

# Applying an algorithm to predict patients at risk of end-of-stay delays to discharge

## Why it's important

When patients have **complex discharge needs** that are not identified early enough, they may experience **end-of-stay delays**. Patients who are 'ready to go home'<sup>1</sup>, yet remain in an acute bed due to a barrier to discharge, are at risk of harm.

This also reduces bed capacity and leads to an inability to consistently admit acute patients into the right bed at the right time.

It also places additional stress on staff and a burden on downstream services.

## Our challenge: identifying potential barriers to discharge earlier in a patient's stay

Discharge activities are often planned one step at a time.

The combination of high workloads for staff who don't want to waste time on work that may turn out to be redundant, along with the uncertainty of timing and outcomes of care, discharge planning often starts after the patient is medically stable.

This means if there are barriers to discharge, the patient then experiences end-of-stay delays.

<sup>1</sup> A patient is ready to go home when all of the following three conditions are met:

- a clinical decision has been made that the patient is ready for transfer home
- a multidisciplinary team (MDT) decision has been made that the patient is ready for transfer home
- the patient is considered to be safe \* to discharge/transfer home.

\*Safe to discharge means asking the question "if what the patient needs were available now, are they safe to go home?"



Discharge planning typically starts once a patient is close to being medically cleared for discharge

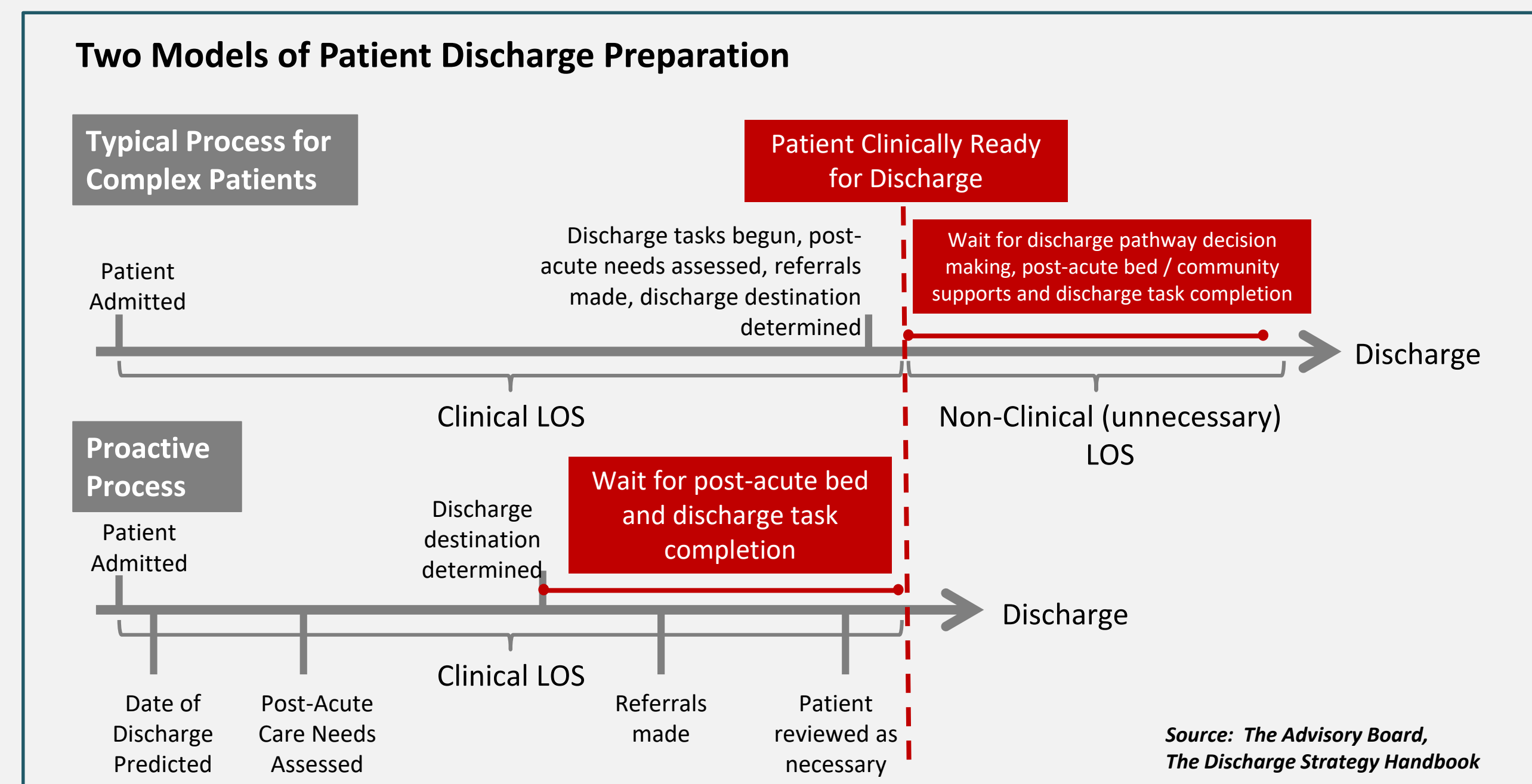
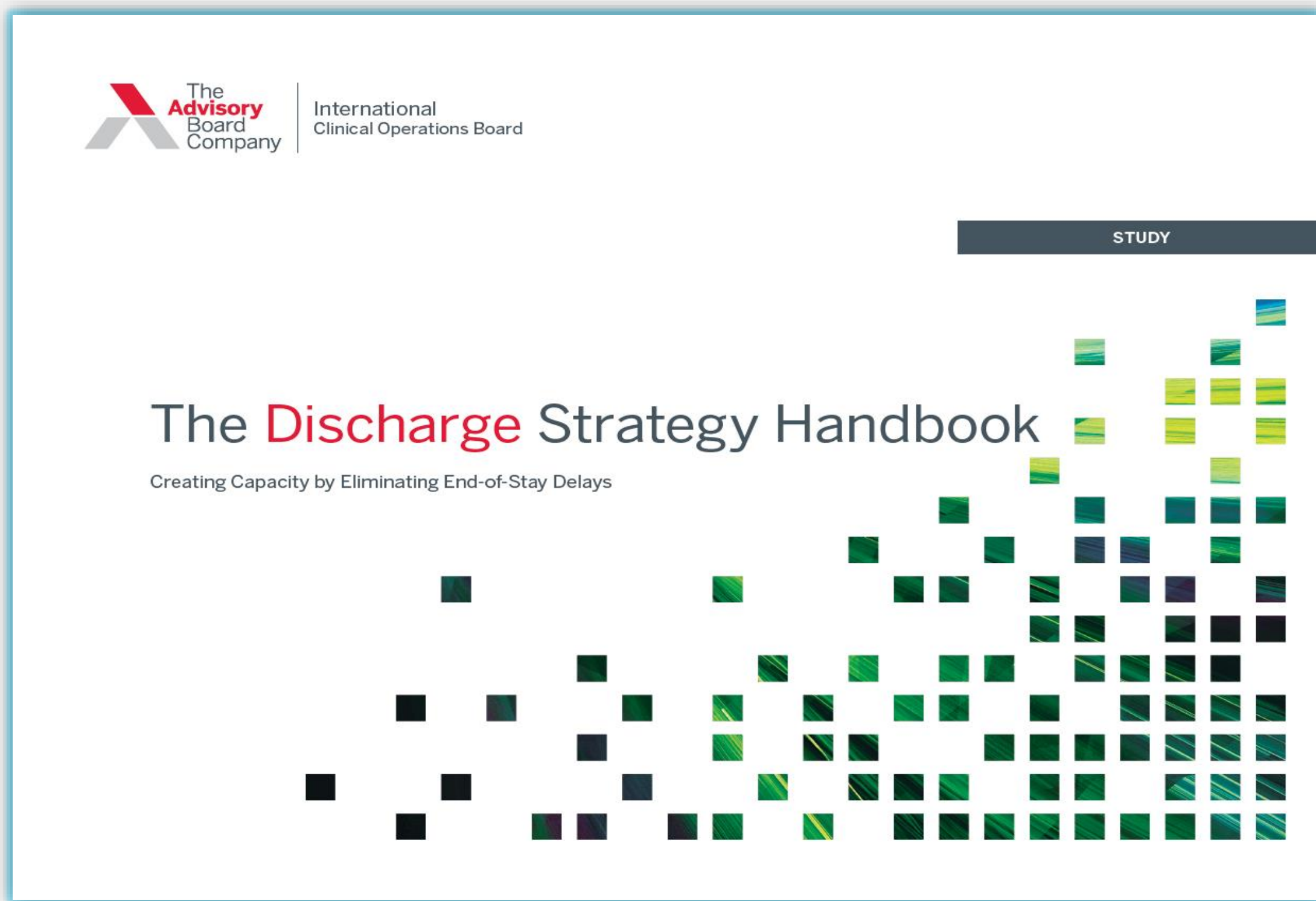
If a patient has barriers to discharge that aren't identified early they often remain in an acute bed while these barriers are addressed

## Taking guidance from the literature:

A literature search identified 'The Discharge Strategy Handbook' produced by The Advisory Board Company.

The strategy recommends taking a targeted discharge planning approach which identifies patients most at risk of end-of-stay delays so that valuable resource goes where it's needed, without over-complicating processes for all.

The handbook also included a well-researched early screening algorithm which we were eager to test to see if it was applicable for our community.

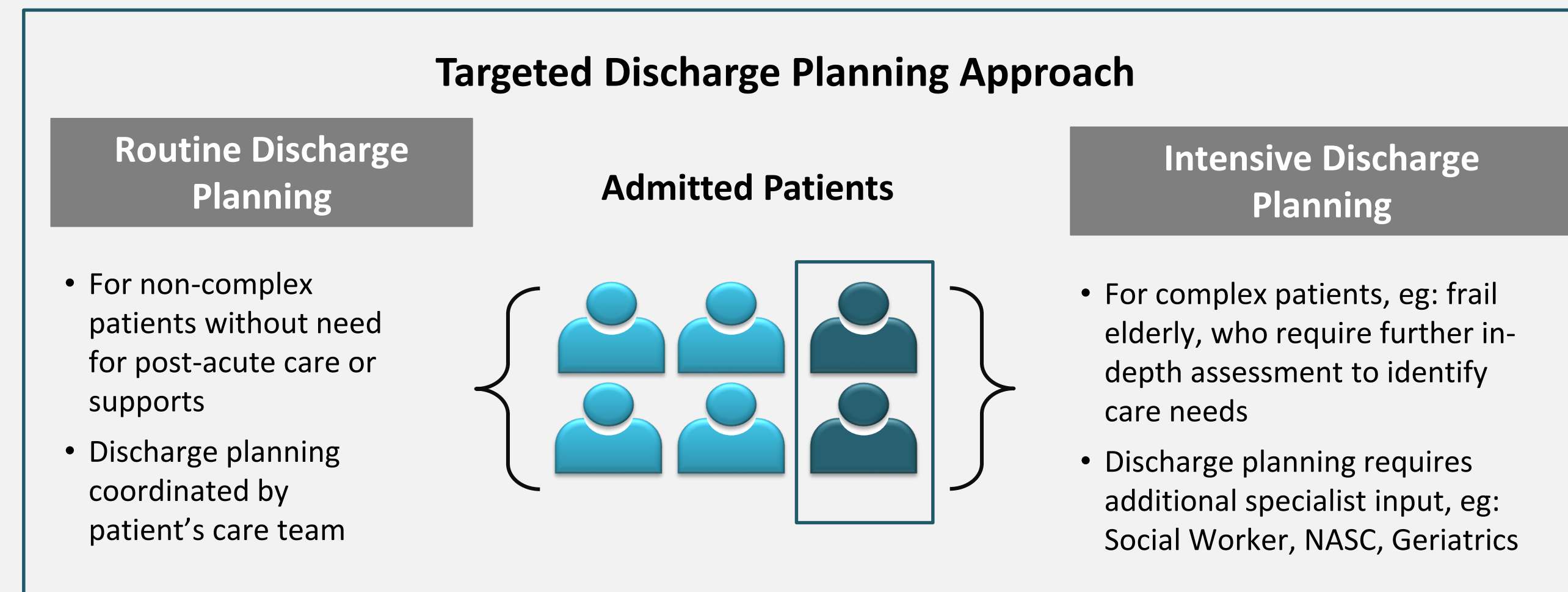


### Early Screen for Intensive Discharge Planning Algorithm

Variable	Algorithm Points
<b>Age (years)</b>	
18 - 44	0
45 - 64	4
65 - 79	6
80+ (65+ for Maori or Pacific)	8
<b>Disability (Modified Rankin Scale)</b>	
No significant disability	0
Slight disability	3
Moderate or greater disability	9
<b>Social status</b>	
With others	0
Lived alone	3
Lived in a facility	0
<b>Self-rated walking limitation</b>	
No	0
Yes	3
<b>TOTAL SCORE</b>	

A total score of ≤10 = low risk  
A total score of 11+ indicates high risk of end-of-stay delays to discharge and the need for early and more complex discharge planning

Algorithm researched, developed and tested by the Mayo Clinic



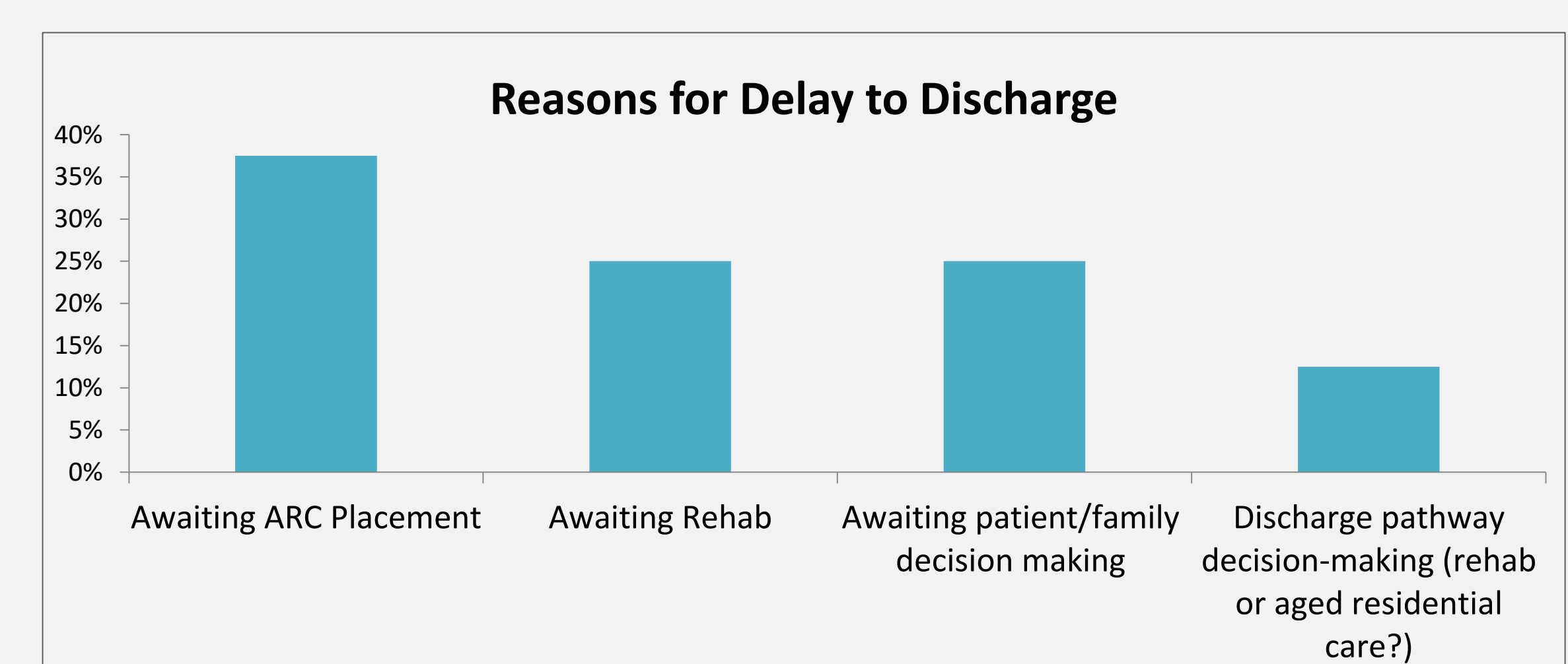
## What we learned from testing the Algorithm

Retrospective note reviews were completed on 39 patient records.

The algorithm would have **accurately predicted** whether or not a patient would need interdisciplinary input **and/or** other specialist input for discharge (NASC, Geriatrician review, Psych Liaison, etc) **beyond** the medical treatment of their condition.

The retrospective patient note review included a sample of 17 long-stay patients (≥20 days) recently discharged. 59% of these patients scored in the high risk range.

- 76% (13) of the long-stay patients experienced end-of-stay delays.
- These end-of-stay delays represented 109 bed-days.
- 90% of these bed-days were used by patients in the high risk category, and the reasons for delay were predominantly related to a question over, or change to, discharge destination.



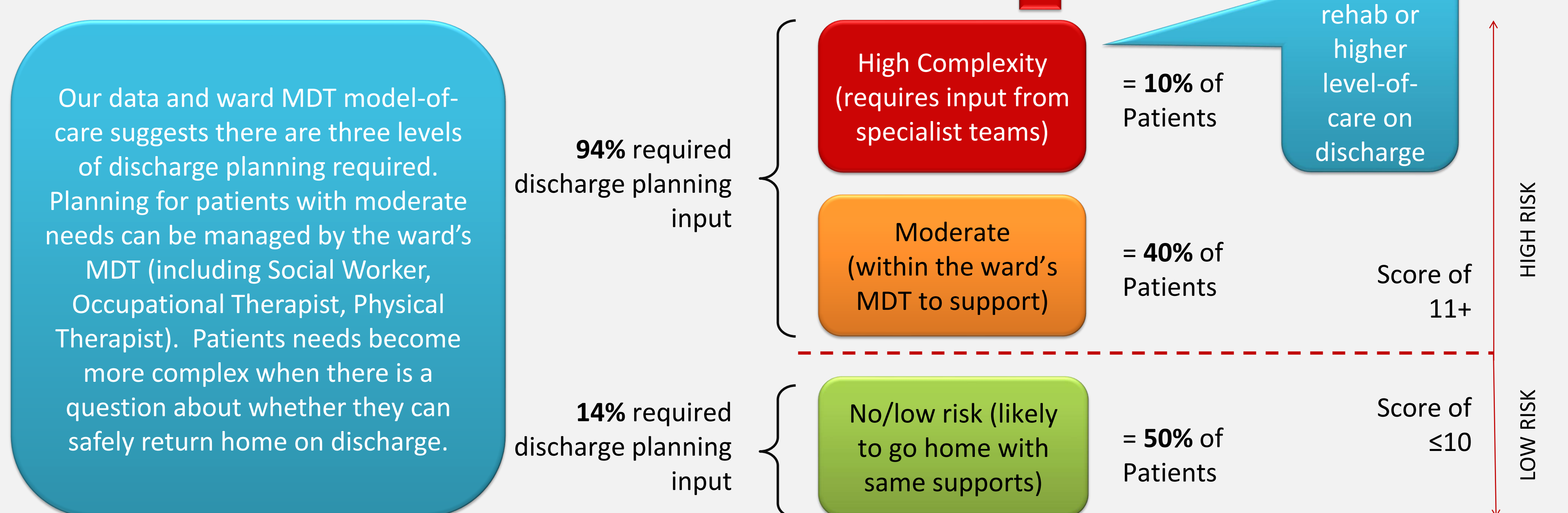
## Delayed transfer of care and end-of-stay delays

In addition to the retrospective reviews, over a three-week period, we followed patients discharged from one General Medicine ward.

- 136 patients were discharged within the data collection timeframe.
- 91% of patients were discharged on the day they were **clinically cleared for discharge**.

Of the **9% of the patients who had an end-of-stay delay** after being clinically cleared for discharge:

- Average end-of-stay delay was 3 days (range: 1-11 days).
- The majority of delays were due to:
  - Patient / family decision making
  - Waiting for rehab
  - Waiting for aged residential care placement



## Next steps

- Map the process of discharge planning for patients suspected of needing a higher level-of-care to safely discharge, identify issues and opportunities, brainstorm change ideas to test.
- Analysis of available data on patients who have experienced a delayed transfer of care due to change in level-of-care or discharge destination:
  - What are the commonalities?
  - Is there a further 'variable' we can add to the algorithm and test to potentially identify patients who may require complex discharge planning?
- Testing of the algorithm on a Medicine ward: What proportion of patients who score at 'High Risk' were already identified as requiring MDT input by the current screening process? Seek to understand 'if not, why not?'