Identifying Measures for Improvement through the use of Driver Diagrams

Denis O’Leary
doleary.aus@gmail.com
11.30  CONFERENCE WORKSHOP

Identifying Measures for Improvement Through the use of Driver Diagrams

— Driver diagrams application to the surgical patient pathway

— Using driver diagrams as a tool for quality, safety & efficiency

— Developing measures for improvement with real examples

Denis O’Leary, Senior Project Manager,
Ballarat Base Hospital, Victoria
Acknowledge

Robert Lloyd and IHI for some slides used in this presentation
Systems
**Inputs**

- Materiel
- Participants
- Equipment

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What's in a System?

- Inputs
  - Materiel
  - Participants
  - Equipment

- Processes

- Outcomes

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What's in a System?

Inputs
- Materiel
- Participants
- Equipment

Processes

Outcomes
- Stakeholders
**System Inputs**

### Material
- Supplies
- Drugs

### Participants
- Providers
- Staff
- Patients
- Management

### Equipment
- Buildings
- Computers
- Medical equipment

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Processes

- A series of activities and decisions that lead to outcomes
  - Standard Operating Practices
  - Patient encounters
  - Clinical protocols
Outcomes

• Outcomes are qualities that have value for Stakeholders
  – Most participants
  – Patients
  – Public
  – Media
  – Board of Directors
  – Department of Health
It’s important to define the system that you’re trying to work in, and that system can be defined very nicely through something called a driver diagram. The driver diagram is a pictorial display of a system.
Driver Diagrams
A driver diagram helps to focus on the cause and effect relationships that exist in complex situations. It provides a simple way to break down aims into well defined drivers that can then form the focus of efforts. It includes:
Driver Diagrams

• A driver diagram helps to focus on the cause and effect relationships that exist in complex situations. It provides a simple way to break down aims into well defined drivers that can then form the focus of efforts. It includes:

  • The aim or goal of the effort (which can be taken from the aim statement). Where appropriate, a number of aims may be shown on the same driver diagram.
A driver diagram helps to focus on the cause and effect relationships that exist in complex situations. It provides a simple way to break down aims into well defined drivers that can then form the focus of efforts. It includes:

- The aim or goal of the effort (which can be taken from the aim statement). Where appropriate, a number of aims may be shown on the same driver diagram.

- The primary drivers which are the system components that contribute directly to the chosen goal or aim
A driver diagram helps to focus on the cause and effect relationships that exist in complex situations. It provides a simple way to break down aims into well defined drivers that can then form the focus of efforts. It includes:

• The aim or goal of the effort (which can be taken from the aim statement). Where appropriate, a number of aims may be shown on the same driver diagram.

• The primary drivers which are the system components that contribute directly to the chosen goal or aim

• The secondary drivers which constitute elements of the primary drivers which can be used to create change projects
A driver diagram helps to focus on the cause and effect relationships that exist in complex situations. It provides a simple way to break down aims into well defined drivers that can then form the focus of efforts. It includes:

- The aim or goal of the effort (which can be taken from the aim statement). Where appropriate, a number of aims may be shown on the same driver diagram.

- The primary drivers which are the system components that contribute directly to the chosen goal or aim

- The secondary drivers which constitute elements of the primary drivers and which can be used to create change projects

- The relationship arrows which show the connection between the primary and secondary drivers. A single secondary driver may impact upon a number of primary drivers.
Example(s)
An example of a driver diagram

Aim

Aim to improve the use of resources in end of life care (EOLC)
Aim to improve the use of resources in end of life care (EOLC)
Aim to improve the use of resources in end of life care (EOLC)
Aim to improve the use of resources in end of life care (EOLC)

Primary drivers

Aim

Hospital care

Coordination of care
Aim to improve the use of resources in end of life care (EOLC)

Primary drivers

Aim

Hospital care

Coordination of care

Relationship arrows

Primary drivers
Aim to improve the use of resources in end of life care (EOLC)

Primary drivers

Aim

Hospital care

Coordination of care

Relationship arrows

Pt and family support

Primary drivers
Aim to improve the use of resources in end of life care (EOLC)

Primary drivers:
- Provider availability
- Pt and family support
- Coordination of care
- Hospital care

Relationship arrows:

Aim:
- Primary drivers
An example of a driver diagram

Aim to improve the use of resources in end of life care (EOLC)

Primary drivers
- Hospital care
- Coordination of care
- Pt and family support
- Provider availability

Secondary drivers
- Relationship arrows
- Appropriate use of ICU services
An example of a driver diagram

**Aim**

**Primary drivers**
- Hospital care
- Coordination of care
- Pt and family support
- Provider availability

**Secondary drivers**
- Appropriate use of ICU services
- Identification of pt severity and wishes with respect to EOLC

**Relationship arrows**

**Aim to improve the use of resources in end of life care (EOLC)**
An example of a driver diagram

Aim to improve the use of resources in end of life care (EOLC)

Primary drivers:
- Provider availability
- Pt and family support
- Coordination of care
- Hospital care

Secondary drivers:
- Appropriate use of ICU services
- Identification of pt severity and wishes with respect to EOLC
- Timely referral to palliative care / hospice options
Aim to improve the use of resources in end of life care (EOLC)

Primary drivers:
- Hospital care
- Coordination of care
- Pt and family support
- Provider availability

Secondary drivers:
- Appropriate use of ICU services
- Identification of pt severity and wishes with respect to EOLC
- Timely referral to palliative care / hospice options
- Identification of provider responsible for coordination
- Hand off management

Relationship arrows:
- Aim
- Primary drivers

An example of a driver diagram

Aim to improve the use of resources in end of life care (EOLC)

Primary drivers

- Hospital care
- Coordination of care
- Pt and family support
- Provider availability

Secondary drivers

- Appropriate use of ICU services
- Identification of pt severity and wishes with respect to EOLC
- Timely referral to palliative care/hospice options
- Identification of provider responsible for coordination
- Hand off management
- Execution of a shared treatment plan (all providers and patient and family)
An example of a driver diagram

**Aim:**

- Improve the use of resources in end of life care (EOLC)

**Primary drivers**

- Hospital care
- Coordination of care
- Pt and family support
- Provider availability

**Secondary drivers**

- Appropriate use of ICU services
- Identification of pt severity and wishes with respect to EOLC
- Timely referral to palliative care / hospice options
- Identification of provider responsible for coordination
- Hand off management
- Execution of a shared treatment plan (all providers and patient and family)
- Assist patient and family to establish goals and intention

**Relationship arrows**
Aim to improve the use of resources in end of life care (EOLC)

Primary drivers

- Coordination of care
  - Hospital care
  - Pt and family support
  - Provider availability

Secondary drivers

- Appropriate use of ICU services
- Identification of pt severity and wishes with respect to EOLC
- Timely referral to palliative care / hospice options
- Identification of provider responsible for coordination
- Hand off management
- Execution of a shared treatment plan (all providers and patient and family)
- Assist patient and family to establish goals and intention
- Preparation of family caregivers to cope with exacerbation
- 24 hour access to appropriate services
Aim to improve the use of resources in end of life care (EOLC)

Primary drivers
- Hospital care
- Coordination of care
- Pt and family support
- Provider availability

Secondary drivers
- Appropriate use of ICU services
- Identification of pt severity and wishes with respect to EOLC
- Timely referral to palliative care / hospice options
- Identification of provider responsible for coordination
- Hand off management
- Execution of a shared treatment plan (all providers and patient and family)
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An example of a driver diagram

Aim: To improve the use of resources in end of life care (EOLC)

Primary drivers:
- Hospital care
- Coordination of care
- Pt and family support
- Provider availability

Secondary drivers:
- Appropriate use of ICU services
- Identification of pt severity and wishes with respect to EOLC
- Timely referral to palliative care / hospice options
- Identification of provider responsible for coordination
- Hand off management
- Execution of a shared treatment plan (all providers and patient and family)
- Assist patient and family to establish goals and intention
- Preparation of family caregivers to cope with exacerbation
- 24 hour access to appropriate services
- Availability of providers
- Availability of resources

Relationship arrows:
- Hospital care
- Coordination of care
- Pt and family support
- Provider availability
Elements of a driver diagram link together **Cause and Effect**
Elements of a driver diagram link together **Cause and Effect**

If we take just one primary driver “Coordination of Care” and its associated secondary drivers we can see the cause and effect linkages.
Elements of a driver diagram link together **Cause and Effect**

- **Poor** handover management
- **Poor** execution of a shared treatment plan
- **Not** identifying a coordinating provider

If we take just one primary driver “Coordination of Care” and its associated secondary drivers we can see the cause and effect linkages
Elements of a driver diagram link together *Cause and Effect*.

- **Poor** handover management
- **Poor** execution of a shared treatment plan
- **Not** identifying a coordinating provider

If we take just one primary driver “Coordination of Care” and its associated secondary drivers we can see the cause and effect linkages.

*Contributes directly to . . .*
Elements of a driver diagram link together **Cause and Effect**

“This action can Cause”

**Poor** handover management

**Poor** execution of a shared treatment plan

**Not** identifying a coordinating provider

Contributes directly to . . .

**Poor** coordination of care

If we take just one primary driver “Coordination of Care” and its associated secondary drivers we can see the cause and effect linkages

**CAUSE**

**EFFECT**
Elements of a driver diagram link together **Cause and Effect**

- **Poor** handover management
- **Poor** execution of a shared treatment plan
- **Not** identifying a coordinating provider

**CAUSE**

**Contributes directly to . . .**

**Poor** coordination of care

**EFFECT**

**Which contributes directly to . . .**

If we take just one primary driver “Coordination of Care” and its associated secondary drivers we can see the cause and effect linkages.
Elements of a driver diagram link together **Cause and Effect**

If we take just one primary driver “Coordination of Care” and its associated secondary drivers we can see the cause and effect linkages.

**CAUSE**

- Poor handover management
- Poor execution of a shared treatment plan
- Not identifying a coordinating provider

**Contributes directly to . . .**

- Poor coordination of care

**Which contributes directly to . . .**

- Higher use of resources in end of life care

**EFFECT**

- CAUSE
- EFFECT
An example of selected elements of a driver diagram with some associated measures

Aim to reduce the burden of dental disease

Measures can be created all across the driver diagram to create a system of linked measurements
An example of selected elements of a driver diagram with some associated measures

Aim to reduce the burden of dental disease

% of pts with new cavitation

Measures can be created all across the driver diagram to create a system of linked measurements
An example of selected elements of a driver diagram with some associated measures

Aim to reduce the burden of dental disease

- % of pts with new cavitation
- % of patients complaining of pain

Measures can be created all across the driver diagram to create a system of linked measurements.
An example of selected elements of a driver diagram with some associated measures

Aim to reduce the burden of dental disease

- % of pts with new cavitation
- % of patients complaining of pain
- % of pts with OR Tx

Measures can be created all across the driver diagram to create a system of linked measurements
An example of selected elements of a driver diagram with some associated measures

Aim to reduce the burden of dental disease

Active, informed families

Reliable delivery of evidence based preventative and restorative care

% of pts with new cavitation
% of patients complaining of pain
% of pts with OR Tx

Measures can be created all across the driver diagram to create a system of linked measurements
An example of selected elements of a driver diagram with some associated measures

Aim to reduce the burden of dental disease

% of pts with new cavitation
% of patients complaining of pain
% of pts with OR Tx

Active, informed families

Reliable delivery of evidence based preventative and restorative care

Patient self management
% of pts with a self mgmt plan

Measures can be created all across the driver diagram to create a system of linked measurements
An example of selected elements of a driver diagram with some associated measures

Aim to reduce the burden of dental disease

% of pts with new cavitation
% of patients complaining of pain
% of pts with OR Tx

Active, informed families

Reliable delivery of evidence based preventative and restorative care

Patient self management
% of pts with a self mgmt plan

Early risk based evaluation and guidance
% of pts assessed for risk
% of pts with regular care

Measures can be created all across the driver diagram to create a system of linked measurements
An example of selected elements of a driver diagram with some associated measures.

Aim to reduce the burden of dental disease:
- % of pts with new cavitation
- % of patients complaining of pain
- % of pts with OR Tx

Active, informed families:
- Patient self management: % of pts with a self mgmt plan

Reliable delivery of evidence based preventative and restorative care:
- Early risk based evaluation and guidance: % of pts assessed for risk, % of pts with regular care
- Qualified OR Tx: % of pts with timely OR Tx

Measures can be created all across the driver diagram to create a system of linked measurements.
What Changes Can We Make?
A Theory of How to Improve a System

Outcome

Primary
Drivers

Secondary
Drivers

Process
Changes

Aim: An improved system

P. Driver

S. Driver 1

S. Driver 2

S. Driver 3

S. Driver 1

S. Driver 2

Change 1

Change 2

Change 3

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What Changes Can We Make?
Understanding the System for Weight Loss

Primary Drivers

Calories In

AIM: A New ME!

Outcomes

Calories Out

Secondary Drivers

Limit daily intake

Substitute low calorie foods

Avoid alcohol

Ideas for Process Changes

Track Calories

Plan Meals

Drink H2O, Not Soda

Work out 5 days

Bike to work

Hacky Sack in office

“Every system is perfectly designed to achieve the results that it gets”

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How Will We Know We Are Improving?
Understanding the System for Weight Loss with Measures

**Measures let us**
- Monitor progress in improving the system
- Identify effective changes
The Aim Statement helps to focus on what it is trying to accomplish. It provides a specific, measurable statement of intent. It identifies:

- The boundaries of the system to be improved (i.e. the scope, patient population, the processes to change with their beginning and end points, the providers affected etc.)

- The numerical goals for the desired outcomes which are ambitious but achievable (i.e. goals are not set arbitrarily)

- The timeframe for achievement of the goal

- The guidance for the team which constrain or shape how the improvement is undertaken (e.g. in keeping with Department of Health guidance or local strategies, led by a sponsoring Director, linked to a reconfiguration proposal, focused upon a specific improvement strategy etc.)
An example Aim Statement

**Goal**

In a pilot population, our hospital will decrease peri-operative harm by 25% within 1 year by focusing on prevention of surgical site infection (SSI) and implementation of pre-procedural briefings in orthopedic and vascular surgery.

**Timeframe**

**Boundary**

**Team:**

Leadership: Executive Director Surgical Services

Technical: Orthopedic surgeon

Day-to-day: OR manager, surgical technician

Additional members: Safety specialist, nursing

**Boundaries**
Four Aim Statements

1. To undertake surgical procedures in a safe and effective manner which will result in a quality patient experience.

2. To work in a learning and respectful environment in the Operating Suite that encourages excellent team work.

3. To provide to surgical patients an excellent patient experience.

4. To deliver the Surgical Services agreed business plan for the financial year 2014 – 15.
Aim: To provide excellent surgical care

Outcome:
Patients will have their planned surgery – on time & date with no cancellation – no waiting & no adverse outcome & go home happy & provide staff with chocolates

Patient Satisfaction
- No cancellations
- No overruns
- Patient satisfaction results
- Customer centered care
- Consumer advisory
- Schedule planning
- Elective versus emergency access
- Informed consent
- Handouts
- Education
- Skills competency base
- Clinical capability framework

Positive experience
- Bed available
- Understanding procedure pain
- Clinical Care
- Clinical Expertise

No adverse event
To work in a learning and respectful environment in the Operating Suite that encourages excellent teamwork.

**Outcome:**
- Increased Operating Theatre Utilisation
- Decreased unplanned leave
- Decreased clinical incidents
- Increased staff retention
- Increased knowledge & skills

**Organisation Culture**
- Code of Conduct
- Unit Values
- Ensured accountability
- Core values
- Personal development
- Clarity of roles & responsibilities

**Teamwork**
- Rounding & Feedback (communication)
- Scope of practice - multiskill
- Behavioural competency
- Multidisciplinary
- Professional development
- Performance management
- Role management

**Education & Training**
To work in a learning and respectful environment in the Operating Suite that encourages excellent team work.

Outcome:
- Efficiency
- Staff Satisfaction
- Patient Satisfaction

Communication

Values/Standards

Patient focus

Resources

Huddle Escalate De-escalate

Staff meetings

Governance/Multi Discip

Leadership

Available

Equity, Integrity

Punctuality, Safety, Infection Control

Training, education, evaluation

Planning – List Session Preparation

Patient flow
To provide to surgical patients an excellent patient experience

Outcome:
- Patient satisfaction survey
- Length of stay
- Wait times
- Incident Monitoring

Schedule & Triage

Customer focus

Safe quality care

Efficient

Separate elective & emergency

Resource management

Patient flow processes

Communication systems

Timely treatment

Feedback – Patient Satisfaction

Target monitoring

Audit processes

Credentialing
To undertake surgical procedures in a safe and effective manner which will result in a quality patient experience.

**Personnel/Staff**

**Access to Facilities**

**Consumer involvement Efficient**

**Measures**

**Outcomes**

- Skill mix
- Education & professional development
- Workforce availability
- Equipment systems
- Services provided specialty
- Services provided theatre availability
- Bed availability/ Preadmission
- Point of Contact with Health Service
- Education Consumer expectation

- Assessment of workforce skill balance
- Development of education plans that will support required service
- Recruitment/attendance
- Survey relevant personnel re: equipment requirements
To undertake surgical procedures in a safe and effective manner which will result in a quality patient experience

- Improve Patient Outcomes
- Safety
- Efficiency – lack of resources
- Quality staff

**Outcome:**
- Reduce incidents by 20%
- Reduce Length of Stay
- Safe environment – incident reports
- Increase Theatre Utilisation to 85%
- Patient Satisfaction experience

**Measures Outcomes**

- Bed Access
- Equipment Communication
- Staff & Skills
- Equipment Beds
- Education skills knowledge

- Access block
- Number of beds
- Pieces of equipment
- Start on time
- Cancellations
- Bed occupancy
- Bed base
- Length of stay
- Number of staff
- Sick leave
- ICU Acceptance
- Staff qualifications
Measures & their Build Up
Efficiency & Value Driver Diagram

Making efficient and best use of Resources

**Aim**
- Deliver plan to budget

**Driver**
- Run lists you plan to
- Run lists to time
- Minimise delay between cases
- Make similar procedures more consistent

**Intervention**
- Ensure lists filled appropriately
- Ensure correct patients available
- Ensure correct staff available
- Have reliable process for fetching patients
- Ensure correct kit available
- Ensure start on time
- Minimise theatre turnaround time
- Minimise interruptions (Recovery closure – emergency interruptions)
- Ensure right kit to hand

Measure used only in this domain

---

**E0** Start on Time
**E1** Contact Hour per Session/Day
- 7 % correct kit to hand
- 8 % usable kit
- 22 % patients lost from theatre list (all reasons)
- 23 Direct care time (Needle to skin => In recovery)
- 24 Late starts
- 25 Early finishes
- 26 Turnaround time (In Recovery => Needle to skin)
- 27 Number of glitches (interruptions, messages, phone calls)
Other Measure

- Efficiency
  - Unused Theatre and anaesthetic room Time (downtime)
  - total number of staff involves through day (new staff, break cover, etc)
  - Additional equipment and packs used per day/case
  - Theatre utilisation (used sessions by speciality)
  - Session utilisation (actual time used on session)
These are the types of fields I commonly obtain from Health Services – Green Fields are derived.
From the data you can look at a Surgeon’s Session characteristics – I suspect most Health Services do not do this – this data could also be used for performance review – the data can also be used to build up the schedule.
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</table>

**Schedule build up for the year based on average hours per session used by proceduralists**
Using the schedule you can model the work that will be undertaken throughout the year.
You then can review how you are travelling over the year – this type of approach I have used with quite a number of Health Services.
Confirmation of Theatre List Order

1st Patient on AM List On-Time Starts

Registration & Admission process commences. Anaesthetic review of all patients except 1st patient on each list

1st Patient each list arrive in holding bay for anaesthetic review

Surgical team arrive in Theatre

Patient transferred to anaesthetic room/theatre. Anaesthetic team begin anaesthetic interventions

Before Anaesthesia commences Surgeon needs to communicate their presence at Mildura Base Hospital

Health Service Theatre Start Time

The time points below are flexible and depending on the type of case that is first for the list – for example a hip replacement will require an earlier arrival time and anaesthesia start time than an endoscopy patient.

- 120 mins
- 90 mins
- 70 mins
- 60 mins
- 50 mins
- 40 mins
- 30 mins
- 20 mins
- 10 mins

1st Patient on PM List On-Time Starts

Handover to the Surgical Team

Fixed Point

08:00
13:00

Time Out

Before Anaesthesia commences Surgeon needs to communicate their presence at Mildura Base Hospital

1st Patient on AM List On-Time Starts

1st Patient of each list arrive in holding bay for anaesthetic review

Surgical team arrive in Theatre

Patient transferred to anaesthetic room/theatre. Anaesthetic team begin anaesthetic interventions

Before Anaesthesia commences Surgeon needs to communicate their presence at Mildura Base Hospital

Health Service Theatre Start Time

The time points below are flexible and depending on the type of case that is first for the list – for example a hip replacement will require an earlier arrival time and anaesthesia start time than an endoscopy patient.
### AM Surgery Start Time

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Example of how a Health Service looks at it start times
Aim

Undertaking surgical procedures in a safe and effective manner resulting in a quality patient experience

Driver

Avoid mistakes

- 9
- 10
- 11

Avoid complications

- 12
- 13
- 14
- 15

Avoid delays

Intervention

- Conduct Team Brief
- Conduct Team Debrief
- Conduct Time Out
- Produce accurate lists
- Implement SSI bundle
- Implement VTE bundle
- Have correct kit to hand
- Ensure staff are adequately trained

S0 Overall glitch count
S1 Adverse surgical events
1 % lists with Team Brief (or # Team Briefs)
2 % lists with Team Debrief (or # Team Debriefs)
3 % lists with Time Out (or # Time Outs)
4 % lists performed as listed
5 % compliance with SSI bundle
6 % compliance with VTE bundle
7 % correct kit to hand
8 % usable kit
9 Retained objects
10 Wrong site surgery
11 Wrong procedure
12 Readmissions
13 Number of Unplanned returns to theatre
14 Number of SSIs
15 Number of VTEs
34 Compliance with mandatory training & appraisals
Other Measures

• **Safety & Reliability**
  – Incident reporting
  – Noise
  – Team trained to use specialist equipment
A well functioning theatre team

**Aim**

Working in a learning and respectful environment that encourages excellent team work.

**Driver**

- Communication
  - T0
  - Competence
    - 16
    - 16
    - 16
  - Consistency
  - Confidence
    - 19

**Intervention**

- Team Brief
- Team Debrief
- Time out
- Report all incidents
- Do Executive safety walk-rounds
- Ensure staff adequately trained
- Ensure staff have regular experience
- Form Consistent teams
- Minimise Staff turnover
- Tackle Unplanned absence

**Measure**

1. Team working scores using naïve observer report forms
2. % lists with Team Brief (or # Team Briefs)
3. % lists with Team Debrief (or # Team Debriefs)
4. % lists with Time Out (or # Time Outs)
5. Proportion of staff with HF/team skills training (by discipline)
6. Proportion of time was spent working in normal area
7. Number of different staff worked in theatres per list
8. Staff survey
9. Staff turnover
10. Sickness absence
11. Compliance with mandatory training & appraisals

**Legend**

- Red: Measure used only in this domain
- Blue: Measure shared with another domain
Other Measure(s)

- **Team working**
  - Staff training & Development
  - Adequate Training
  - Team Structure (Appropriate skill Mix)
  - Leadership Opportunities
Patient Experience & Outcome Driver Diagram

Aim

Provide an excellent patient experience

Driver

A good patient experience

Avoid unnecessary delay

Keep the patient informed

Avoid unnecessary discomfort

Intervention

Minimise pre-op time

Minimise starvation time

Avoid cancellation

Provide timely recovery

Provide relevant information

Provide information in timely fashion

Control pain effectively

Implement SSI bundle inc Control body temperature

Minimise complications in recovery

P0 Overall patient experience score (from survey)
P1 Patient Recorded Outcome Measures (PROMs)
28 Average time from admission to anaesthetic start
29 Average time patient is starved
30 % patients who got their original TCI date
31 Average Recovery delay
32 Average pain score in Recovery
6 % patients with ‘normal’ body temperature (part of SSI bundle)
33 % patients complication free in Recovery
Other Measure

- **Patient experience**
  - Post op Visit by Dr in 2nd stage recovery/ward
  - Post Op. Anxiety
  - Walking to Theatre
Overview
A driver diagram is an immensely powerful tool that helps you to translate a high level improvement goal into a logical set of underpinning goals (‘drivers’) and projects. It captures an entire change programme in a single diagram and also provides a measurement framework for monitoring progress.

The layout of a driver diagram is most easily explained via a simple example.

Imagine your personal goal was to reduce the amount you spend on petrol (i.e. ‘decrease fuel costs’). The diagram below shows a typical driver diagram constructed around this goal.

1. The goal
The driver diagram starts with a clearly defined and measurable goal. This is the focal point for your change efforts.

- Decrease fuel costs

2. Primary drivers
The overall goal is linked here to three factors that are believed to have a direct impact on it (i.e. fuel costs will go down if you find cheaper fuel, reduce the number of miles you drive or increase your fuel efficiency).

- Reduce fuel price per gallon
- Reduce miles driven
- Increase efficiency (mpg)

These drivers may act independently or in concert to achieve the overall goal.

3. Lower level drivers
The process of breaking down a goal can continue to lower levels to create secondary or tertiary drivers (and even further if required).

- Increase car efficiency
- Improve driving pattern
- Decrease use of rapid acceleration
- Increase use of appropriate gears
- Decrease use of rapid braking

4. Projects or actions
The ultimate aim of a driver diagram is to define the range of projects (i.e. actual change initiatives) that you may want to undertake. These can appear anywhere in the hierarchy of the driver diagram - whatever makes most sense.

Driver diagrams therefore help to break down an overall improvement goal into underpinning goals (i.e. ‘drivers’) to the point where you can easily define the changes that you need to undertake.

No increase in lateness for work
These goals represent a ‘balancing’ element to your change efforts. Here, decreasing your fuel costs should not occur at the expense of being routinely late for work (as you wait for the cheap petrol station to open!). This helps to shape the projects that you choose to undertake.

Frequently we choose just to measure performance against these balancing goals (rather than actively do something about them) - so we describe them as ‘balancing measures’.

To create a driver diagram:
- Start with a clearly defined, measurable goal. It should describe what you intend to achieve and by when.
- Get a group of people together who understand the different aspects of the improvement topic (i.e. subject matter experts). Ask them to brainstorm potential drivers (i.e. the areas where improvement is needed).
- Cluster the ideas to create an agreed set of ‘drivers’. Make sure you use language like “improve” or “decrease” and that each driver is clearly defined and measurable.
- Discuss the need for new drivers or whether some of the drivers should be eliminated (if they are wrong or immaterial)
- Identify the links between the drivers to create primary, secondary and tertiary drivers.
- Get the group to identify any balancing goals or balancing measures.
- Select improvement projects that you believe will impact upon your drivers.
Tips and tricks

- Driver diagrams are a ‘live’ tool. They will change over time as you make changes to your system.

- If you can make your drivers measurable you have created a measurement framework for determining progress towards your overall goal.

- Creating a driver diagram with a team ensures that everyone understands your goal and how they can contribute towards achieving it.

- Driver diagrams will vary from place to place - there is no definitive ‘right’ answer as your local situation may be very different from other parts of the country.
What do people think of driver diagrams?

“It took us a few times to get it refined, we changed it six times; it was an intuitive process. But it really is the backbone of our strategy. We’re now hanging project measures on to it.”

“Driver diagrams are something that can be applied to any environment, any situation... It gets you into a structure of thinking where even with a very complex and complicated programme, you can put that into context to another person.”

“It enables us to move from a concept or an idea into starting to execute a programme and delivery very quickly. That has been a major difference to the way we work...”
Perioperative & Interventional Services

Dashboard Development
Perhaps the Reason is ................
In management information systems, a dashboard is "an easy to read, often single page, real-time user interface, showing a graphical presentation of the current status (snapshot) and historical trends of an organization’s key performance indicators to enable instantaneous and informed decisions to be made at a glance."[1]
• Prior to 2013 there was limited access to useful reports for Perioperative Services and in general these were initiated by request and took time.

• Late in 2012 Ballarat Health Service made a commitment to develop a Series of Dashboards for Clinical Streams

• This presentation describes where the Dashboard(s) for Perioperative Services is today
### Daily Theatre Activity Report

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<th>URN</th>
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**Contact Hours per Day:**

- OPR1: 0.5
- OPR2: 0.67
- OPR3: 0.83
- OPR4: 1
- DILLST: 1.17
- AH: 1.33
- AH: 1.5
- OPRS: 1.67
- DONOST: 1.83

**Total Contact Hours:**

The total contact hours per day across all sessions is approximately 10.5 hours.
SQL Server Reporting Services

Home > Dashboards > Theatre Dashboards

Contents

Report Builder

- Daily Theatre List
- Doctor Leave Report
- ETBS - IBA Theatre Reconciliation
- Polypectomy Rates

Properties

- Theatre Cancellation Analysis
- Theatre Procedure Analysis
- Top 20 Procedure Durations
Doctor Leave Report

Leave on or after: 20/11/2013

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The Emergency Theatre Booking Reconciliation report provides us with data relating to the number of emergency cases booked, length of time from presentation to surgery, time of day when surgery occurs to actual procedure undertaken.
## Calculation of Polypectomy Rate

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**Polypectomy Rate**

Rate to be calculated from Principal Procedure

\[
\text{Rate} = \frac{32093-00}{32084-00 + 32084-01 + 32090-00 + 32090-01 + 32093-00}
\]
Number of Colonoscopies undertaken by proceduralists. Polypectomy rate – data fed back to Endoscopy Unit and individual surgeons for comment.
# Theatre Cancellation Analysis

**01/07/2013** to **20/11/2013**

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*All Cancellations*
### Theatre Cancellation Analysis

**From Date:** 1/07/2013  
**To Date:** 20/11/2013

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*All On the Day Cancellations*
### Theatre Cancellation Analysis

**01/07/2013** to **20/11/2013**

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**Orthopaedic Unit On the Day Cancellations**
## Theatre Cancellation Details

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20/11/2013 10:23

**Orthopaedic Patient – Pt Unfit - Doctor Cancellations**
## Theatre Procedure Analysis

**Parameters:** 04/11/2013 to 10/11/2013

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**Date and Time:** 21/11/2013 16:38
Theatre Procedure Analysis

Parameters: [] / [] / []

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Theatre Procedure Analysis

Parameters: 04/11/2013 To 10/11/2013

Contact Hours
Pick a Procedure

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--- | --- | --- | --- | ---
1 | 28 | 55 | 1.83 | 0.00
24 | 60 | 92 | 2.31 | 0.00
2 | 72 | 98 | 1.75 | 0.00
26 | 43 | 77 | 1.98 | 0.00
11 | 55 | 86 | 2.45 | 0.00
1 | 43 | 74 | 0.79 | 0.00
1 | 62 | 95 | 1.75 | 0.00
1 | 39 | 77 | 1.63 | 0.00
26 | 42 | 73 | 3.28 | 0.00
4 | 57 | 80 | 2.32 | 0.00
5 | 70 | 104 | 1.84 | 0.00
2 | 58 | 89 | 2.21 | 0.00
1 | 23 | 64 | 2.25 | 0.00
4 | 69 | 98 | 1.54 | 0.00
7 | 58 | 103 | 2.74 | 0.00
4 | 53 | 90 | 1.40 | 0.00

**Lap Append**
### Top 20 Procedure Durations

**Unit:** GENERAL SURGERY (A)

**From Date:** 01/07/2012  
**To Date:** 01/11/2013

**Procedure Code:** 30445-00

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**Clinicians**

**Lap Chole**
### Elective Surgery KPI (L1)

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<td>10</td>
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**Date Range:** 01/10/2013 To 21/11/2013
### Waiting List – Ready for Care & Not Ready for Care Movement on a Daily Basis

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Over the past 3 months we have developed a number of other reports........
### Readmission Report March 3rd – March 13th

![Readmission Report interface](image)

**Discriminators**

- Number of days
- Unit
- Procedure code
- DRG Code

**Table: Readmission Report**

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<th>On WL</th>
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Provides details of Procedure/Diagnosis associated with the admission
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**Benchmark Design Timeline**

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## Multiple Procedures Report March 3rd – March 13th

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- Unit
- Procedure code
- DRG Code

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<td>Y</td>
<td>E.R.C.P.</td>
<td>46</td>
<td>F</td>
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<td>115542</td>
<td>2997880</td>
<td>05/03/2014</td>
<td>SEPTIC ARTHRITIS</td>
<td>Y</td>
<td>BILLST</td>
<td>42</td>
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<td>452418</td>
<td>3003354</td>
<td>02/03/2014</td>
<td>L Nephrostomy Tube Insertion (OMIT 730)</td>
<td>Y</td>
<td>CVSCA</td>
<td>68</td>
<td>M</td>
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<td>449184</td>
<td>3008594</td>
<td>06/03/2014</td>
<td>POST I.V. ANTIS (REVIEW)</td>
<td>Y</td>
<td>CVSCA</td>
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<td>452087</td>
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<td>PANCREATITIS</td>
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<td>423327</td>
<td>3000115</td>
<td>27/02/2014</td>
<td>ANAEMIA</td>
<td>Y</td>
<td>PEKIM</td>
<td>66</td>
<td>F</td>
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</table>

*Opens up to provide details of procedures*
## Draft Nurse Unit Managers Report

### Nurse Unit Manager Activity Report

**01/03/2014** To **13/03/2014**  
**Ward: 2N**  
**Unit: ORTHOPAEDIC (A)**

| UR No | Adm Date   | Cons | On WL | Act LOS | Plan LOS | Est LOS | Diff LOS | Surg (Y/N)| Exp Discharge | Exp Discharge Comments | Proc Code | Procedure                                 | Diagnosis                                                                 |
|-------|------------|------|-------|---------|----------|---------|----------|----------|-------------|---------------------|------------------------|-----------|-------------------------------------------|---------------------------------------------------------------------------|
| 256010 | 01/03/2014 13:10 | RURSM | Y      | 4       | 0        | 0       | -4       | Y        | 01/03/2014 | 01/03/2014 | LEFT INTRACOCHEALED FRACTURE OF FEMUR | 114 | TOTAL KNEE REPLACEMENT                    | LEFT TOTAL KNEE REPLACEMENT (ASPKIN)                                    |
| 015407 | 01/03/2014 14:04 | ENGLS | Y      | 1       | 0        | 0       | -1       | Y        | 01/03/2014 | 01/03/2014 | # WRIST                                      | 113 | TOTAL HIP REPLACEMENT                      | LEFT TOTAL HIP REPLACEMENT                                              |
| 115803 | 01/03/2014 17:43 | ENGLS | Y      | 1       | 0        | 0       | -1       | N        | 01/03/2014 | 01/03/2014 | post infection of L prosthetic hip          | 113 | TOTAL HIP REPLACEMENT                      | LEFT TOTAL HIP REPLACEMENT                                              |
| 256500 | 01/03/2014 18:13 | ENGLS | Y      | 3       | 0        | 0       | -3       | Y        | 01/03/2014 | 01/03/2014 | # FEMUR                                      | 113 | TOTAL HIP REPLACEMENT                      | LEFT TOTAL HIP REPLACEMENT                                              |
| 073827 | 02/03/2014 06:34 | ENGLS | Y      | 11      | 0        | 0       | -11      | Y        | 02/03/2014 | 02/03/2014 | # DECON LAT SKELE         | 113 | TOTAL HIP REPLACEMENT                      | LEFT TOTAL HIP REPLACEMENT                                              |
| 159433 | 02/03/2014 08:00 | ENGLS | Y      | 1       | 0        | 0       | -1       | Y        | 02/03/2014 | 02/03/2014 | CALF LEFT WRIST             | 113 | TOTAL HIP REPLACEMENT                      | LEFT TOTAL HIP REPLACEMENT                                              |
| 322754 | 03/03/2014 07:00 | DILU  | Y      | 2       | 4        | 4       | 2        | Y        | 07/03/2014 | 07/03/2014 | TOTAL KNEE REPLACEMENT           | 114 | TOTAL KNEE REPLACEMENT                    | LEFT TOTAL KNEE REPLACEMENT (ASPKIN)                                    |
| 156290 | 03/03/2014 10:34 | RUAM  | Y      | 3       | 3        | 3       | 0        | Y        | 06/03/2014 | 06/03/2014 | DERRIDE +/- WOUND CLOSURE               | 114 | TOTAL KNEE REPLACEMENT                    | LEFT TOTAL KNEE REPLACEMENT (ASPKIN)                                    |
| 058333 | 03/03/2014 12:12 | RUAM  | Y      | 5       | 1        | 1       | -8       | Y        | 04/03/2014 | 04/03/2014 | ORTHOPAEDIC SURGERY            | 114 | TOTAL KNEE REPLACEMENT                    | LEFT TOTAL KNEE REPLACEMENT (ASPKIN)                                    |
| 058323 | 03/03/2014 12:12 | RUAM  | Y      | 5       | 1        | 1       | -8       | Y        | 04/03/2014 | 04/03/2014 | DERRIDE +/- WOUND CLOSURE               | 114 | TOTAL KNEE REPLACEMENT                    | LEFT TOTAL KNEE REPLACEMENT (ASPKIN)                                    |
| 158984 | 03/03/2014 16:17 | RUAM  | N      | 4       | 0        | 0       | -4       | N        | 02/03/2014 | 02/03/2014 | L/OLECRANON BURSITIS            | 114 | TOTAL KNEE REPLACEMENT                    | LEFT TOTAL KNEE REPLACEMENT (ASPKIN)                                    |
| 305101 | 03/03/2014 17:13 | RUAM  | N      | 6       | 0        | 0       | -6       | Y        | 03/03/2014 | 03/03/2014 | SEPTIC ARTHRITIS R) KNEE        | 114 | TOTAL KNEE REPLACEMENT                    | LEFT TOTAL KNEE REPLACEMENT (ASPKIN)                                    |
| 237419 | 03/03/2014 20:22 | RUAM  | N      | 10      | 0        | 0       | -10      | Y        | 03/03/2014 | 03/03/2014 | # PELVIS                                  | 114 | TOTAL KNEE REPLACEMENT                    | LEFT TOTAL KNEE REPLACEMENT (ASPKIN)                                    |
| 159985 | 03/03/2014 21:13 | RUAM  | N      | 4       | 0        | 0       | -4       | N        | 03/03/2014 | 03/03/2014 | # PELVIS                                  | 114 | TOTAL KNEE REPLACEMENT                    | LEFT TOTAL KNEE REPLACEMENT (ASPKIN)                                    |
| 154627 | 04/03/2014 07:05 | MASOS | Y      | 2       | 3        | 3       | 1        | Y        | 07/03/2014 | 07/03/2014 | TOTAL HIP REPLACEMENT            | 114 | TOTAL KNEE REPLACEMENT                    | LEFT TOTAL KNEE REPLACEMENT (ASPKIN)                                    |
| 054965 | 04/03/2014 07:10 | HITCD | Y      | 1       | 2        | 2       | 2        | Y        | 07/02/2014 | 07/02/2014 | TOTAL HIP REPLACEMENT            | 114 | TOTAL KNEE REPLACEMENT                    | LEFT TOTAL KNEE REPLACEMENT (ASPKIN)                                    |
| 017311 | 04/03/2014 07:31 | HITCD | Y      | 1       | 0        | 0       | -1       | Y        | 04/03/2014 | 04/03/2014 | EXCISION/REPAIR OF RUNION      | 114 | LEFT HIP REPLACEMENT - BONEGRAFT       | TOTAL HIP REPLACEMENT (ASPKIN)                                         |

| 017311 | 04/03/2014 07:31 | HITCD | Y      | 1       | 0        | 0       | -1       | Y        | 04/03/2014 | 04/03/2014 | EXCISION/REPAIR OF RUNION      | 114 | LEFT HIP REPLACEMENT - BONEGRAFT       | TOTAL HIP REPLACEMENT (ASPKIN)                                         |

**BHE Home**
In Summary

Ballarat Health Service has developed a range of Dashboard Reports which provide relevant and timely information relating to the activity of Perioperative Services.

The reports are accessed daily, weekly and monthly with the data used in local workplace area to the Board. It has helped enormously in supporting business cases and attracting funding.