Day Surgery..
The key to improving patient experience and increasing efficiency?

Dr Mary Stocker
Consultant Anaesthetist, Torbay
President BADS
How a day surgery mindset can transform the outcomes for both your patients and your hospital
The Issues

Inefficient Surgical Processes
Too few patients considered for day surgery
Medical patients taking over the hospital
The Ideal Scenario

- Complete separation of elective and emergency care
- All elective patients assumed to be day surgery
- If they fail to meet the criteria for day surgery discharge they stay in until these criteria are met
Few of us work in the ideal hospital

But..

- We can still do many things to:
  - keep our processes separate
  - optimise our day surgery activity and outcomes.. Which patients and procedures?
  - And… in doing so facilitate better processes for day case patients and those requiring inpatient care
The Challenges?

Which Patients?
Which Procedures
Which Facilities?
Which Staff?

Sharing the expertise to transform other services
What can day surgery do?

How does day surgery think?
Increase use of day surgery

*Every* elective surgical patient be considered for day surgery

- Pre-assessment to identify *specific* limiting factors
  - No arbitrary rules for age/ASA/body mass index
  - If they are not appropriate for day surgery should they be having elective surgery at all?

- Innovative solutions for patients with no carer
  - Virtual ward beds
  - Providing carers in their homes
Increase use of day surgery
Which Patients?

Always ask these questions

– Is there any reason this patient could not be a day case?
– What would we really do differently if they were an inpatient?
– Are their risks increased in any way by treatment on a day stay basis?
– What could we do to enable them to be a day case?
Social Factors

- Responsible adult
- Maximum 1 hours drive
- Adequate housing conditions
  - inside toilet
  - telephone access
  - heating
  - stairs
Responsible Adult

- How long is 24 hours?
- Who can provide this care?
- Are all anaesthetics/procedures equal?
How long do carers stay?

Barker et al JODS 2014

The diagram shows the mean time carers stayed and the mean time to ADLs and 'safe' for different pain levels among patients. The pain levels are categorized as No Pain, Mild Pain, Moderate Pain, and Severe Pain. The data suggests that carers stay longer for patients with Severe Pain compared to those with No Pain. Additionally, the time to ADLs and 'safe' is generally shorter for patients with No Pain compared to those with more severe pain.
## What did Patients Think?

<table>
<thead>
<tr>
<th></th>
<th>Too Long</th>
<th>Not Enough</th>
<th>About Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Patients</td>
<td>29%</td>
<td>12%</td>
<td>59%</td>
</tr>
<tr>
<td>No Pain Predicted</td>
<td>33%</td>
<td>0%</td>
<td>67%</td>
</tr>
<tr>
<td>Mild Pain Predicted</td>
<td>57%</td>
<td>0%</td>
<td>43%</td>
</tr>
<tr>
<td>Moderate Pain Predicted</td>
<td>27%</td>
<td>18%</td>
<td>55%</td>
</tr>
<tr>
<td>Severe Pain Predicted</td>
<td>20%</td>
<td>15%</td>
<td>65%</td>
</tr>
</tbody>
</table>

Survey of 72 patients
Possible Solutions

• Torbay Model: provide carers into patients homes

• Kings Lynn Model: virtual ward

• Norwich Model: allow some patients home without carers after certain procedures
Distance from Hospital

- Rarely a problem
- Even in mid Wales/rural Devon
- Remember it is 1 hour from a hospital that can treat the condition not necessarily the operating hospital
- Procedure specific
Social Factors

The vast majority of patients are socially appropriate for day surgery or can be enabled to be so with proactive management.
Medical Factors 1980’s

1985 & 1992
Royal College of Surgeons of England

Selection Criteria
Age limit 65-70 years
ASA I & II
BMI<30
Max 60 mins operating time
2002
Default to Day Surgery

“Patients should only be excluded from day surgery after full pre-operative assessment shows a contraindication”.

Day Case Criteria

But –
Fatter Population
Older Population

Therefore Expand –
BMI
Age
ASA Status
## Patient Selection

<table>
<thead>
<tr>
<th></th>
<th>1990</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASA</td>
<td>1 and 2</td>
<td>No limit</td>
</tr>
<tr>
<td>Age</td>
<td>70</td>
<td>No Limit</td>
</tr>
<tr>
<td>BMI</td>
<td>30</td>
<td>No limit</td>
</tr>
<tr>
<td>IDDM</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Day and Short Stay Surgery: AAGBI & BADS joint publication 2011
ASA

• Most stable medical conditions can reasonably be managed as a day case

• Most patients with unstable medical conditions should not be undergoing elective surgery

• Urgent or emergency surgery in these patients may require inpatient stay
ASA III
Unplanned Admissions

ASA III 2.9%
ASA I and II 1.9%
p = 0.16

Ansell and Montgomery, BJA, 2004
## ASA III

### Postoperative Symptoms

<table>
<thead>
<tr>
<th>Drowsiness</th>
<th>Nausea</th>
<th>Bleeding</th>
<th>Pain</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASA 1/2</td>
<td>ASA 1/2</td>
<td>ASA 1/2</td>
<td>ASA 1/2</td>
</tr>
<tr>
<td>1.60%</td>
<td>1.40%</td>
<td>1.20%</td>
<td>23.80%</td>
</tr>
<tr>
<td>ASA 3</td>
<td>ASA 3</td>
<td>ASA 3</td>
<td>ASA 3</td>
</tr>
<tr>
<td>1.50%</td>
<td>1.20%</td>
<td>1.20%</td>
<td>26.50%</td>
</tr>
</tbody>
</table>

P > 0.05 for all symptoms

Ansell and Montgomery, BJA, 2004
OSA

• May require CPAP post-op
• Are they more likely to get this at home or in hospital?
• Beware use of strong opiates
• Significant OSA in patients undergoing tonsillectomy is a contraindication to day surgery
IDDM

- National Guidelines from NHS Diabetes

- Diabetics are usually better at managing their own diabetes than we are!

- Preoperative optimisation from specialist diabetic nursing teams is invaluable for patients with poor control
Elderly

Usually better managed in their own environment
The Elderly
Admission Rates

Sinha et al, 2007
Satisfaction with Day Surgery

- Very satisfied: 95.0%
- Satisfied: 93.4%
- Not satisfied: 4.3%

>70 (n=797) vs <65 (n=796)
Obesity

“most potential complications of obesity are limited to the intra- and immediate post operative environment and so obese patients can still be managed as a day case”

The Pathway to Success – Management of the Day Surgical Patient.
BADS Publication 2012
Obesity

“even morbidly obese patients can be safely managed in expert hands, with appropriate resources.”

“obese patients benefit from the short duration anaesthetic techniques and early mobilisation associated with day surgery”

Day Case and Short Stay Surgery: 2
Association of Anaesthetists of Great Britain and Ireland
British Association of Day Surgery 2011
Obesity Admission Rates

Davies, Houghton and Montgomery, Anaesthesia 2001
Obesity
Unplanned Services Contact

Davies, Houghton and Montgomery, Anaesthesia 2001
Obesity

• Problems occur early (induction/primary recovery)

• Everything is more difficult and takes longer

• Senior staff required

• Additional kit (airway, long instruments, special table etc)
Obesity continued

- May not be appropriate for surgery in an isolated site, but can still be day cases through main hospital facilities
- Once they are through primary recovery no increased risk of complications from overnight stay
- Day surgery arguably reduces risk of DVT/HAI
Medical Exclusions

- **unstable** ASA III, ASA IV
- any poorly controlled abnormality
- Neonates
- ex-prem infants < 60 wks post conceptual age
- young sibling of SIDS child
How far have we come?

<table>
<thead>
<tr>
<th></th>
<th>1990</th>
<th>2016</th>
</tr>
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<tr>
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</tr>
<tr>
<td>BMI</td>
<td>30</td>
<td>No limit</td>
</tr>
<tr>
<td>IDDM</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Criteria in 2016

- Abandon universal selection criteria
- Adopt an inclusion rather than an exclusion philosophy
- Apply limitations to the procedure rather than the patient
Increase use of day surgery
Which Procedures?

Always ask these questions

– Is there any reason this procedure could not be a day case?
– What would we really do differently if they were an inpatient?
– What do we need change to enable this to be a day case procedure?
Surgical Criteria

• Can they have oral nutrition post-operatively?

• Pain managed by simple oral analgesia + regional anaesthetic techniques?

• Can they mobilise?

• Low risk of catastrophic complications
Increase use of day surgery
How can we enable a procedure to be a day case?

• Antibiotic regime?
• Allied health professionals?
• Tests and investigations?
Day case selection criteria

Complexity of surgery: operations lasting longer than 60 min and those associated with a risk of significant post operative pain, haemorrhage, or prolonged immobility should not be performed.
# Long Operating Times

<table>
<thead>
<tr>
<th></th>
<th>Admissions</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ops &lt; 60 min</td>
<td>191</td>
<td>9553</td>
<td>2.00%</td>
</tr>
<tr>
<td>Ops &gt; 60 min</td>
<td>27</td>
<td>1116</td>
<td>2.42%</td>
</tr>
</tbody>
</table>

\[ \chi^2 \]  

\[ p = 0.36 \]

Skues MA, J One Day Surgery, 2011
`The duration of surgery in the ambulatory setting was originally limited to procedures lasting less than 90 minutes...

... However, surgical procedures lasting 3 to 4 hours are now routinely performed on an ambulatory basis.`
Nearly ALL surgery should be day or very short stay

- lap nephrectomy
- prostatectomy
- lap hysterectomy
- vaginal hysterectomy
- thyroidectomy
- mastectomy
- shoulder surgery
- anterior cruciate ligament
- lumbar discectomy
- abdominoplasty
- some emergencies

Better Care Better Values Web site: www.productivity.nhs.uk
How far have we come?

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Procedures in 1990</th>
<th>Procedures in 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ophthalmology</td>
<td>Cateract Extraction</td>
<td>Vitrectomy</td>
</tr>
<tr>
<td>Gynaecology</td>
<td>Hysteroscopy</td>
<td>Hysterectomy</td>
</tr>
<tr>
<td>Orthopaedics</td>
<td>Arthroscopy</td>
<td>Uni-chondylar Knee Replacement</td>
</tr>
<tr>
<td>Urology</td>
<td>Circumcision</td>
<td>Laparoscopic Nephrectomy</td>
</tr>
</tbody>
</table>
Increase use of day surgery
Summary of Patient Selection

• Is the procedure in the BADs Directory?
• Is the patient fit for surgery?
• How can we manage them as a day case?
Increase use of day surgery
Where?

- All activity transferred to the Day Surgery Unit where possible
  - Improved processes for patients – better clinical outcomes
  - Better efficiency resulting in higher list throughput
  - Fewer Cancellations
  - Surgical productivity maintained even when the hospital is overflowing
  - Dedicated facilities must be protected at all cost from inpatient sabotage
Increase use of day surgery
Where?

➢ All activity transferred to the Day Surgery Unit where possible

➢ If not..

➢ Inpatient admissions unit ➔ theatre ➔ DSU for discharge
No day surgery patient should be discharged via an inpatient ward.

Their chances of getting home are greatly reduced.
## Dedicated Facilities
### Unplanned Admission Rates

#### Orthopaedic Day Cases in 2005

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Admissions</th>
<th>% Admitted</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orthopaedic Day beds</td>
<td>642</td>
<td>108</td>
<td>16.8</td>
<td></td>
</tr>
<tr>
<td>Day Surgery Unit</td>
<td>634</td>
<td>13</td>
<td>2</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

#### Day Cases from all specialities in 2008

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Admissions</th>
<th>% Admitted</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satellite Day Unit</td>
<td>1015</td>
<td>27</td>
<td>2.66</td>
<td></td>
</tr>
<tr>
<td>Day surgery Unit</td>
<td>6419</td>
<td>64</td>
<td>1</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>
## Dedicated Facilities
### Symptoms after discharge

<table>
<thead>
<tr>
<th></th>
<th>Day Surgery Unit %</th>
<th>Satellite Unit %</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate to severe pain</td>
<td>1.52</td>
<td>6.4</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Moderate or severe nausea</td>
<td>0.14</td>
<td>0.39</td>
<td>0.072</td>
</tr>
<tr>
<td>Patient satisfaction</td>
<td>99.85</td>
<td>99.61</td>
<td>0.186</td>
</tr>
<tr>
<td>Satisfaction with being a day case</td>
<td>99.98</td>
<td>99.7</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

*Fehrmann, Matthews and Stocker: Journal of One Day Surgery, 2009*
Financial Incentives..
Inguinal Hernia Repairs

<table>
<thead>
<tr>
<th></th>
<th>Theatre cost</th>
<th>Average length of procedure</th>
<th>Theatre Cost per procedure</th>
<th>Number of procedures per list (210 mins)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient Theatres</td>
<td>£15/minute</td>
<td>64 mins</td>
<td>£960</td>
<td>3.3</td>
</tr>
<tr>
<td>Day Unit</td>
<td>£12/minute</td>
<td>50 mins</td>
<td>£600</td>
<td>4.2</td>
</tr>
</tbody>
</table>

- 60% increase in cost if performed in inpatient theatres
- An additional case is performed in day unit for the same overhead costs
## The Bottom Line

<table>
<thead>
<tr>
<th>Profit per List</th>
<th>Age ≥69</th>
<th>Age ≤ 70</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Day Surgery Unit</strong></td>
<td>£2834</td>
<td>£1704</td>
</tr>
<tr>
<td><strong>Inpatient Theatres</strong></td>
<td>£1056</td>
<td>£216</td>
</tr>
</tbody>
</table>

_Dione and Stocker: BADS 2008_
A bed or not a bed?
Medical Patients
The Solution
Your Day Surgery Unit

Should have...
  No Beds
  No Showers
  Only simple Catering facilities

No capacity to accept an inpatient
Your Day Surgery Unit
Facilities

If you want your surgeons to work there your DSU must have the best kit and the best staff

We can no longer be the poor relation
By Whom

Senior Surgeons
Senior Anaesthetist
Nurse led Discharge
“Day Surgery should only be performed by senior medical staff”
### Do Senior Staff Improve Quality?

#### Unplanned Admission Rates

<table>
<thead>
<tr>
<th>Grade of anaesthetist</th>
<th>Unplanned admissions n (%)</th>
<th>Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultants</td>
<td>856 (2.4%)</td>
<td>35,844</td>
</tr>
<tr>
<td>SAS</td>
<td>336 (3.1%)</td>
<td>10,699</td>
</tr>
<tr>
<td>Trainees</td>
<td>307 (3.4%)</td>
<td>9,161</td>
</tr>
</tbody>
</table>

*P<0.001*  

Hanousek, Montgomery and Stocker  
*Anaesthesia* 2009
### Senior Staff?

#### Post Operative Symptoms

<table>
<thead>
<tr>
<th>Grade of anaesthetist</th>
<th>Reported complications n (%)</th>
<th>Follow-up respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultants</td>
<td>9219 (47.4)</td>
<td>19446</td>
</tr>
<tr>
<td>SAS</td>
<td>3812 (52.3)</td>
<td>7286</td>
</tr>
<tr>
<td>Trainees</td>
<td>2657 (49.2)</td>
<td>5404</td>
</tr>
</tbody>
</table>

\[ P < 0.001 \]
Emergency Day Surgery
The Final Frontier…
Emergency Day Surgery

Ambulatory Emergency Care

Contents
1. Introduction
2. The Emergency Day Surgery Pathway
3. Emergency Day Case General Surgery
   a. Abscess Management
   b. Appendicectomy
4. Shared Experience
5. Emergency Day Case Orthopaedic Surgery
6. Ambulatory Care for Medical Presentations
7. Sustainability
8. Summary
## Emergency Day Surgery
### Possible Procedures

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Incision &amp; Drainage of Abscess- Axillary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendicectomy (laparoscopic)</td>
<td>- Groin</td>
</tr>
<tr>
<td></td>
<td>- Neck</td>
</tr>
<tr>
<td></td>
<td>- Perianal</td>
</tr>
<tr>
<td></td>
<td>- Pilonidal</td>
</tr>
<tr>
<td>Arthroscopy</td>
<td>Tendon repair</td>
</tr>
<tr>
<td>Biopsy-Lymph Node</td>
<td>Laparoscopic ovarian cystectomy</td>
</tr>
<tr>
<td>- Temporal Artery</td>
<td></td>
</tr>
<tr>
<td>Evacuation retained products of conception</td>
<td>Reduction and internal fixation</td>
</tr>
<tr>
<td>Incarcerated Hernia-Inguinal</td>
<td>K-wiring</td>
</tr>
<tr>
<td>- Para-umbilical</td>
<td>- finger or wrist</td>
</tr>
<tr>
<td>- Femoral</td>
<td></td>
</tr>
</tbody>
</table>
Emergency Day Surgery

Emergency Surgery Flow

- Admit
  - Conservative Management
  - Operation
    - Operation to Discharge < 12 hours
      - Operation to discharge > 12 hours
    - Failed day surgery
  - Discharge
    - No Follow-up
    - Out-patient Follow-up
    - Book Hot clinic

- Surgical Arrivals Unit
- Home & Planned Day Case Readmission
- Same day see and treat

- Admission Avoidance
- Emergency attendance ED/ GP
Bath Model

New Process

Patient

Consultant

Dedicated diagnostics

Decision

THEatre
Bath Data
Emergency Surgical Ambulatory Care

- Consultant Delivered Clinic each morning
  - 8 patients
  - dedicated imaging etc
- Dedicated Day Case list each afternoon
- 24% Surgical Referrals
- 90 bed days/month saved in these patients
- 30 bed days/month saved for other emergency patients
Summary
Process

• Social Care rarely an issue
• Medical Conditions rarely an issue
• Procedures – embrace the BADS Directory
• Dedicated facilities – we should strive towards these
• Embrace Emergency Day Surgery
Summary
Outcomes

• Increased Patient Satisfaction
• Fewer cancellations
• Increased productivity
• Waiting lists vanish
• Increased staff satisfaction and enthusiasm