed or identified too late for optimal intervention
- **Limited coverage:** Manual screening depends on patients answering questions, but many cannot, due to coma, intubation, cognitive impairment, or language barriers. Even for those who can, screening only happens at admission. Patients not flagged often go a week or more without rescreening, as staff shortages, transfers, and discharges interrupt the process. Conditions change in that window, and malnutrition develops unnoticed.

## Nutrition Care Pathway with Manual Screening



## Nutrition Care Pathway with AI Screening



*If patient is identified with malnutrition, move to intervention.*

## Artificial Intelligence (AI) Provides a Promising Solution

A recent systematic review found that utilizing AI for nutrition screening shows strong potential to improve the detection and management of malnutrition, offering greater screening accuracy and operational efficiency. Integrating AI into clinical workflows enhances patient outcomes and generates cost savings.<sup>5</sup> Using an AI-based hospital malnutrition screening model, several large hospitals have achieved higher malnutrition detection rates in adult inpatients and saw reductions in length of stay for patients with malnutrition.<sup>6-8</sup> Earlier malnutrition detection can improve nutrition care delivery and impact outcomes.

AI-powered malnutrition screening leverages the electronic health record (EHR) and may provide many benefits over manual screening. Here is a comparison table.

### Manual vs. AI Malnutrition Screening

Aspect	Manual Screening	AI Screening
<b>Coverage</b>	Many patients are not screened, highly variable depending on staffing and training	100% of admitted patients screened daily
<b>Frequency of screening</b>	Screening is typically only performed once on admission, or at 5+ days	Ability to screen every patient daily using the latest available data
<b>Timing of flags</b>	Risk often identified late, or missed entirely, if a patient deteriorates after admission	Flags rising risk as soon as new data appears, enabling earlier intervention
<b>Data sources</b>	Limited to basic admission data, nurse assessments, and manual chart review	Comprehensive EHR data: labs, medications, vitals, diagnoses, procedures, intake/output, etc.
<b>Data gathering process</b>	Manual chart review, staff interviews, patient assessments	Automated extraction from existing EHR data (including data gathered by manual screening)
<b>Accuracy</b>	Variable; depends on tool used and staff training	Higher accuracy than manual screening <sup>6</sup>
<b>Time required</b>	Significant RN, DTR, or RD time is required to screen patients	Minimal RD time required for screening
<b>Adaptability</b>	Static tool; cannot adapt to changing patient conditions	Continuously updates using the latest available and site-specific data, and scales to every patient independent of staffing



### Takeaways

AI screening can:

- Better detect malnutrition risk
- Allow for earlier nutrition intervention
- Improve patient outcomes and quality metrics
- Generate cost savings and revenue

### References

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