Achieving Excellence in Day and Short stay surgery

Effective and Safe Pathways

Doug McWhinnie
Past President 2008-10
British Association of Day Surgery
Healthcare Improvement Scotland

Scottish Health Council
2005

SIGN
1993

HEI Healthcare Environment Inspectorate
2009

Scottish Health Technologies Group
2007

Scottish Medicines Consortium
2001

Public Services Reform (Scotland) Act 2010
2011

Every Patient
2011
Day Surgery Pathway

“Day surgery is the admission of selected patients to hospital for a planned surgical procedure, returning home on the same day.

23 Hour Surgery

Ambulatory Surgery:

“any patient treated in a designated facility by designated staff, and discharged, within 24 hours of admission”

Jackson, I. & McWhinnie, D.
J. One-Day Surgery 2002; 12:5
23 Hour and Short Stay Case Mix

- Co-factor exclusion from day surgery
- New day surgery procedures
- Emerging surgical procedures
- Inpatient conversion to 23 hr stay
Figure 3.1 - The day surgery cycle.
The elective process

1. Presentation
2. Referral
3. Clinic
4. Tests
5. Clinic
6. (Put on Waiting list)
7. (Admitted)
8. (Pre-op Assess)
9. Treatment (Operation)
10. Discharged
11. Clinic
12. Follow up
13. Ad infinitum

18 weeks
Day and Short Stay Surgery Pathway
The origins of “lean”

Krafcik JF
“The triumph of the lean production system.”
Sloan Management Review
1988 30 (1):41-52
Recognition of “LEAN”

International Motor Vehicle Program
Established 1979
25 Universities worldwide
Lean is ..................

.....a systematic approach to improving the flow of a process by identifying and eliminating 'Waste' through continuous improvement.

In other words:
Getting the right **things**
To the right **place**
At the right **time**
In the right **quantities**
To minimize **waste**
And be flexible to **change**
Lean is not.............

......an excuse simply to cut costs !

Remember......

it is the elimination of any activity which does not add to patient value.
Key Areas on the Patient Administrative Pathway

Rate limiting steps

1. Criteria
2. Preassessment
3. Patient Admission
4. Theatre Efficiency
5. Discharge Process
Key Areas on the Patient Administrative Pathway

Rate limiting steps

1. Criteria
2. Preassessment
3. Patient Admission
4. Theatre Efficiency
5. Discharge Process

Domains

1. Quality
2. Cost
3. Safety
Day Case Criteria

Depend on:
- Stand-alone unit
- Hospital-integrated unit
Assessment of physical status

1940-41
American Society of Anaesthesiologists commission Saklad, Rovenstine & Taylor to devise a system for collecting anaesthetic data.

1963
Modification to present-day ASA classification of physical status.

Saklad M. Grading of patients for surgical procedures. Anesthesiology 1941; 2:281-4

ASA 1 Normal healthy
ASA 2 Mild systemic disease
ASA 3 Severe systemic disease
ASA 4 Threat to life
ASA 5 Moribund
Body Mass Index

1840-46
Quetelet Index

1972
Body Mass Index

Keys A, Fidanza F, Karvonen MJ, Kimura N, Taylor HL.
Indices of relative weight and obesity.
J Chronic Dis 125(6):329-43
Ageing Population

By 2019, the population over retirement age will increase from 18.3% to 22.2%

Day Case Criteria

But........
Fatter Population
Older Population

Therefore Expand –
BMI
Age
ASA Status
Preassessment

Who?
Where?
What?
How?
When?
Preassessment

Default to Day surgery

Can this patient be a day case?

Is there any reason this patient cannot be a day case?
Pre-assessment Options

At source (GP surgery)

- Health screen

- Telephone

- Formal (Hospital)
  - immediate
  - interval

- On-line
What do we need to change?

Referral from GP

Outpatient Review

Diagnostics

Further review, decision to operate

Waiting list

Preassessment

Surgery for those suitable
What do we need to change?

- Referral from GP
- Preassessment
- Outpatient Review
- Diagnostics
- Further review, decision to operate
- Waiting list

Surgery for those suitable
The Rules of Preassessment

- Preassessment for all elective surgical patients
- Opt out of day surgery rather than opting in
- Empower the preassessment team to allocate the appropriate length of stay option
- Perform preassessment early in the pathway
Preoperative Assessment in 2012

Preoperative Assessment Clinic

Physically fit

Physically unfit

Socially fit

Socially unfit

Psychologically cooperative

Psychologically un-cooperative
Social Factors

Responsible adult

Adequate housing conditions

- inside toilet
- telephone access
- heating
- stairs

Maximum 1 hours’ drive
Psychological Factors

Trust and Motivation
- past personal experience
- experience of others
- hearsay
- prejudice

Personality

Intelligence

Culture
- extended family
- safety issues in home country
## Patient Matrix

<table>
<thead>
<tr>
<th></th>
<th>Fit Cooperative</th>
<th>Fit Un-cooperative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Un-fit Cooperative</td>
<td>Un-fit Un-cooperative</td>
<td></td>
</tr>
</tbody>
</table>
# Patient Matrix

<table>
<thead>
<tr>
<th>Fit</th>
<th>Un-fit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperative</td>
<td>Un-cooperative</td>
</tr>
<tr>
<td>Un-fit</td>
<td>Un-fit</td>
</tr>
<tr>
<td>Cooperative</td>
<td>Un-cooperative</td>
</tr>
</tbody>
</table>
Fit but Uncooperative
Manage information and expectations
Unfit but Cooperative

Try as a Day Case
Consider superficial rather than abdominal procedures
Do not compromise patient safety
Consider alternative forms of anaesthesia
Spinal Anaesthesia

August Karl Gustav Bier
1861-1949
### Patient Admission

**Dedicated Facilities for day surgery**

**Unplanned admissions**

<table>
<thead>
<tr>
<th>Facility</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dedicated day unit</td>
<td>1.0 %</td>
</tr>
<tr>
<td>In-patient ward</td>
<td>17.0 %</td>
</tr>
<tr>
<td>Satellite day unit</td>
<td>2.7 %</td>
</tr>
</tbody>
</table>

---

Day Surgery in Different Guises  
Fehrmann K, Matthews CM, Stocker ME  
J One-Day Surgery 2011; 19;39-47
Patient Admission
Dedicated facilities for overnight stay

Same-day admissions unit
Day of surgery admissions unit
• Located near theatres
• Chairs, not trolleys
• Lower staffing costs
• Walk to theatre
• Reduced transfer time
• Ward admission after theatre
Operating Theatre Efficiency

Theatre Costs

Dependent on

- Size of theatre suite
- Specialty
- Pay
- Non-pay
- Consumables
- Contribution
- ..........etc

2007 NHS Institute - £900 / hr
2009 Loughead et al - £800 / hr
MKGH - £1620 / hr
Safety – The Cumulative Act Effect

James T Reason
Professor of Psychology
University of Manchester

Reason J. Cambridge
University Press 1990

Reason J.
Ashgate 1997
Swiss Cheese Model of Accident Causation

Levels of Failure

1. Organisational influences
2. Unsafe supervision
3. Preconditions for unsafe acts
4. Unsafe acts

“a trajectory of accident opportunity”
Healthcare Improvement Scotland

“ There will be no avoidable injury or harm to people from the healthcare they receive “

Peri-operative Workstream
Never events 2011-12

1. Wrong site surgery
2. Wrong implant/prosthesis
3. Retained foreign object post-operation
4. Wrongly prepared high-risk injectable medication
5. Maladministration of potassium-containing solutions
6. Wrong route administration of chemotherapy
7. Wrong route administration of oral/enteral treatment
8. Intravenous administration of epidural medication
9. Maladministration of Insulin
10. Overdose of midazolam during conscious sedation
11. Opioid overdose of an opioid-naïve patient
12. Inappropriate administration of daily oral methotrexate
13. Suicide using non-collapsible rails
14. Escape of a transferred prisoner
15. Falls from unrestricted windows
16. Entrapment in bedrails
17. Transfusion of ABO-incompatible blood components
18. Transplantation of ABO or HLA-incompatible Organs
19. Misplaced naso- or oro-gastric tubes
20. Wrong gas administered
21. Failure to monitor and respond to oxygen saturation
22. Air embolism
23. Misidentification of patients
24. Severe scalding of patients
25. Maternal death due to post partum haemorrhage after elective Caesarean section

www.dh.gov.uk/en/Publicationsandstatistics/...DH_124552
Never events 2011-12

1. Wrong site surgery
2. Wrong implant/prosthesis
3. Retained foreign object post-operation
4. Wrongly prepared high-risk injectable medication
5. Maladministration of potassium-containing solutions
6. Wrong route administration of chemotherapy
7. Wrong route administration of oral/enteral treatment
8. Intravenous administration of epidural medication
9. Maladministration of Insulin
10. Overdose of midazolam during conscious sedation
11. Opioid overdose of an opioid-naïve patient
12. Inappropriate administration of daily oral methotrexate
13. Suicide using non-collapsible rails
14. Escape of a transferred prisoner
15. Falls from unrestricted windows
16. Entrapment in bedrails
17. Transfusion of ABO-incompatible blood components
18. Transplantation of ABO or HLA-incompatible Organs
19. Misplaced naso- or oro-gastric tubes
20. Wrong gas administered
21. Failure to monitor and respond to oxygen saturation
22. Air embolism
23. Misidentification of patients
24. Severe scalding of patients
25. Maternal death due to post partum haemorrhage after elective Caesarean section
Surgical Safety Checklist

Before induction of anaesthesia
(with at least nurse and anaesthetist)

- Has the patient confirmed his/her identity, site, procedure, and consent?
  - Yes
  - Not applicable

- Is the site marked?
  - Yes
  - Not applicable

- Is the anaesthesia machine and medication check complete?
  - Yes

- Is the pulse oximeter on the patient and functioning?
  - Yes

- Does the patient have a:
  - Known allergy?
    - No
    - Yes
  - Difficult airway or aspiration risk?
    - No
    - Yes, and equipment/assistance available
  - Risk of >500ml blood loss (7ml/kg in children)?
    - No
    - Yes, and two IVs/central access and fluids planned

Before skin incision
(with nurse, anaesthetist and surgeon)

- Confirm all team members have introduced themselves by name and role.
- Confirm the patient’s name, procedure, and where the incision will be made.

- Has antibiotic prophylaxis been given within the last 60 minutes?
  - Yes
  - Not applicable

Anticipated Critical Events

To Surgeon:
- What are the critical or non-routine steps?
- How long will the case take?
- What is the anticipated blood loss?

To Anaesthetist:
- Are there any patient-specific concerns?

To Nursing Team:
- Has sterility (including indicator results) been confirmed?
- Are there equipment issues or any concerns?

Is essential imaging displayed?
- Yes
- Not applicable

Before patient leaves operating room
(with nurse, anaesthetist and surgeon)

Nurse Verbally Confirms:
- The name of the procedure
- Completion of instrument, sponge and needle counts
- Specimen labelling (read specimen labels aloud, including patient name)
- Whether there are any equipment problems to be addressed

To Surgeon, Anaesthetist and Nurse:
- What are the key concerns for recovery and management of this patient?

This checklist is not intended to be comprehensive. Additions and modifications to fit local practice are encouraged.

Revised 1/2009 © WHO, 2009
Theatre scheduling and efficiency

Dedicated day cases

Dedicated 12 & 23hr cases

Mixed day case/inpatients
  - Day cases first
  - Day cases post major case
Lost Theatre Time
Unnecessary effort
Stress for crew
Delays for patients
Crew Efficiency
Long Changeovers

Lost Sessions

Crew scheduling
Rotation
Not self managing
Complex Procedures
Rep Availability

Recover from Error
Technician Availability
Scrub Nurse Experience
Unclear lists / Self confidence
Rep Availability

Double Preparation
Confidence in SSD
Confidence in equipment

Patient Readiness
Not Yet consented
Not Decided Anaesthetic
Not set-up on table correctly

Staff Arrival
Prior past experience
No sense of urgency

Set-up time
Many Trays
Uncertain about listed procedure

Next Patient Readiness
Not called from Theatre
Not called early
Late from Ward

Clear-up time
Many trays
Not called

Chase trays work intensive for SSD
Many trays

Incomplete Trays
Confoundables not separate
Wear & Tear

Tray Pillaging
Late list changes
Instrument failure

Instrument Delays

Turnaround time
Transport of instruments
Basic tracking

Incorrectly re-packed

Lost Theatre Time
Unnecessary effort
Stress for crew
Delays for patients

Late Start
Late Changes

Theatre efficiency factors

Lost Theatre Time
Unnecessary effort
Stress for crew
Delays for patients

Late notice of requirement

British Association of Day Surgery
www.bads.co.uk
Theatre Efficiency

- 10% lists cancelled
- 7.5% gap time
- Audit Commission 2003
What is “Theatre Utilisation Time?”

- Anaesthetic time
- In-theatre preparation
- Transfer time
- Operating time
- Change around time
  - anaesthetic time
  - in-theatre preparation
  - transfer time
- Operating time
- ....and so on ....
NHS HIGHLAND | RAIGMORE HOSPITAL
Theatre 100 | Speciality | 4 August 2009
Surgeon: A.Nother | Anaesthetist: G. Asman

Gap Times
Operating theatre utilisation

23 ambulatory lists

Anaesthetic time              871   (18.0%)
Gap time                         691   (14.3%)
Operating time                 2981 (61.3%)

Total available                  4843
Time utilised                     4543 (94%)

Orchard M, Ellams J, McWhinnie D
Journal One-Day Surgery 2010:20;4-6
Discharge process

Discharge Criteria

• Vital signs stable
• Orientation
• Pain controlled
• Oral analgesics supplied
• Understands medication
• Ability to dress and walk
• Minimal nausea & vomiting
• Minimal wound bleeding
• Responsible adult to take them home
• Carer at home for next 24 hrs
Day and Short Stay Surgery Pathway
Key Areas on the Patient Administrative Pathway

Rate limiting steps
1. Criteria
2. Preassessment
3. Patient Admission
4. Theatre Efficiency
5. Discharge Process

Domains
1. Quality
2. Cost
3. Safety