Evaluating Quality in the Day Surgery Pathway

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Director of Day Surgery
South Devon Healthcare NHS Foundation Trust
President-Elect BADS
Key Question

What is “quality” in the Day Surgery Pathway?
Very little reporting of Quality

But...

Quantity does reflect to some extent Quality

If you aren’t doing it well you will not achieve high day case rates
What Quality Markers do we have in the UK?

- Targets for Quantity - Day Case Rates
- Guidance for facilities/staffing/process
- Some targets for clinical outcomes
- Patient satisfaction
• Process
• Patient Outcomes
• Day Surgery Quantity
Teamwork
It doesn’t happen by accident but by a huge amount of hard work over a sustained period of time, working together for each other “the greater good” rather than individual glory.
HIGH QUALITY SUCCESS

Team work at the top:
- Multi-professional management team

Dedicated training facilities
- Dedicated facilities, unit controls the entire process

Geographically discrete
- Units discrete from inpatient activities

Attention to detail
- Protocols for all stages of DSU process

Aggregation of small incremental changes
- Small details make a big impact
Quality Marker Number 1

Do your units have all these in place?

Have they got *the processes* correct?

Do you work as a team?
Essential components of a day surgery pathway

Booking
Preoperative Assessment
Admission
Anaesthesia and Surgery
Recovery
Discharge
Follow-up
Audit

Outcomes from each stage of the process must be monitored
Booking: Non-attenders, utilisation rates
Preop Assessment: Cancellation Rates
Admission: start times
Anaesthesia: admission rates/post-op symptoms
Surgery: admission rates/post-op symptoms
Recovery: discharge times/admission rates/post-op symptoms
Discharge: unplanned contact
Follow-up: unplanned contact
Audit: improved service

Ultimate outcome is patient satisfaction
Quality Marker Number 2

Do your day surgery patients follow a true day surgery pathway for the entire surgical journey?

Are all aspects of this pathway managed by the Day surgery Team?

Do you measure outcomes for all aspects of your pathway?
Influences on Quality of Outcomes

Dedicated facilities
Grade of Staff
Anaesthetic Technique
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
Why the difference?

Preoperative assessment
Ward nurses
Availability of anaesthetists
Isolation from Day Surgery Unit
Day surgery mindset
Inpatient activity
Quality Marker Number 3

“Does your unit have dedicated facilities for Day Surgery Patients?”

If not..

“Do you have clearly separated processes for day surgery and inpatient care?”
Senior Medical Staff

“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
Quality Marker Number 4

“Is day surgery a consultant led service for both surgery and anaesthesia?”
Patient Selection

Are you too conservative?

Do patients have to prove themselves fit to be allowed to be a day case?

Why???
Patient Selection

Are this patient’s risks increased in any way by treatment on a day stay basis?

Would management be different if he/she were admitted as an inpatient?
Day surgery with co-morbidities..

- Obesity?
- ASA 3 and 4?
- The elderly?
- What about those who live alone?
## 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>Body Mass Index</td>
<td>30</td>
<td>No limit</td>
</tr>
<tr>
<td>Diabetic Patients</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Social Factors

The vast majority of patients are socially appropriate for day surgery or can be enabled to be so with proactive management.
Quality Marker Number 5

“Do you have protocols to ensure all possible patients are offered the opportunity for day surgery?”
PATIENT OUTCOMES
Patient Outcomes

Cancellations
• Target 5%?

Unplanned Admission
• Target 2%

Symptoms after discharge
• Target <5% severe pain

Patient satisfaction
• Target 85%
Patient Outcomes?

Cancellations
Unplanned Admission
Symptoms after discharge
Patient Satisfaction
Cancellations

• Rate 3.3%
• Preoperative assessment
• Administration
• Unavoidable

CAA Reason

- Unknown
- Pt Unfit
- Already done
- Not needed
- No results
- Not Starved
- Surgeon sick
- Ran out of time
- High INR
- Unsuitable
- Self discharge
- Other
- Inst failure
- Needs GA
- In Patient
- Further Ix
- Staffing
- Change theatre
- Emergency list
Quality Marker Number 6

“What is your rate of cancellations after arrival and DNAs?”
Patient Quality?

Cancellations
Unplanned Admission
Symptoms after discharge
Patient Satisfaction
What do we need to know

Overall unplanned admission rates
Rates for individual procedures
Individual surgeons
Individual Anaesthetists
Reasons for admissions
Day of the week/time of day?

Are there patterns?
% Unplanned Admissions
Keeping rates low

Senior regular medical staff
Protocols for anaesthetic / analgesic/antiemetic techniques
Monthly analysis
Anaesthetist/surgeons logs
Ward visits by nursing staff
Perioperative prescription chart
1pm and 5pm drug rounds
Consultant rounds
Monitoring outcomes changes practice...

Inguinal Hernia Repairs

Unacceptably high admission rate (>10%) in 2003
- 41% admissions due to pain
- 33% due to inability to mobilise (inadvertent femoral block)

Guideline written
- TIVA
- LA administered by surgeon
- Analgesic regimen
Reaudit 2008

<table>
<thead>
<tr>
<th>Year</th>
<th>LA by surgeons</th>
<th>TIVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>41%</td>
<td>75%</td>
</tr>
<tr>
<td>2004</td>
<td>66%</td>
<td>67%</td>
</tr>
<tr>
<td>2005</td>
<td>89%</td>
<td>77%</td>
</tr>
<tr>
<td>2006</td>
<td>96%</td>
<td>78%</td>
</tr>
<tr>
<td>2007</td>
<td>96%</td>
<td>86%</td>
</tr>
</tbody>
</table>
Unplanned Admission rate

<table>
<thead>
<tr>
<th>Year</th>
<th>Admission Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>10.4</td>
</tr>
<tr>
<td>2004</td>
<td>9.1</td>
</tr>
<tr>
<td>2005</td>
<td>6.9</td>
</tr>
<tr>
<td>2006</td>
<td>1.8</td>
</tr>
<tr>
<td>2007</td>
<td>2.2</td>
</tr>
<tr>
<td>2008</td>
<td>3.0</td>
</tr>
</tbody>
</table>
Quality Marker Number 7

“What is your unplanned admission rate?”
RCOA Target: <2% overall

“What are your rates for individual procedures?”

“Are these rates monitored and processes implemented to improve/maintain them?”
Patient Outcomes?

- Cancellations
- Unplanned Admission
- Symptoms after discharge
- Patient Satisfaction
## Symptoms after discharge

<table>
<thead>
<tr>
<th>%</th>
<th>Pain</th>
<th>Bleeding</th>
<th>Nausea</th>
<th>Vomiting</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>56.1</td>
<td>85</td>
<td>97.4</td>
<td>99</td>
</tr>
<tr>
<td>Mild</td>
<td>37.2</td>
<td>13.5</td>
<td>1.9</td>
<td>0.5</td>
</tr>
<tr>
<td>Moderate</td>
<td>6.1</td>
<td>1.5</td>
<td>0.5</td>
<td>0.2</td>
</tr>
<tr>
<td>Severe</td>
<td>0.6</td>
<td>0.5</td>
<td>0.2</td>
<td>0.2</td>
</tr>
</tbody>
</table>
Postoperative Pain

Take Home Analgesia Protocol

All procedures are classified by level of expected pain

- None
- Mild
- Moderate
- Severe

Protocol for analgesia for each pain category

Compliance was improved by the introduction of a computerised anaesthetic record system in 2002
<table>
<thead>
<tr>
<th><strong>A</strong></th>
<th><strong>B</strong></th>
<th><strong>C</strong></th>
<th><strong>D</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>EUA Ears</td>
<td>Cataract surgery</td>
<td>Anal surgery</td>
<td>Anterior cruciate repair</td>
</tr>
<tr>
<td>Cystoscopy</td>
<td>Dental extractions</td>
<td>Apicectomy</td>
<td>BAHA</td>
</tr>
<tr>
<td>Restorative</td>
<td>- simple</td>
<td>Arthroscopy</td>
<td>Circumcision</td>
</tr>
<tr>
<td>dentistry</td>
<td>Grommet/T tube</td>
<td>Breast lumps (minor)</td>
<td>Dental 8s extraction</td>
</tr>
<tr>
<td></td>
<td>insertion</td>
<td>Breast lumps (major)</td>
<td>Dental clearance</td>
</tr>
<tr>
<td></td>
<td>Prostate biopsy</td>
<td>Carpal tunnel decompression</td>
<td>Endometrial ablation</td>
</tr>
<tr>
<td></td>
<td>Sebaceous cyst</td>
<td>Cervical vulval surgery</td>
<td>Lap cholecystectomy</td>
</tr>
<tr>
<td></td>
<td>Sigmoidoscopy</td>
<td>Dental extractions</td>
<td>Lap gynae operations</td>
</tr>
<tr>
<td></td>
<td>Skin lesions</td>
<td>- intermediate</td>
<td>Haemorrhoidectomy</td>
</tr>
<tr>
<td></td>
<td>Trabeculectomy</td>
<td>Dupuytren's</td>
<td>Hernias</td>
</tr>
<tr>
<td></td>
<td>Urethral surgery</td>
<td>Hysteroscopy</td>
<td>Joint fusions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MUA/steroid injn</td>
<td>Middle ear surgery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nasal surgery</td>
<td>Osteotomies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-wisdom tooth extractn</td>
<td>Squint surgery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vaginal sling</td>
<td>Testicular operations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Varicose Vein ops</td>
<td>Tonsillectomy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vasectomy</td>
<td></td>
</tr>
</tbody>
</table>
# Take Home Medication Protocol

<table>
<thead>
<tr>
<th>Pain Intensity</th>
<th>Discharge Medication</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Mild</td>
<td>Paracetamol 1g QDS</td>
</tr>
<tr>
<td>Moderate</td>
<td>Paracetamol 1g QDS</td>
</tr>
<tr>
<td>(NSAID intolerant)</td>
<td>Ibuprofen 600 mg QDS</td>
</tr>
<tr>
<td>Moderate</td>
<td>Paracetamol 1g QDS</td>
</tr>
<tr>
<td>(NSAID intolerant)</td>
<td>Codeine 60 mg QDS</td>
</tr>
<tr>
<td>Severe</td>
<td>Paracetamol 1g QDS</td>
</tr>
<tr>
<td>(NSAID intolerant)</td>
<td>Codeine 60 mg QDS</td>
</tr>
<tr>
<td></td>
<td>Ibuprofen 600 mg QDS</td>
</tr>
<tr>
<td>Severe</td>
<td>Paracetamol 1g QDS</td>
</tr>
<tr>
<td>(NSAID intolerant)</td>
<td>Oromorph 20 mg (5 doses)</td>
</tr>
</tbody>
</table>
Tackling Pain Scores after Day Surgery with Protocols for Postoperative Prescribing

Aims

1 years data (2006-7)
Compare outcomes with college targets
Audit compliance with unit protocols
Identify areas for improvement

Lakshmann and Stocker BADS 2008
Comparison with RCOA targets for best practice

No pain and mild pain

Severe pain

satisfaction
Results

96% compliance with protocols
All targets easily achieved
50% of patients where protocol was not followed reported severe or moderate pain
Evaluation of Patients in Severe Pain

22 patients (0.4%) (target of < 5%)
Mainly orthopaedics and urology
Poor compliance with protocol (36%)
Common problems identified:
- More extensive procedures than planned
- Nurse practitioners issuing no TTAs
Quality Outcome Number 8

“What percentage of patients report significant symptoms post operatively?”
RCOA Target <5% patients report severe pain

“What protocols/procedures are in place monitor these rates and to keep them low?”
QUANTITY
Financial Targets

Maximise day surgery activity (75%)
Ensure where possible all day surgery occurs in DSU

Remember to focus on Clinical Quality
Financial Targets

Maximise day surgery activity (75%)
Ensure all day surgery occurs in DSU
Focus on Clinical Quality
UK NHS Plan 2000

• Treat Day Surgery as the norm
• 75% of all elective surgery should be day surgery
Audit Commission Basket of Procedures 2001

Cataract Extraction
Excision Breast Lump
Carpal Tunnel Decompression
Bat Ears
R/O Metalwork
Bunion Operations
Laparoscopy
Tonsillectomy
TURBT
Squint Correction
Orchidopexy
Anal Fissure

D&C / Hysteroscopy
Nasal Fractures
Myringotomy
Laparoscopic Cholecystectomy
Excision of Ganglion
Hernia Repair
Varicose Veins
Dupuytren’s Contracture
Haemorrhoidectomy
Circumcision
Arthroscopy
SMR
Termination of pregnancy
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
### How far have we come?

<table>
<thead>
<tr>
<th>Specialty</th>
<th>Procedures in 1990</th>
<th>Procedures in 2015</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>
Better Care Better Values
(Courtesy of Dr Mark Skues)
Quality Marker Number 9

“Do you work toward achieving high day case rates for a variety of procedures”

“Which procedures meet these targets and which require improvements?”

“Do you have national benchmarking of day case rates for individual procedures”
Financial Targets

Maximise day surgery activity (75%)
Ensure all day surgery occurs in DSU
Focus on Clinical Quality
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>Day Surgery Unit</td>
<td>£2834</td>
<td>£1704</td>
</tr>
<tr>
<td>Inpatient Theatres</td>
<td>£1056</td>
<td>£216</td>
</tr>
</tbody>
</table>

Dione and Stocker: BADS 2008
Dataset for Quality?

Patient Measures
- Unplanned Admission Rates
- Readmissions
- Postoperative symptoms
- Patient Satisfaction
- Unplanned contact with health service

Managerial Measures
- Day Case Rates
- Theatre Utilisation
- DNA Rates
- Cancellation rates
- Day Surgery Facilities
What else could we measure?

**Clinical**
- Age
- ASA
- BMI
- Co-morbidities
- Anaesthetic technique

**Managerial**
- Grade of staff
- Surgical times
- Recovery times
- SPI Compliance

and many more....
The Key to All
Data Collection and Analysis
Seek and Ye Shall Find