

Department of Health

health

# Redesigning Hospital Care Program

Emergency department redesign  
measures for improvement guide

# Emergency department redesign measures for improvement guide

## How will this guide help you?

This guide is one of a series of documents that the Redesigning Hospital Care Program has developed to assist health services to select appropriate measures for their redesign work. This guide focuses on the emergency department (ED). It provides:

- detailed and high-level emergency department process maps
- a variety of recommended measures for emergency department process redesign.

This guide is not a stand-alone document or a 'how-to' manual. It provides a suite of measures that health services can choose from, depending on their specific needs and priorities. It is designed to be used in the context of a comprehensive redesign and change management framework and in conjunction with advice from the health service's redesign team. It is useful to use this guide in combination with 'Measurement for Improvement', which is the introductory guide in this series.

## Who will benefit from using this guide?

This guide is designed for use by multidisciplinary health service staff, who may or may not be new to process redesign, to improve the care and experience of patients in emergency departments.

## Why are measures important?

Measurement is an essential step for process redesign. It provides an external and objective template against which to assess the impact of process improvement. Measurement issues need to be thought about at the beginning of a process improvement program, not when the program is running or complete. Measures can be used through the life of a project to:

- identify and prioritise areas for projects
- develop a base line against to measure improvement against
- track the impact of redesign
- demonstrate results at the end of the project.

## How do I select measures?

No two emergency departments are the same and a well-structured diagnostic phase is necessary to ensure the focus of an improvement program is clear and that appropriate measures are selected. There are three viewpoints from which to assess the benefits of redesign work. The viewpoints are complementary, each contributes a perspective and ensures multiple goals are met:

- The patient viewpoint: have the safety, quality, acceptability and outcomes of care improved?
- The staff viewpoint: are care processes more acceptable to the staff? Is staff time being used more efficiently and effectively?
- The organisational viewpoint: does the improvement program align with institutional priorities, and has progress been made on those priorities?

## The important role of the emergency department

Emergency departments provide care both for large numbers of patients treated solely within them (60 per cent or more of the total attendances in many hospitals) and for those patients who require admission to the hospital.

The journey of the patient entering and exiting the emergency department must, therefore, be viewed both in the context of wider community services and for the remainder of the hospital. This document concentrates on the hospital elements in that journey. The specific inter-relationship between the services within a hospital that care for patients who require emergency care need to be well understood before improvement activities commence. The performance of those services will impact on the capacity of the emergency department to manage patient flow and meet performance targets.

## Measuring emergency department performance

Emergency department measures can be grouped into four categories:

### 1. Key performance measures (KPIs)

These are measures of overall performance and relate to the goal that you are trying to achieve or problem that you are trying to address. These include the five KPIs that are reportable to the Department of Health.

### 2. Demand and capacity measures

These measures set the scene by defining demand, capacity and activity, and assisting in writing a problem statement for a process redesign program of work.

### 3. Process measures

These measures capture, validate and track the impact of improvement initiatives on process performance, using times taken to perform process elements within the ED.

### 4. Check measures

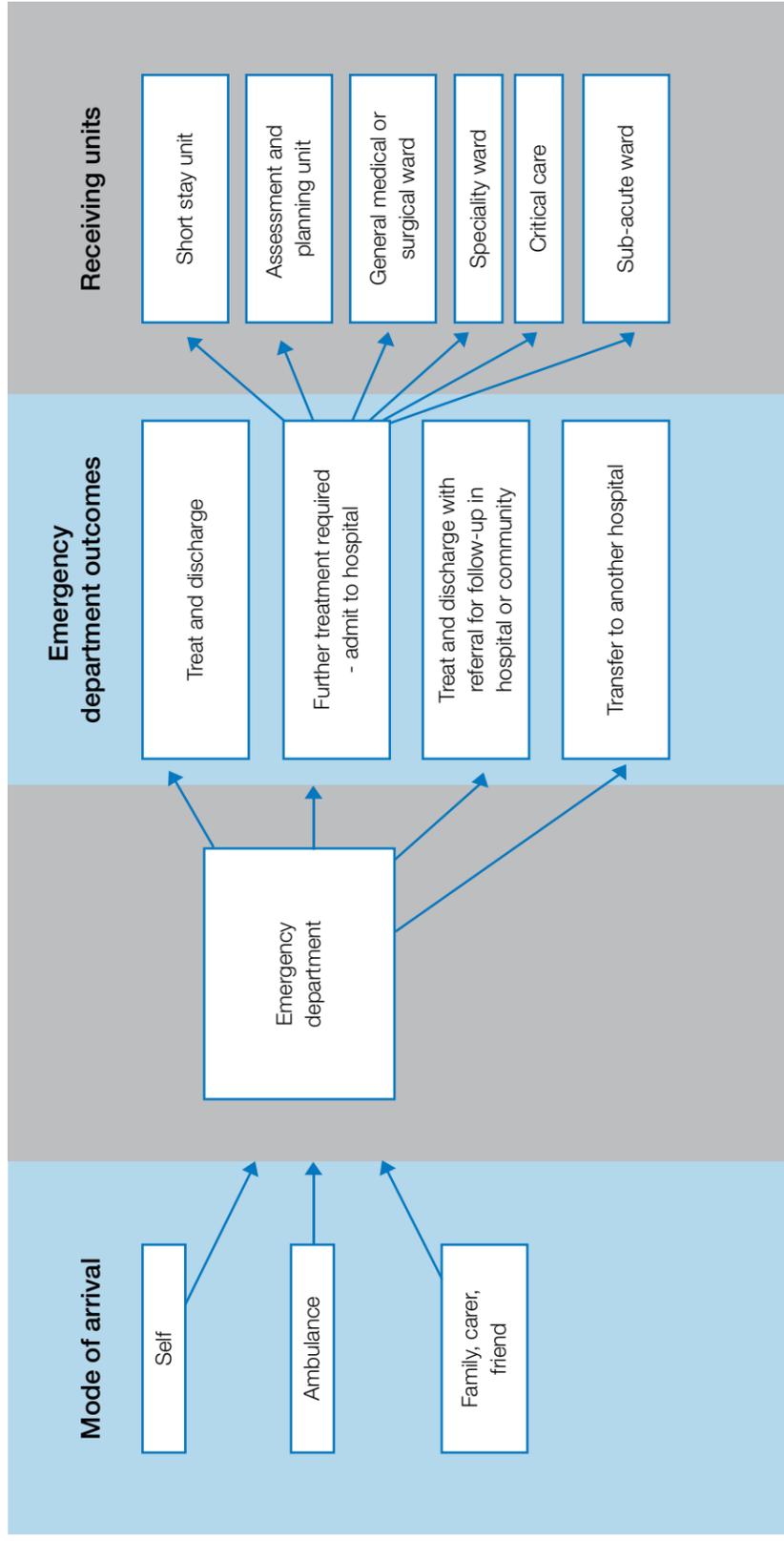
These measures capture the quality and safety improvements, as well as unintended effects elsewhere in the patient journey or hospital system. The choice of measures to monitor and evaluate quality and safety will relate to the focus of the program of redesign.

The feasibility of the measures described in this guide, detailed on page 5, will depend on the availability of reliable data, and the capacity of health services to collect the data.

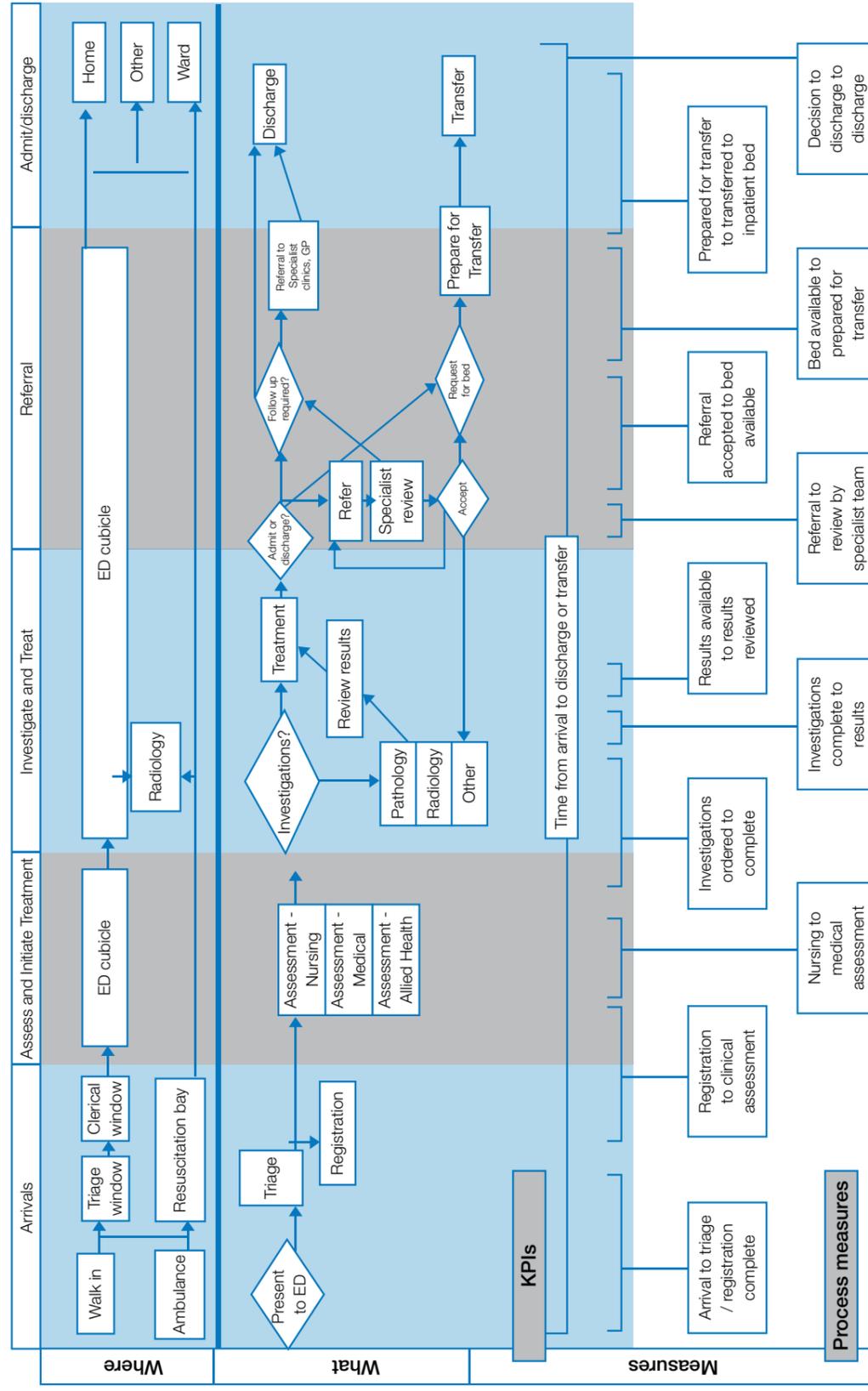
## Inter-relationships between emergency departments and hospital and community services

All staff have a stake in a well-functioning emergency department as this is where large proportion of inpatients first arrive and this impacts on the whole hospital. The following figure lays out the basic relationships between the emergency department and other hospital services. In practice, there are as many different ways of organising the flow of patients through the hospital.

High level emergency department process map



Generic representation of processes within an emergency department high and detailed level emergency department process map



Demand and capacity measures	Key performance measures	Process measures	Check measures
<p><b>Purpose</b></p> <p>To define demand, capacity and activity, and assist in writing a problem statement.</p>	<p>A direct measure of the goal that you are trying to achieve or problem that you are trying to address.</p>	<p>To capture, validate and track the impact of improvement initiatives on process performance</p>	<p>To demonstrate the improvement did not have unintended effects elsewhere in the patient journey or hospital system.</p>
<p><b>Examples</b></p> <p><b>Demand: all patients presenting to the emergency department</b></p> <ul style="list-style-type: none"> <li>total presentations</li> <li>presentations by day of week and hour of day</li> <li>number and percent of category triage 1, 2, 3, 4 and 5 patients</li> <li>presentations by ambulance</li> <li>presentations by self</li> </ul> <p><b>Capacity: resources available to provide a service to the patient, and includes staff and equipment.</b></p> <ul style="list-style-type: none"> <li>number of cubicles</li> <li>number of beds</li> <li>medical staff hours, by category, and by hour of day and day of week</li> <li>nursing staff hours, by category, and by hour of day and day of week</li> <li>care co-ordinator staff hours, by hour of day and day of week</li> <li>staffing profile (for example, number of trainee staff)</li> <li>imaging/diagnostic availability</li> <li>equipment availability (for example, wheelchairs for patient transport)</li> <li>cubicle turn-around time</li> </ul>	<ul style="list-style-type: none"> <li>percentage of operating time on hospital bypass</li> <li>percentage of non-admitted ED patients with ED LOS of less than four hours</li> <li>percentage of ED patients requiring admission who are admitted to an inpatient bed within eight hours and 24 hours</li> <li>percentage of category 2 patients seen within 10 minutes</li> <li>percentage of category 3 patients seen within 30 minutes</li> <li>percentage of patients that did not wait</li> </ul>	<p><b>Process time:</b></p> <ul style="list-style-type: none"> <li>arrival to triage/registration complete</li> <li>registration to clinical assessment</li> <li>nursing assessment to medical assessment</li> <li>investigations ordered to investigations complete</li> <li>investigations complete to results available</li> <li>results available to results reviewed</li> <li>referral to review by specialist team</li> <li>referral accepted to bed available</li> <li>bed available to prepared for transfer</li> <li>prepared for transfer to transferred to inpatient bed</li> <li>decision to discharge to discharge</li> </ul> <p><b>Process quality:</b></p> <ul style="list-style-type: none"> <li>percentage referrals to imaging/pathology completed accurately</li> <li>imaging/pathology turn-around time</li> <li>percentage referrals to specialist team completed accurately</li> </ul>	<p><b>Key measures:</b></p> <ul style="list-style-type: none"> <li>percentage patients that do not wait</li> <li>percentage unplanned re-attendance to ED within 48 hours</li> <li>percentage in hospital mortality for admissions from ED</li> <li>adverse events</li> <li>complaints</li> <li>percentage Short stay patients transferred to another inpatient ward</li> <li>percentage ED patients requiring admission who are admitted to an inpatient bed within 12 hours</li> </ul> <p><b>Patient satisfaction:</b></p> <ul style="list-style-type: none"> <li>targeted surveys</li> <li>net promoter score</li> <li>qualitative patient feedback</li> </ul> <p><b>Staff satisfaction:</b></p> <ul style="list-style-type: none"> <li>targeted surveys</li> <li>turnover</li> <li>sick leave</li> </ul> <p><b>Other measures:</b></p> <ul style="list-style-type: none"> <li>agency use</li> <li>OH&amp;S incidents</li> </ul>

## Measures of emergency department processes and outcomes

Important information:

- The particular focus of the redesign work will determine which measures should be chosen and they will differ from situation to situation.
- Measures that capture the ‘system view’ of the redesign work should also be included, for example, ward measures.
- Consider the units that will be used to capture measures, for example, time, dollars, number of patients.

## Key tips to remember when collecting and presenting data

- All measures should be collected prior to the implementation of improvement initiatives to establish baseline performance. Measures should then be collected post implementation of improvement initiatives (PDSA cycles) to determine the impact on process performance and achievement of the overall goal.
- It is important that measures collected after an improvement is implemented are comparable to the baseline data, for example, the same questions are repeated in a follow-up staff survey, or staff tracking is repeated at approximately the same time of day or day of week.
- Processes will vary depending on time of day, day of the week, and time of year. During the diagnose stage, it is necessary to collect a representative sample of data (in other words, different time of day, day of week) in order to analyse and understand existing variations.
- Due to the variations in emergency departments, it is recommended that a minimum of two years’ worth of historical data (for example, patient presentations) is used as a point of comparison.
- Measures should be described by their range, median, and percentage within the goal or target.

- When tracking patients and staff, it is important to collect enough data so that it is representative of other patients and staff. It is difficult to make hard and fast rules about when this point is reached, but it is clear that enough patients have been tracked when patterns start to repeat themselves. Tracking can be hard work, so if the basic issues are not clear after 20 patients, then it might be time to think again about what is trying to be tracked.
- When presenting measures:
  - Data related to time should be presented and analysed using run charts. This will reveal seasonal, weekly, daily or hourly variation.
  - Data related to categories (for example, type of error, admitting department) should be presented and analysed using bar charts.

## Acknowledgements

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