

Sustainability Phase: Improving Delirium Management in Surgical Intensive Care Unit (SICU)

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Mission Statement

To increase the percentage of patients (aged 65 years old and above, SICU emergency admission) receiving **optimal delirium management**** from 17% to 80% over a sustained period.

**Optimal delirium management includes both timely detection and structured delirium intervention

Timely detection of delirium	Structured delirium intervention
+ delirium risk assessment within 24hrs of admission to SICU	+ correct siting of patient to receive multi-disciplinary delirium management care
+ accurate CAM-ICU use	+ delirium prevention OR delirium intervention
+ delirium documented as current issue in patient's notes	

Team Members

	Name	Designation	Department
Team Leaders	Nur Laila Binte Abdul Jalal	Senior Occupational Therapist	Occupational Therapy
	Dr Wee Jiayan	Consultant	AICPM
Team Members	Mar Xue Fen Feraldine	Nurse Clinician	Nursing
	Jovin Kew Yoke Shen	Nurse Clinician	Nursing
	Wang Xueli Jaslyn	Senior Staff Nurse	Nursing
	Amy Po Xing Yi	Staff Nurse	Nursing
	Wu Anping	Staff Nurse	Nursing
	Leong Jin Yi Frances	Senior Physiotherapist	Physiotherapy
	Narisha Binte Mohamed	Senior Occupational Therapist	Occupational Therapy
Sponsor/Member	Dr Lau Yie Hui (SICU Director)		
Mentors	Adj A/Prof Tan Hui Ling & Adj Asst Prof Caroline Ong Yu Ming		

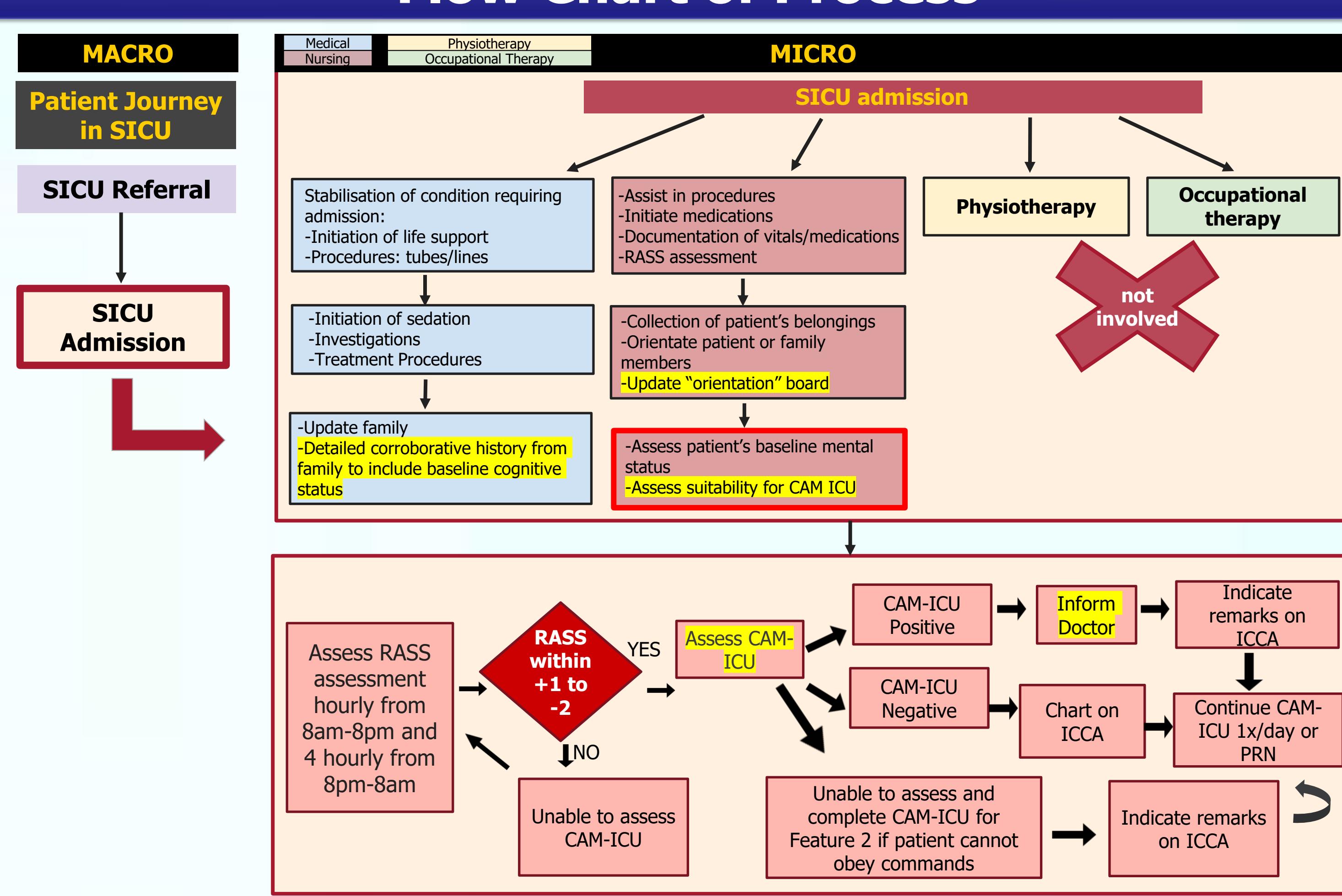
Evidence for a Problem Worth Solving

- Duration of delirium is an independent predictor of **long-term cognitive impairment** after critical illness¹
- Delirium in ICU results in **increased morbidity and mortality, motor, cognitive and functional decline, LOS in hospital & hospital costs**¹
- 66-84% of delirium in its hypoactive form remains **unrecognized**²
- Early diagnosis of delirium** improve the prognosis of patients²

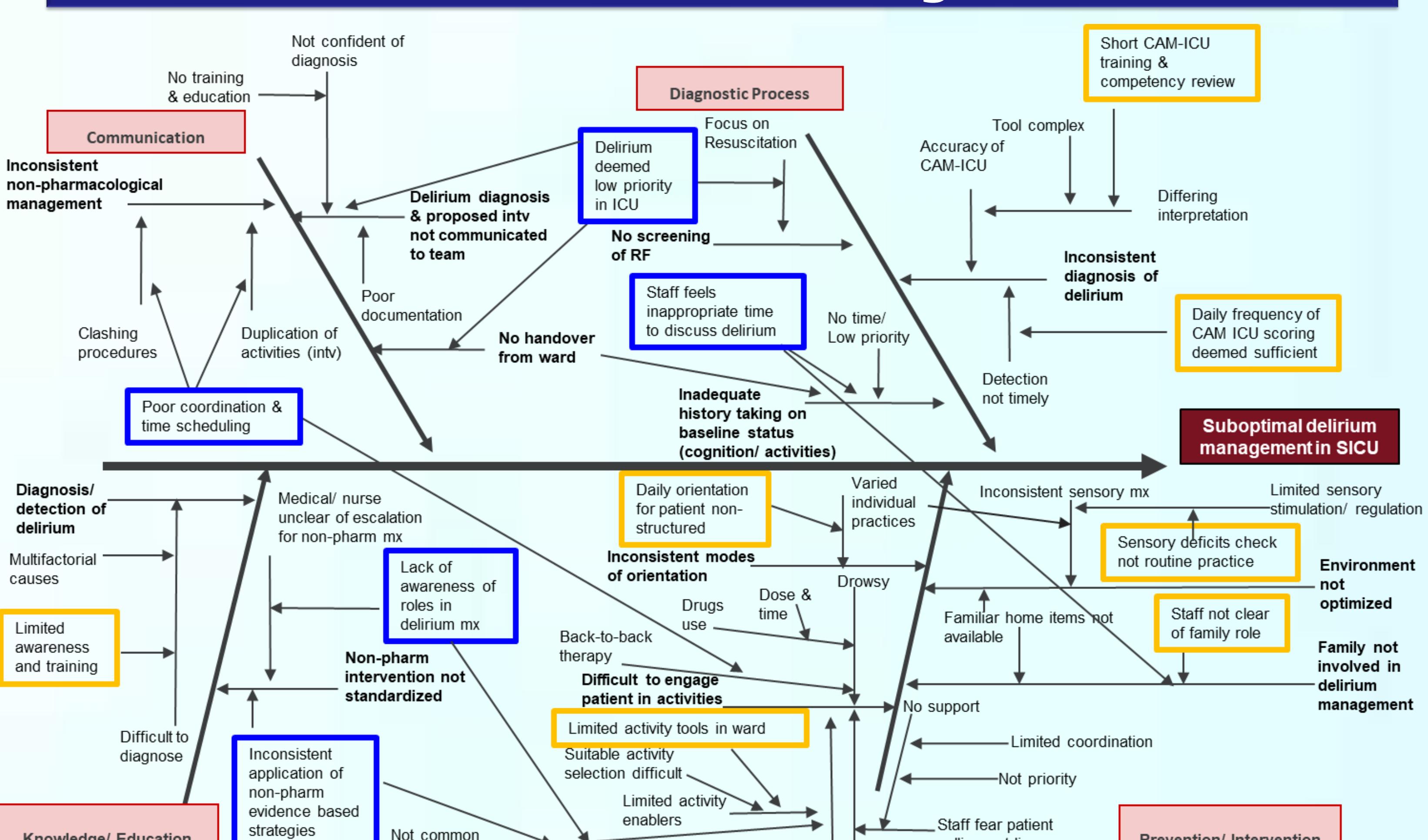
¹ Brummel & Girard, 2013; Rivosecchi et al., 2015; Girard et al., 2010

² Peterson et. al, 2006; Spronk, Ricker & Rommes, 2009; Cerejeira & Mukaeleva-Ladinska, 2011

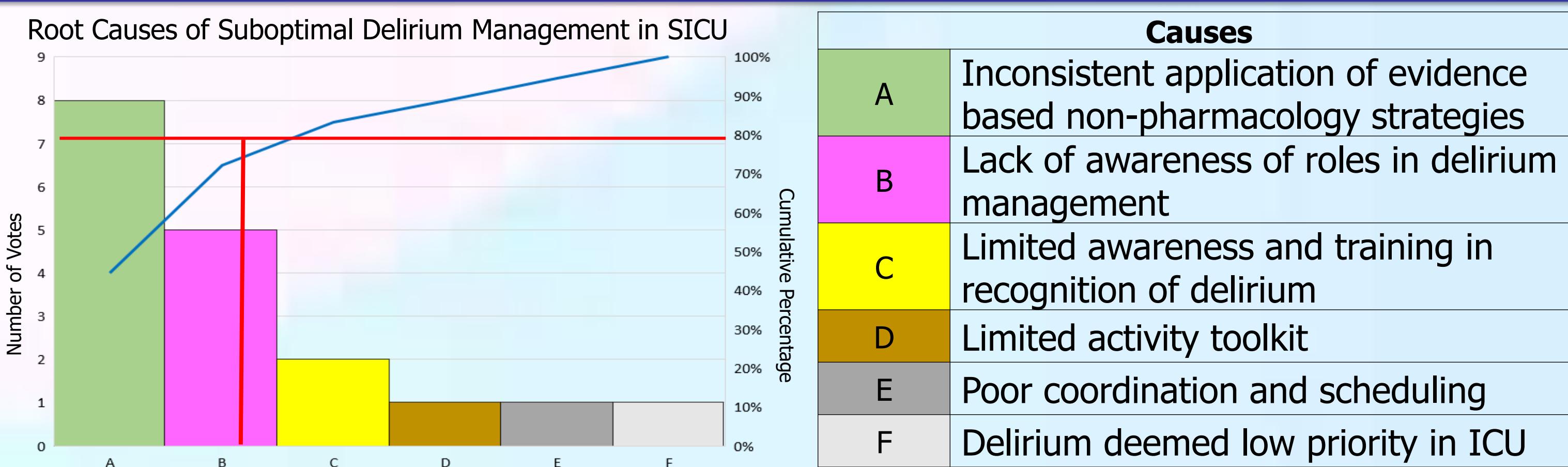
Flow Chart of Process



Cause and Effect Diagram



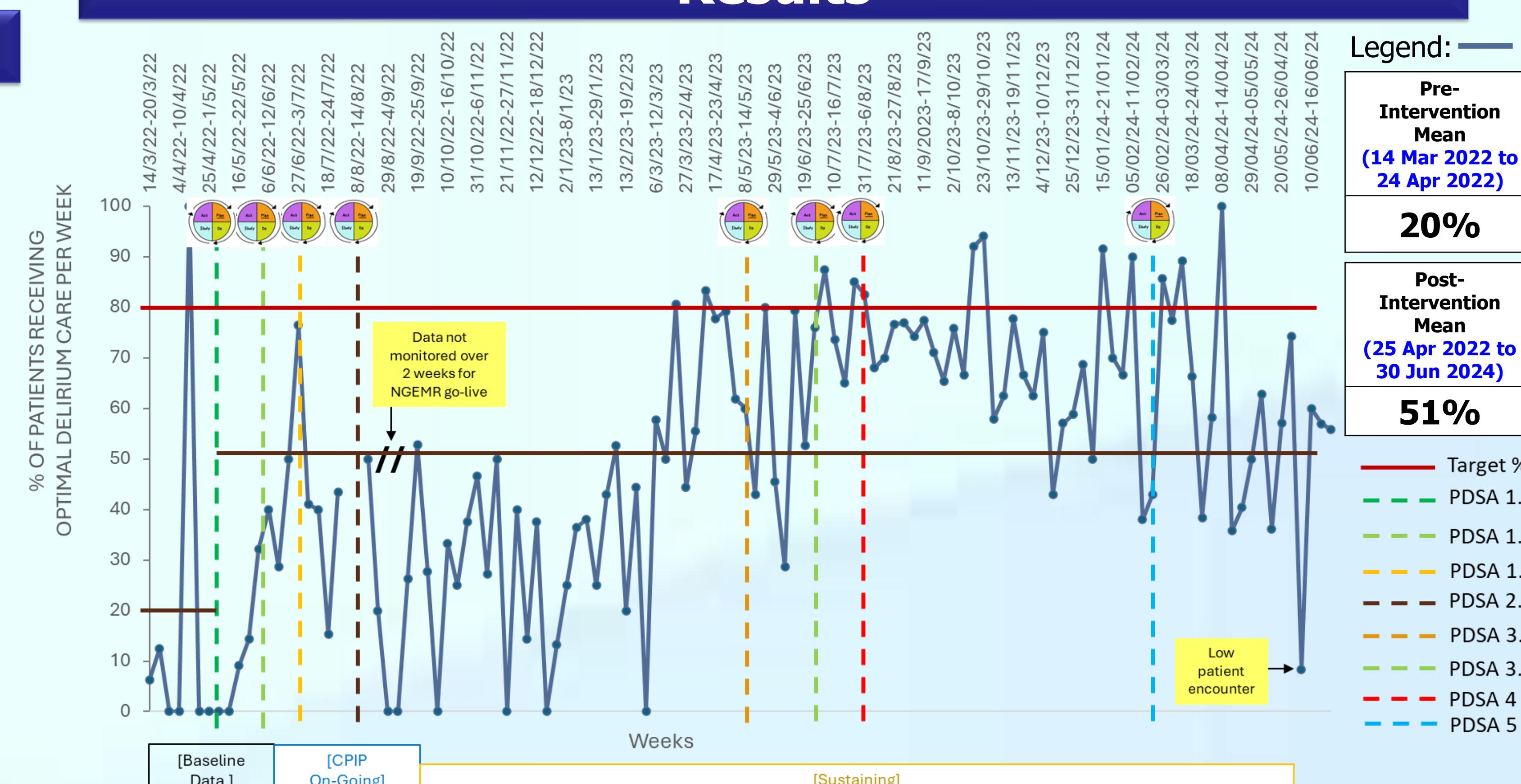
Pareto Chart



Implementation

Root Cause	Intervention	Implementation Date
Cause B: Lack of awareness of roles in delirium management	PDSA 1.1: Establish & increase awareness of subgroups role via education slides	2 – 16 May 2022
	PDSA 1.2: <ul style="list-style-type: none">Streamlined slidesVisual flowcharts printed and placed on computersRoll call & in-service for nursingBriefing to include SICU consultantsPTOT to remind coverage	16 – 29 May 2022
	PDSA 1.3: Achieve consistency & standardization of delirium documentation according to role of subgroups	30 May – 20 Jun 2022
Cause A: Inconsistent application of evidence based non-pharmacology strategies	PDSA 2.1: <ul style="list-style-type: none">Activity list to aid in activity prescriptionIncrease in rate of out of therapy engagement	21 Jun – 3 Jul 2022
Root Cause: Delayed feedback to ground staff on optimal delirium care progress	PDSA 3.1: <ul style="list-style-type: none">Revise monthly data collection template to daily data collection template → Trial of pilot the data collection, obtained feedback and revised templateRevise team members data collection rosterEnsure prompt feedback to ground staff done when non-compliance detected	8 May – 25 Jun 2023
	PDSA 3.2: <ul style="list-style-type: none">Brainstorm visual cue ideas to keep ground staff updated on optimal delirium care progressBrainstorm visual cue ideas to keep ground staff reminded of project initiatives and individual rolesExecute visual cue ideas	26 Jun – 30 Jul 2023
Cause A: Inconsistent application of evidence based non-pharmacology strategies	PDSA 4: <ul style="list-style-type: none">Delirium management strategies poster brainstorming to target staff and family educationPoster printed on each cubicle door	29 Jul – 28 Sep 2023
Root Cause: Delayed feedback to ground staff on optimal delirium care progress	PDSA 5: <ul style="list-style-type: none">PDSA 5: TEAM UP chat huddle 1x per week to highlight delirious patients and managementReview team's delirium management weekly	12 Feb – 26 April 2024

Results



Cost Savings

Cost saved from reducing duration of delirium by 1 day:

Reduction of median duration of delirium in SICU from 4 days (baseline) to 3 days (post-intervention) → **1 day reduction in delirium duration**

Cost of 1 day of delirium in ICU* = USD \$600 = SGD \$835

Potential average cost savings per year = 53 x \$835 = **\$44,255**

Cost saved from reducing length of stay in ICU by 1 day:

Reduction of average LOS of patients in SICU with delirium from 8.8 days (baseline) to 7.6 days (post-intervention) → **~1 day LOS reduction**

Cost of 1 day LOS in TTSH ICU: Range SGD \$158 to \$980

Potential average cost savings per year = 53 x \$158 to 53 x \$980

→ **\$8,374 to \$51,940** (between C to A class)

* The Cost of ICU Delirium and Coma in the Intensive Care Unit Patient; Med Care 2018, Edward E. Vasilevskis et al.

Problems Encountered

Mission statement and data collection went through many rounds of refinement before problem could be adequately addressed, with supporting data. Determining relevant data and suitable outcome measures to reflect problem accurately was challenging. During PDSA cycle, changes that were planned to be implemented may sometimes encounter obstacles and resistance to change. Human behaviour takes time to change, and needs to have buy-ins.

Strategies to Sustain

Through education to a wider target group, including newer staff rotated to the unit. PDSA cycles needs to be adjusted and targeted to solve problems encountered on ground so as to make the changes implementable. Regular audits and reminders are also helpful to help to sustain gains. Giving encouragement to what was done well also helped to acknowledge effort put in to sustain gains.