3. Improving patient flow: Optimising emergency department short stay units

A Timely Emergency Care Collaborative how-to guide for health services

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Institute for Healthcare Improvement

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Introduction

The Timely Emergency Care Collaborative (TECC) aimed to reduce delays for patients needing emergency care in Victoria through improving hospital-wide patient flow.

The project involved 14 teams from hospitals across Victoria, as well as a team from Ambulance Victoria. The Victorian Department of Health delivered the project in partnership with the Institute for Healthcare Improvement.

The project ran from December 2022 until the end of June 2024. Almost every team showed significant improvements in the timeliness of emergency care, as measured by emergency department lengths of stay.

The project set out with a change theory of how to improve hospital-wide patient flow. This change theory was developed by drawing on international evidence, local and international expert input and the ideas of the participating teams.

Through the results of testing and the insights from participating teams, the change ideas that were found to be most impactful (feasible to implement, demonstrated improvement) were identified as 'high-impact change ideas'. These ideas have been written up as a series of 'how-to guides'.

This guide is one of a series outlining each of these high-impact change ideas. All guides are available from Emergency care <https://www.health.vic.gov.au/patient-care/emergency-care> or by contacting TEC2@health.vic.gov.au. A summary of the overall change theory from the TECC can also be found on the Emergency care webpage <https://www.health.vic.gov.au/patient-care/emergency-care>.

The change theory and learnings from the TECC project continue to inform other departmental projects including the Timely Emergency Care (TEC) 2 Program.

Problem this change idea addresses

Emergency department short stay units (ED SSUs) are designed for the short-term treatment, observation and assessment of emergency patients. If used well, ED SSUs improve the flow of emergency patients by enabling:

- definitive care for low-complexity patients who are expected to be discharged within 24 hours
- investigation, monitoring and risk-stratification of high-risk presenting complaints
- planning for patients who need extra functional support before discharge.

These functions support whole-of-hospital flow by reducing demand for inpatient admission and freeing up ED capacity to assess and manage new ED arrivals.

An ED SSU typically operates 24/7, with senior decision-makers available for most of these hours. This enables a higher cadence of discharge than hospital wards, which supports flow by allowing admissions and discharges to continue into the evening and night.

By improving the flow of appropriate patients through the ED SSU, health services can improve the timeliness of care for both admitted and non-admitted patients:

- *admitted*: the demand for hospital ward beds is reduced, increasing the availability of hospital beds for patients who need a longer admission
- *non-admitted*: increased availability of cubicles for early assessment, as patients who need investigation and discharge planning are relocated to ED SSU.

Overview of the change ideas

Change ideas can be categorised into 3 key strategies:

1. Increase the volume of appropriate admissions to the SSU.
2. Align the staffing model to optimise patient flow.
3. Implement models of care for timely discharge.

Some change ideas need more effort to implement (for example, developing new clinical care pathways). Therefore, it is recommended that teams refine their current models and processes before moving on to higher-effort ideas.

Change concept 1: Increase the volume of appropriate admissions to the SSU

Refine the ED SSU selection criteria

Ensuring that an appropriate cohort of patients is admitted to the ED SSU is fundamental to improving emergency patient flow. A benchmark for determining if the ED SSU is operating optimally is having at least 90% of ED SSU admissions discharged within 24 hours.

Ensuring the consistent use of standardised criteria for admission should be prioritised ahead of any other change idea provided in this guide. Table 3.1 provides typical criteria for admission to an ED SSU.

Table 3.1: Typical admission and exclusion criteria for ED short stay units

Admission criteria	Exclusion criteria
Expected length of stay less than 24 hours	Severe cognitive or physical impairment who need extensive nursing support
Low-acuity, low-complexity condition or presenting complaint	High care needs such as severe pain or emotional distress
Stable condition with low risk of deterioration	Significant comorbidities
Referred for definitive care, risk stratification or discharge planning	Presenting with non-specific symptoms

An initial audit of recent ED SSU admissions (for example, the past week) should be conducted to understand the current admission profile. A suggested approach to this audit is:

1. Calculate the percentage of patients discharged within 24 hours to determine current performance compared to the benchmark of 90%.
2. Analyse and identify cohorts of patients who are consistently discharged in under 24 hours.
3. Analyse and identify cohorts of patients who are consistently discharged after more than 24 hours.

After completing the audit, review the findings alongside the current criteria to answer the following questions:

- Are patients being referred to and accepted for admission to the ED SSU in line with the current criteria?
- Are the criteria appropriate to support referral of patients who are likely to be able to be discharged within 24 hours?

Opportunities to improve the content and application of the admission and exclusion criteria should be identified and addressed. For guidance on progressing improvements in the appropriateness of referrals to ED SSU, refer to 'How to test these change ideas'.

Improve the timeliness of referrals to the ED SSU

Develop and embed an expectation for early ED SSU referral of all patients who fall within the admission criteria. The ED SSU referral process should be promoted by leadership and encouraged by senior clinicians. Key principles to support early referrals include the following:

1. Referrals are to be made as soon as possible following senior decision-maker review in the ED.
2. Investigation results are seldom required to justify an admission to the ED SSU.
3. Standardised clinical pathways should be used where available (refer to the next change idea).

It is important that referring clinicians and the ED SSU have clear agreements that support timely referrals and reduce debate about the appropriateness of referral decisions.

Develop and standardise clinical care pathways to the ED SSU

Clinical care pathways are suitable for low-risk, high-volume presentations who are likely to be discharged after a short period of treatment and investigation. Commonly deployed ED SSU pathways include:

- **chest pain** – to exclude life threats such as coronary syndromes, pulmonary embolism or aortic dissection
- **migraine** – in patients with an established pattern of recurrent migraine
- **bleeding in early pregnancy** – to undergo pathology and ultrasound to determine the viability of the pregnancy.

Standardised clinical care pathways can:

- improve the selection of appropriate ED SSU admissions and streamline the care of specific conditions and presenting complaints
- reduce the cognitive burden of creating management plans for every admission
- enable evidence-based care to be applied to more patients
- reduce unnecessary testing and treatments for common ED presentations
- improve the safety of care provided by junior medical staff, particularly when specialist supervision is unavailable.

A suggested approach to planning this change could involve the following:

1. Audit your current state to understand your ED SSU patient cohort – audit one week of ED SSU presentations and identify patient cohorts for which standard care can be applied.
2. Engage ED senior medical staff to draft standard care pathways for these patient cohorts using evidence-based investigation and treatment strategies.
3. Share the pathways with locally available specialist services to improve the pathway and foster clinical alignment.
4. Submit the pathways for review using your organisation's required clinical governance processes.
5. Incorporate the pathways into your ED SSU model of care and test for a period that provides enough data to offer confidence in that the pathway is working as intended (appropriate referrals and expected outcomes).
6. Implement the pathway and formalise expectations and processes for use when appropriate patients are admitted to the ED SSU.
7. Promote the pathways to all ED and ED SSU clinical staff to foster awareness and increase use for ED SSU admissions.

Change concept 2: Align the staffing model to optimise patient flow

Review and refine staffing models

An appropriately sized and skilled workforce is required to provide safe and efficient care in the ED SSU. Appendix 3.1 outlines staffing considerations for an ED SSU.

Have a dedicated ED SSU decision-maker

With adequate resourcing, the flow volume through ED SSU can be improved by deploying a dedicated senior decision-maker and a handover model of care. In this model, all ED SSU referrals are directed to the ED SSU consultant, who screens them for suitability and governs their ongoing care.

An approach to planning this change could involve the following steps:

1. Review your ED medical workforce to determine the feasibility of senior medical deployment to the ED SSU role. Smaller EDs and ED SSUs may consider an ED SSU consultant with shared responsibility between ED SSU and other areas such as fast track or low-acuity assessment cubicles.
2. Scope the responsibilities for the role for the dedicated decision-maker. This may include:
   - performing a ward round at the beginning and end of their shift
   - providing a detailed handover after their shift

- receiving and coordinating ED SSU referrals throughout their shift (this may be a delegated responsibility during some shifts, with appropriate supervision)
- communicating the details and plan for all referrals to the ED SSU nursing staff
- reviewing the outcome of treatments and investigations delivered in ED SSU to facilitate discharge as early as possible.

3. Provide a telephone for the ED SSU consultant to receive referrals and troubleshoot issues with ED SSU patients while on duty.
4. Promote your new ED SSU model of care with a communication plan, including education to all clinical and operational staff within the ED and SSU.

Change concept 3: Implement models of care for timely discharge

Discharge priority rounding

The ED SSU ward round can achieve earlier discharges by prioritising the review of expected discharges. Discharge priority rounding will create capacity before the morning surge and enable earlier discharges during high-activity afternoons and evenings. Inpatient wards also deploy this strategy, which is described in the 'Optimising ward rounding' chapter.

Discharge priority rounding changes the order of patient review to follow the SORT acronym (Royal College of Physicians, 2021):

1. **Sick**: Unwell patients with time-critical conditions.
2. **Out**: Patients expected to be discharged after clinical review. After seeing these patients, one junior doctor exits the ward round to complete the discharge paperwork.
3. **Rest**: All other patients admitted to the ED SSU.
4. **To come in**: All referrals waiting for ED SSU admission in the ED (if any).

This rounding technique can be applied to all rounds made by the clinical team and is typically scheduled for morning, afternoon and night shift handover.

Early morning discharges

Many ED SSU patients have a predictable course overnight and can be identified for early discharge at the night shift handover. This empowers junior doctors to discharge patients before the morning ward round, creating capacity before the morning surge of ED presentations. Suitable patients can be mobilised shortly at sunrise after remaining well or fulfilling clinical criteria (refer to 'Criteria-led discharge') overnight.

Steps to implementing this change idea include:

1. Introduce an evening huddle to identify patients expected to be ready for early morning discharge. Consider each patient's need for medical or allied health review discharge. Review and agree the criteria for discharge.
2. Present the list of expected discharges to the ED SSU senior medical, nursing and allied health team for consideration and improvement.
3. Hand over the list of agreed patients to the junior doctor to begin a discharge round before the early morning ward round, using the agreed criteria for discharge.

Criteria-led discharge

Low-risk, low-complexity patients are well suited to criteria-led discharge. Discharge criteria can be applied on an individual patient basis or incorporated into care pathways to standardise the requirements for discharge in certain groups. Criteria-led discharge empowers junior medical and nursing staff to action discharges without consulting senior medical staff, enabling discharge at the earliest possible opportunity.

An approach to planning this change could involve the following steps:

1. Identify suitable ED SSU patient cohorts for criteria-led discharge with ED medical leadership.
2. Meet with ED SSU senior medical staff to discuss the benefits of criteria-led discharge and provide examples of suitable low-risk patient types.
3. Develop standard criteria for agreed conditions and/or incorporate into ED SSU care pathways.
4. Define customised criteria for suitable patients by the admitting consultant at the time of referral.
5. Incorporate use of criteria into discharge huddles and ward rounds.

How to test these change ideas

The Plan-Do-Study-Act (PDSA) framework offers guidance for testing these change ideas. This framework uses rapid cycle tests to quickly learn and adapt change ideas. As confidence in the idea increases, cycles can be longer and tested under different conditions. The guidance below focuses on the first testing cycle. Plan extra test cycles ahead of time so the idea is continuously tested and adapted until it is ready for permanent implementation.

For more information about PDSAs refer to the Institute for Healthcare Improvement website <https://www.ihi.org/how-improve-model-improvement-testing-changes>.

Before testing

Ensure there is appropriate clinical leadership and engagement

The clinical director of emergency medicine should sponsor and support this change idea. A change from existing practice will need strong leadership to increase the chances of success. Ensure there is appropriate clinical engagement of the senior emergency medicine and/or SSU team before testing the change idea.

Co-develop ideas to be tested

A small team representing the key craft groups/roles that would be involved in testing any new criteria, model, pathway or process should be engaged to co-develop the change idea.

Once drafted, change ideas should be broadly socialised and adjusted if specific risks or issues are identified (testing will help refine the model further).

Identify any additional requirements for testing

Ensure systems (for example, electronic medical records [EMR], or other documentation) are in place to support changes. If a change to an EMR or other IT systems is needed, determine if an interim process can be implemented while undertaking initial testing. This will reduce unnecessary testing delays and avoid changes to IT systems based on an untested model.

Plan

Decide when to start the first test cycle and for how long

Avoid starting your testing on a Monday or after a public holiday. These are typically days of increased pressure on EDs and may impact staff awareness and readiness for the test after a break.

The duration of the test of change should be determined by:

- the level of staff support/readiness for the change
- the potential risk associated with the change
- the level of confidence that the change will lead to improvement.

A model can be tested for just a few hours if a short cycle would help address the concerns of staff and to allow for rapid adaptation. However, there should be a plan

to continue testing the model (with necessary adaptations through rapid PDSA cycles) for long enough to have data that would show whether the change is leading to improvement (increased use of the ED SSU) and not resulting in any unintended consequences. This may be a few days to a few weeks, depending on the patient volumes being seen through the new model. The model may also need to be tested under 'different conditions' (different shifts or days of the week, different clinicians or teams) to give confidence that it can be consistently delivered and will lead to improvement.

Plan for data collection

Establish a plan for collecting data before testing begins. Recommended measures to consider are outlined in the next section.

Define clear operational definitions for measures. Outline who will be responsible for collecting (or extracting) data and how often. Work out how the data will be analysed and by whom.

It is also important to plan how to get qualitative feedback about the test of change. Planning a short huddle at a convenient time of day when team members can be quickly assembled can be a simple and effective way to gain rapid insights and adjust the model to address any identified issues.

Prepare the team

Align staff rosters as needed to support the new model. Ensure all staff involved in the test get adequate training. Providing role cards and process flows that outline the key tasks and expectations can be useful as an easy reference during early tests.

Communicate to others

Ensure other staff who may interact with the team are aware of the test of change. This includes why the change is being tested and what they can expect.

Do

Start testing

Carry out the test of change as per the PDSA plan.

Collect data and feedback

Collect data during the testing cycle.

Capture feedback at huddles.

Study

At the end of the testing cycle, gather the team to review the data and feedback. Identify what is working well and opportunities for improvement. Develop ideas for any adjustments that could be made to improve the model.

Act

Decide whether to continue testing and if any adjustments are needed. Begin the next PDSA cycle accordingly.

Note that the intent should always be to continue testing unless:

- the change was determined to be inappropriate (unsafe, unsustainable or no confidence that it would lead to improvement), or
- the model has been tested long enough that it is ready to transition into permanence (implemented as the new standard way of working).

How to measure if the change is leading to improvement

The following measures could help you understand if there are improvements in ED SSU use. For more information on measurement for improvement, refer to the Institute for Healthcare Improvement website <https://www.ihi.org/how-improve-model-improvement-establishing-measures>.

Measure	Metric	Operational definition	Why use this measure
Outcome measure 1	Proportion of patients admitted to the ED SSU who are discharged within 24 hours	Percentage of patients admitted to the ED SSU who are discharged within 24 hours	Indicates if the appropriate cohort of patients is being referred to the ED SSU and their care is progressed in a timely manner.
Outcome measure 2	Mean length of stay in the ED SSU	Mean length of stay for all patients discharged from the ED SSU	Overall measure of the performance of the ED SSU that will detect improvements in length of stay across all cohorts of patients.
Outcome measure 3	ED SSU bed use	Patients admitted to the ED SSU per day / number of ED SSU beds	Indicates ED SSU use based on the available bed base.
Process measure 1	Percentage of appropriate referrals	Percentage of admissions that meet admission/ exclusion criteria	This measure will determine whether referrals are aligned with ED SSU criteria and if criteria are appropriate.
Process measure 2	Time from arrival at ED to referral to the ED SSU	As per metric	Indicates timeliness of referrals and if these are occurring early in the patient's care in the ED.
Process measure 3	Time from referral to ED SSU and arrival in the ED SSU	As per metric	Indicated the timeliness of transfer from the ED to the SSU, which may increase with logistic challenges or access block.
Process measure 4	Proportion of patients discharged from the ED SSU before 10:00 am	The percentage of patients discharged within 24-hours from the ED SSU that occurred between 12:00 am and 10:00 am	Improvement in this measure indicates effective identification and prioritisation of patients for discharge, creating capacity for new admissions from the ED.
Balance measure 1	Proportion of patients who are admitted to an inpatient ward bed from the ED SSU	The percentage of patients admitted to the ED SSU whose care is subsequently transferred to an inpatient unit	Reflects the appropriateness of ED SSU admissions.

Appendix 3.1: Suggested staffing in an emergency department short stay unit

Staff type	Function	Number per shift
Senior medical	Acts as the senior decision-maker, to receive referrals, develop management plans and clinically review patients as required before discharge. Higher resource departments should have a dedicated senior clinician (ideally with FACEM qualifications) whose authority may be delegated to senior registrars overnight. Lower resource departments should ensure maximal senior supervision is delegated and available to the ED SSU within the constraints of their staffing model.	One per morning and evening shift
Junior medical	Deliver clinical management plans, including prescribing treatment, ordering and following up investigations, and discharge coordination.	At least one medical officer for every 10–12 beds
Nursing	*ED SSU nurse in charge (NIC)* In larger departments, the ED SSU NIC should not carry a patient load because coordinating referrals, admissions and discharges is constant and will need their full attention. The NIC should be available to provide clinical support to their team but focus on access and flow. *Bedside nurses* Direct patient care and will often share the responsibility for patient transfer to the ED SSU with hospital transport orderlies.	NIC: One per shift, including night shift Bedside nurses: At least 1:4 nurse-to-patient ratio
Physiotherapy	Support the functional assessment of discharge planning and provide direct assessment and treatment for musculoskeletal injuries.	Shared responsibility with the ED
Pharmacy	Assist with medication reconciliation, prescription and dispensing of medications to facilitate treatment and discharge.	Shared responsibility with the ED
Social work	Discharge planning and connection with community support.	Shared responsibility with the ED

Case study: Royal Melbourne Hospital

Organisation	Royal Melbourne Hospital
Service type	Tertiary metropolitan health service
Problem	Limited availability of ED SSU beds in the morning, reducing the flow of suitable patients from the ED.
Change idea	To create ED SSU capacity by facilitating early morning discharges.
Changes	• Identify potential morning discharges through discharge rounding at 2300 and 0600. • ED SSU night registrar flags at least one patient for transit lounge discharge before 8:00 am ('golden ticket discharge') and any patients to directly discharge home overnight or by first light. • ED SSU floor coordinators facilitate the discharges.
Measures	**Outcome measure (see Chart 1):** Number of discharges before 10:00 am from the ED SSU • Increased from 4.6 to 7.9/day **Process measure (see Chart 2):** Number of discharges from the ED SSU via the transit lounge • Significant daily increase, from 7 per month to 9 in the first week of testing
Key enablers	• Ideal timing: Aligned with transit lounge expansion and organisation-wide strategy to improve 10:00 am discharges. • Clinical leadership: ED clinical staff and a dedicated improvement medical officer led this change idea. • Improvement communications: Improvement results were regularly shared, engaging clinical staff to overcome barriers and build momentum. • Rapid feedback mechanism: QR codes enabled staff feedback to highlight benefits and raise issues without delay.

Contact: Vanessa Raines, vanessa.raines2@mh.org.au

Chart 1: Number of daily discharges from short stay (5am and 10am)

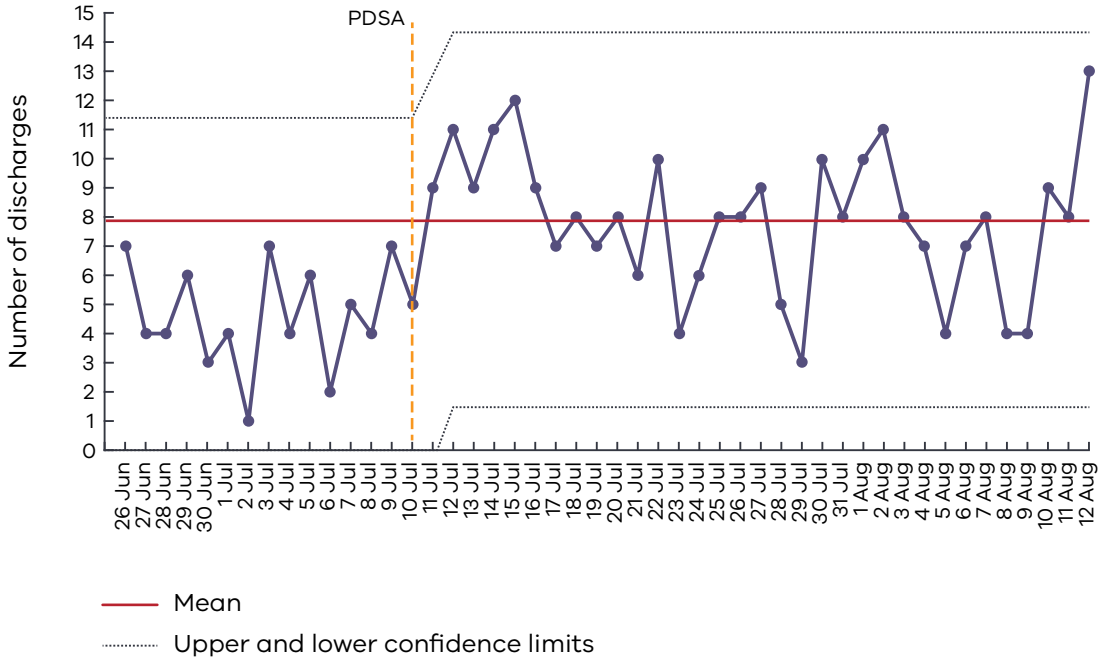
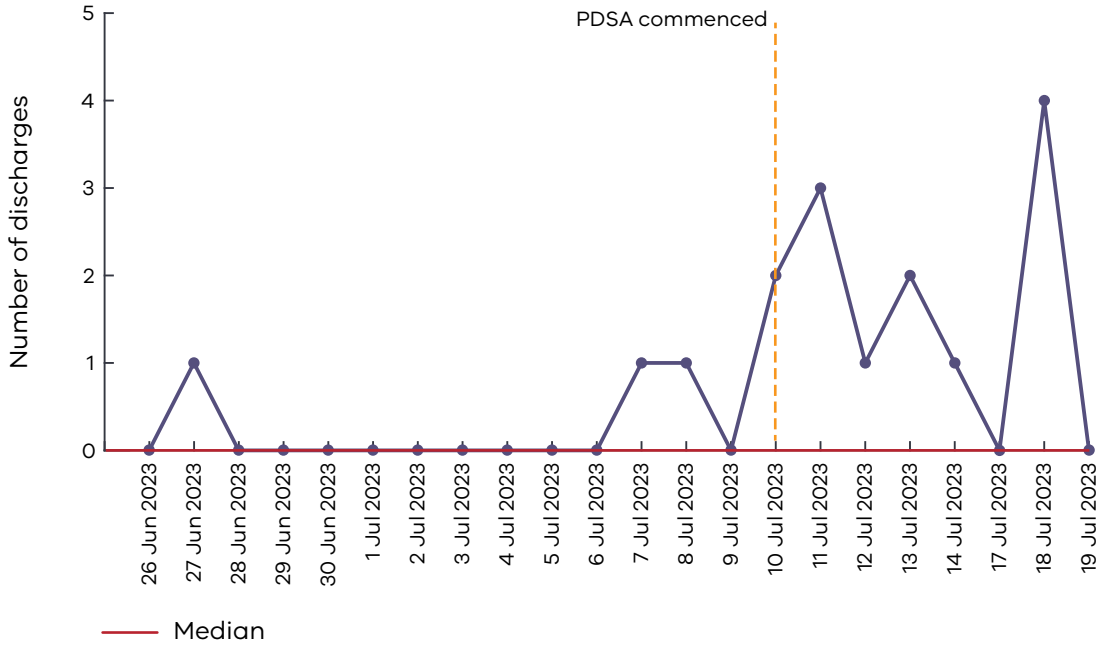


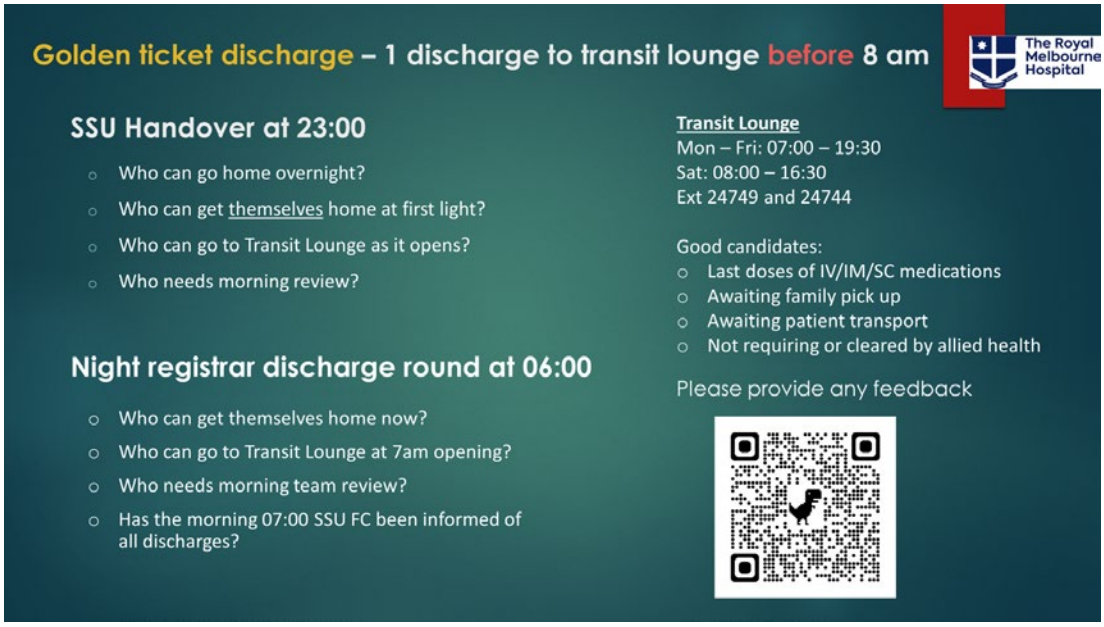
Chart 2: Daily discharges from short stay to Transit Lounge



Appendix 3.2: Golden ticket discharge process

Organisation: Royal Melbourne Hospital

- Poster outlining the criteria and key process points in the evening and morning to identify patients appropriate for discharge.
- Staff can able provide feedback via a QR code to support learning from testing this change idea.



Appendix 3.3: Golden ticket cheat sheet

Organisation: Royal Melbourne Hospital

A quick reference guide for to identify patients suitable for early discharge from the ED SSU.

Golden Ticket Discharges from SSU to transit lounge
Cheat Sheet of Suitable patients

Appropriate patient types – not exhaustive

Last dose of W/SC/IM medications

Awaiting relatives pick up but not suitable for WR

Awaiting patient transport

Not requiring or cleared from allied health care – please consider community services

Transfer back to high level nursing home on case-by-case basis at transit lounge's discretion

Av1aiting a clinic appointment later in the day but suitable for discharge

Exclusion criteria

Patient requires nursing observations <4 hourly or patient requires cardiac monitoring

Patient requires spinal precautions

Patient requires ongoing intravenous or subcutaneous opioid analgesia

Patient requires airborne precautions or has infectious diarrhoea.

Patients being discharged to prison, police custody or acute mental health facilities.

Patients admitted under a mental health bed card.

Patient requires allied health review prior to discharge (NB: no allied health funding for Transit Lounge)

Patients requiring iron or blood product transfusion.

Patient is confused, combative, high falls risk, wandering, absconding risk or calling out (NB: these patients can be considered on a case-by-case basis after discussion with Transit Lounge ANUM).

Acknowledgement

The Department of Health thanks The Royal Melbourne Hospital, who have contributed their improvement strategies and data to show the impact of ED SSU improvements in the Victorian context.

Case study: Austin Health

Organisation	Austin Health
Service type	Tertiary metropolitan health service
Problem	Suboptimal ED SSU admission volume.
Change idea	Direct admission to short stay (DASS) – to simplify and expedite the care for low-complexity patients who meet the criteria for ED SSU admission. Suitable patients who need very simple and brief management can be referred and admitted to the SSU by the treating emergency physician, who continues to manage their care while admitted. This will reduce the burden of handover and accelerate care for simple presentations.
Changes	Emergency physicians working in fast track will refer and continue care of their referrals to DASS, an 8-bed facility located adjacent to the ED. ED registrars assume this role after hours to enable 24/7 function. Junior medical support (HMO level) for day and evening shift. DASS admission criteria (refer to Appendix 3.4).
Measures	**Outcome measure (see Chart 3):** Number of ED SSU admissions per day • Increased from 37 to 60/day • Increased by 62% **Process measure (see Chart 4):** Number of fast track patients to DASS per day • Increased to 8/day
Key enablers	• **No referral required**: No referral to another doctor required • **Dedicated junior medical staff**: Actioning plans from fast track team • **Proximity to fast track area**: Easy transfer, without transfer/PSA staff • **Delegated flow management** • **Nursing**: ANUM on the main floor manages the DASS beds • **Medical**: Fast track or DASS consultant manages timely movement into fast track and the DASS unit

Chart 3: Average number of patients treated per day in SSU (weekly) – Individuals

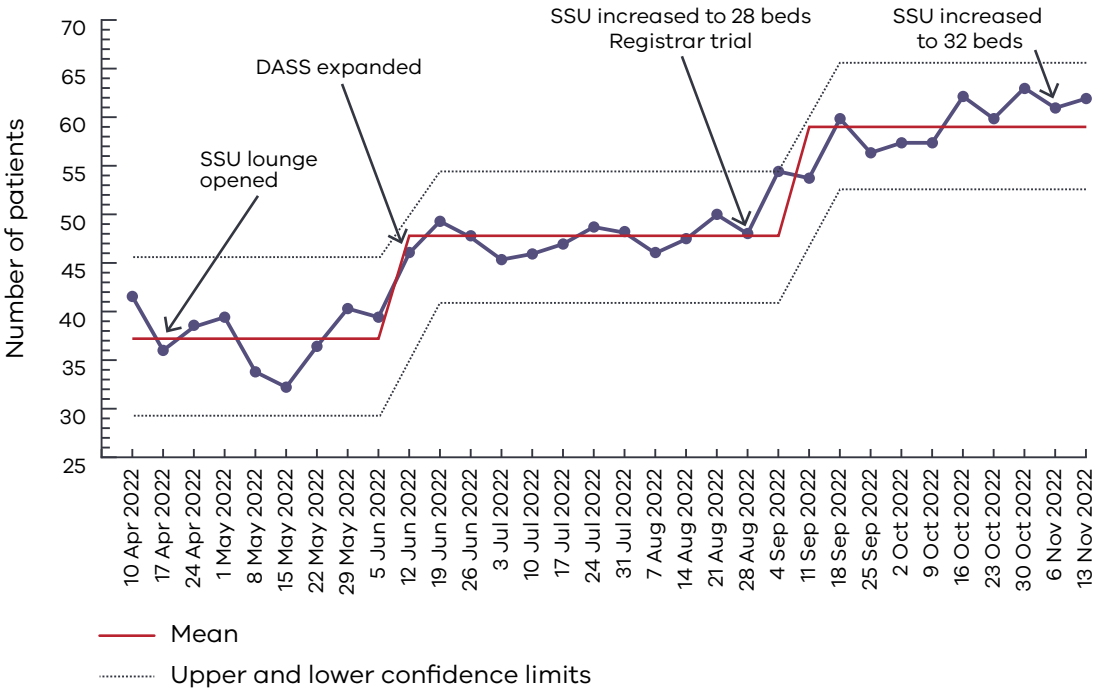
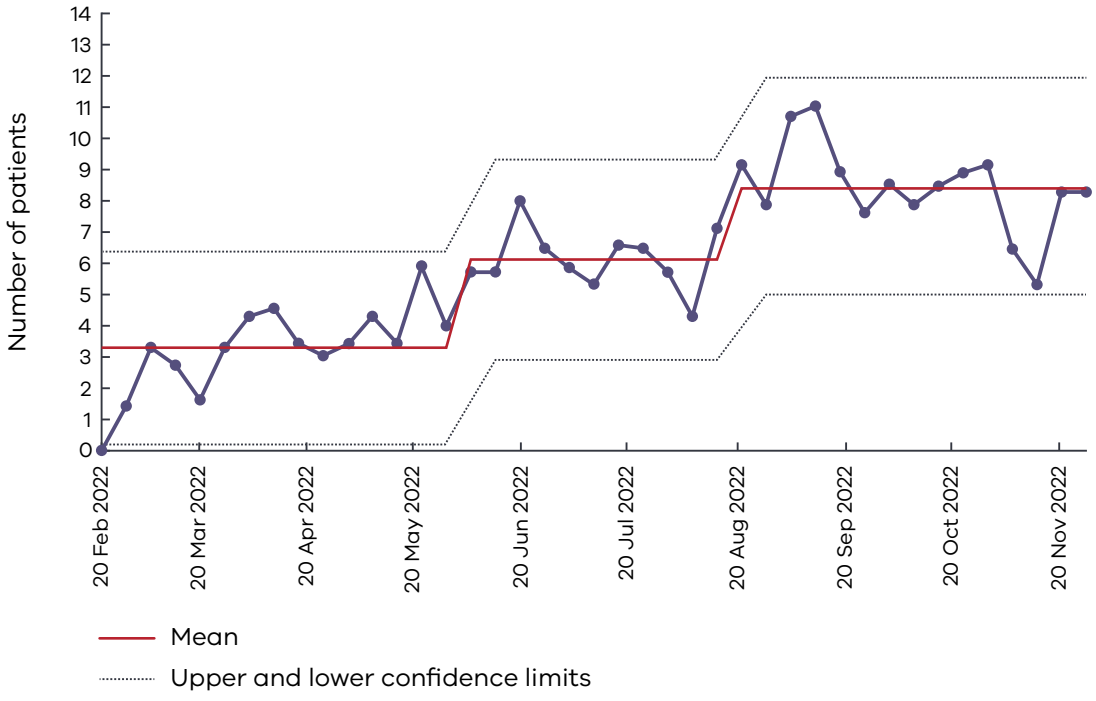


Chart 4: Number of fast track patients to DASS per day (weekly) – Individuals chart



Appendix 3.4: Criteria and process for direct admission to short stay

Organisation: Austin Health

Admission criteria

- Aged 16 years or older
- Qualify for an existing SSU pathway
- Length of stay likely to be less than 4 hours (or within treating physician's shift)
- Low clinical complexity
  - Clear single system diagnosis to be excluded or managed, or awaiting the answer to a clear clinical question or inpatient team (and discharge very likely)
  - Single provisional diagnosis with minimal or no diagnostic uncertainty
- Clear and documented management plan
- Patients must be clinically stable (unless altered MET criteria are clearly documented)
- No handover or acceptance of care by the SSU emergency physician required.

Direct admission to short stay process

1. ED doctor, nurse practitioner or advanced practice physiotherapist working in fast track identifies appropriate patient.
2. Clinician requests a DASS bed with Cerner EMR, contacts staff to transfer the patient and documents the assessment and management plan in the medical record.
3. Clinician documents the assessment and management plan in the medical record.
4. Patient is transferred to the next available bed in the DASS unit.
5. DASS junior medical staff coordinate and follow up on the outcome of the management plan, escalating directly with the fast track emergency physician or staff base 2 emergency physician if the FAST emergency physician is no longer on shift (12–8 pm shift).
6. Fast track or DASS emergency physician oversees delivery of the management plans and ensures all admissions are discharged, referred for ward admission, or handed over at the end of their clinical shift.
7. Patient is transferred to the next available DASS unit bed.
8. DASS junior medical staff coordinate and follow up on the outcome of the management plan, escalating directly with the admitting emergency physician as required.
9. Emergency physician oversees delivery of the management plan and ensures all admissions are discharged, referred for ward admission, or handed over at the end of their clinical shift.

Acknowledgement

The Department of Health thanks Austin Health, who have contributed their improvement strategies and data to show the impact of ED SSU improvements in the Victorian context.

Chapter references and further reading

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