Implementing OPAT in the UK

Dilip Nathwani
Birmingham, October 2009

Ninewells Hospital & Medical School
Dundee DD1 9SY
McKinsey cost-saving proposals focus on waste in acute sector

3 September, 2009  |  By Sally Gainsbury

NHS hospitals in England are rife with waste and inefficiency, consultants McKinsey and Company have told the Department of Health in a confidential report, seen by HSJ. It says up to £2.4bn could be saved if hospitals with the lowest levels of staff productivity pulled themselves up to nearer the average performance. The management consultants argue that doctors and nurses in the worst 10 per cent of trusts deal with less than a fifth of the volume of patients that those in the best 10 per cent handle.

As well as staff productivity, the report identifies inefficiencies in the patient pathway. For example, it sets out how around 40 per cent of patients in a typical hospital do not need to be there at any one time. The biggest causes were delays in the patient receiving hospital tests or therapies, and a lack of more suitable care facilities in the patients’ own home or community.
OPAT fulfills many of the ambitions of A patient-led NHS (March 2005)

- **Choice** for patients: when and where treated.
- Tailored support to **local communities**
- Support to individuals to maintain health
- **Locally driven but national standards**
- Better **quality** and more **capacity** (stimulated by financial incentives)
- Joined up services and **integrated care**
Success Stories Nursing Times
3/2/09

- Chesire, Warrington PCT
- Nurse run service
- 9/05 to 11/08
- 751 patient treated by the “admission avoidance service”: only 27(3.2%) admitted
- 7000 bed days saved
- £2352 per patient for IP iv THERAPY V
£886 per patient in ambulatory setting
What are the benefits of Ambulatory care

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Patient</th>
<th>Pharmacy</th>
<th>Primary Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Discharge patients sooner</td>
<td>• Patient centred</td>
<td>• Capacity gains</td>
<td>• Time</td>
</tr>
<tr>
<td>• Reduce non-essential admissions</td>
<td>• Closer to home</td>
<td>• Refocus skill mix and clinical priorities</td>
<td>• Capacity</td>
</tr>
<tr>
<td>• Reduce readmissions</td>
<td>• Choice</td>
<td>• Reduced waiting times</td>
<td>• Efficiency</td>
</tr>
<tr>
<td>• Single point of contact</td>
<td>• Time saving</td>
<td>• Patient focused care</td>
<td>• Control</td>
</tr>
<tr>
<td>• Capacity gains</td>
<td>• Reduced travel</td>
<td>• Reduced error producing conditions</td>
<td>• Patient centred</td>
</tr>
<tr>
<td>• Reduced waiting times</td>
<td>• Convenience</td>
<td></td>
<td>• Financial</td>
</tr>
<tr>
<td>• Financial</td>
<td>• Quality of life</td>
<td></td>
<td>• Policy</td>
</tr>
</tbody>
</table>
Patients presenting with one or more HAIs during their in-patient stay incurred costs that averaged, 2.9 times more (£3154 per case) than those for uninfected patients.
Case Study
Referred by Diabetic Foot Clinic

- 76 year old woman, independent, lives with husband in Montrose, Scotland
- Heart failure, thyroxine replacement, obese, type 2 DM, recently poorly controlled and few hospital admissions.
- MRI confirmed right foot osteomyelitis secondary to DFI. MRSA isolated from bone biopsy. Problem with nausea with “many oral antibiotics”
- Started on oral flucloxacillin by GP 36hours earlier
- T 37.6c. wcc 15. No evidence of severe sepsis
- Diagnosis, DFI- osteomyelitis. Need for IV therapy 4-6 weeks
What would you do where you work?

1. Admit to hospital and start inpatient IV therapy = 42 days in hospital

2. Try oral therapy which she can tolerate and ask to return for review = frequent 80 miles+ round trips

3. Seek OHPAT team review & discharge on IV therapy (teicoplanin or daptomycin) = daily hospital visits

4. Admit for 24 hour observation and change to oral therapy or continuing IV therapy with OPAT team review

5. Self or carer administration of IV therapy at home

6. Ask the GP or district nurse team to administer IV therapy in practice
What is it?

- **OPAT**: (Outpatient Parenteral [iv, im] Antibiotic or Antimicrobial Therapy)
  - Health care professional delivered H-OPAT
  - Self administered S-OPAT

- **CO-PAT**: (Community parenteral antibiotic therapy)

- **OHPAT**: (Outpatient and Home Parenteral Antibiotic or Antimicrobial Therapy)

- Ambulatory or non-inpatient parenteral antimicrobial therapy

- **Non-inpatient parenteral antimicrobial therapy (NIPAT)**
# DISCHARGE PLANNING PATHWAY: INFECTION

## IV to oral switch criteria

<table>
<thead>
<tr>
<th>Clinical status</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Temperature less than 38°C for 24h</td>
</tr>
<tr>
<td>2.</td>
<td>White cell count normalising</td>
</tr>
<tr>
<td>3.</td>
<td>No unexplained tachycardia (Heart rate less than 100 beats per minute)</td>
</tr>
<tr>
<td>4.</td>
<td>Culture sensitivity received, if available</td>
</tr>
<tr>
<td>5.</td>
<td>Oral formulation available</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Oral absorption</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Patient tolerates oral fluids</td>
</tr>
<tr>
<td>2.</td>
<td>No medical problems leading to reduced absorption (e.g. vomiting, malabsorption)</td>
</tr>
<tr>
<td>3.</td>
<td>No surgical operation scheduled within next 36 hours</td>
</tr>
</tbody>
</table>

## Discharge on oral therapy criteria

<table>
<thead>
<tr>
<th>Clinical status</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Afebrile for at least 48 hours</td>
</tr>
<tr>
<td>2.</td>
<td>Tolerates normal diet</td>
</tr>
<tr>
<td>3.</td>
<td>Physically well enough for home or nursing/long term care facility</td>
</tr>
</tbody>
</table>

## Clinical team discharge policy

1. If above yes, patient should be considered for discharge home

## Patient selection criteria for OHPAT

1. Deemed to be suitable by medical staff i.e continuing IV therapy necessary or oral therapy inappropriate
2. Clear treatment plan defined
3. Clinically stable
4. Physically and mentally able
5. Appropriate home and social circumstances
6. Willing and motivated
7. Family support
OPAT in the United States

- First described in 1974 in children with cystic fibrosis
- Now over 250,000 patients are treated with OPAT each year (1/1000 Americans)
- Over $1.5 billion/year
- Growing still and a recognised standard of care
- Parenteral antibiotics in the OP setting use in Europe is a relatively percentage of total antibiotic use
OUTPATIENT PARENTERAL USE IN EUROPE

Coclen et al. JAC 2009; 64, 200-205
Comparison between H-OPAT (n=1621) and S-OPAT (n=513)

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>H-OPAT (% of diagnosis)</th>
<th>S-OPAT (% of diagnosis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infected prosthesis</td>
<td>30.2</td>
<td>19.1</td>
</tr>
<tr>
<td>Osteomyelitis &amp; septic arthritis</td>
<td>42.2</td>
<td>50.2</td>
</tr>
<tr>
<td>SSTI</td>
<td>5.8</td>
<td>4.9</td>
</tr>
<tr>
<td>Endovascular infection</td>
<td>4.3</td>
<td>1.0</td>
</tr>
<tr>
<td>Bacteraemia</td>
<td>7</td>
<td>1.6</td>
</tr>
<tr>
<td>Viral/fungal/mycobacterial</td>
<td>0.5</td>
<td>1.9</td>
</tr>
<tr>
<td>Other</td>
<td>9</td>
<td>11.3</td>
</tr>
</tbody>
</table>

Treatment options: Delivery Model: Tayside

- Daily outpatient therapy (H-OPAT) 57%
- Self-administered home therapy (S-OPAT) 8%
- Home visit by nurse practitioner or district nurse (H-OPAT) 33%
- Continue as inpatient 2%
Patient group direction for SSTIs

- ‘Patient group’: non-life-threatening cellulitis amenable for home care and requiring i.v. therapy
- Uniform therapeutic management
- Suitable protocol in place
  - Exclusions
  - Prior physician review
  - Indications for specialist review
  - Indications for IVOST
- Trained, experienced staff
- Approved by ADTC

IVOST, i.v. antibiotic – oral switch therapy

Protocol management was associated with reduced duration of outpatient i.v. therapy (from 4 to 3 days, $P=0.02$)
UK OHPAT TYPE ACTIVITY

Old survey
Ad hoc experience
New surveys : ID unit [Sheffield]
PROVISION OF AMBULATORY IV THERAPY

HIGH BURDEN, POOR PROVISION
IV STEROIDS (NEUROLOGY, VASCULITIS)
IV ANTIMICROBIALS
IV CHEMOTHERAPY
DIALYSIS
IV DIURETICS FOR HEART FAILURE
BLOOD TRANSFUSION

LOW BURDEN, HIGH PROVISION
IV IMMUNOGLOBULIN
CYSTIC FIBROSIS ANTIBIOTICS ETC
OTHERS
LARGE ESTABLISHED OPAT CENTRES WITH OUTCOMES DATA

- LONDON
- OXFORD
- SOUTHMAPTON
- CHESIRE
- SALFORD
- LEICESTER
- SHEFFIELD
- MANCHESTER
- CARDIFF
- BELFAST
- [DUBLIN]
- ABERDEEN
- DUNDEE
- GLASGOW
Most important factors which have prevented the development of an OHPAT service

<table>
<thead>
<tr>
<th>Factor</th>
<th>Number (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small no. pts. / fragmented distribution</td>
<td>34 (27%)</td>
</tr>
<tr>
<td>Funding issues</td>
<td>43 (35%)</td>
</tr>
<tr>
<td>Lack of leadership</td>
<td>42 (34%)</td>
</tr>
<tr>
<td>Difficulties in co-ordinating hospital &amp; community care</td>
<td>37 (30%)</td>
</tr>
<tr>
<td>Staffing / training issues</td>
<td>21 (17%)</td>
</tr>
<tr>
<td>No time to organise</td>
<td>14 (11%)</td>
</tr>
<tr>
<td>Not safe (line care or drug administration)</td>
<td>12 (10%)</td>
</tr>
<tr>
<td>Lack of guidelines</td>
<td>8 (6%)</td>
</tr>
<tr>
<td>Lack of experience in OHPAT</td>
<td>9 (7%)</td>
</tr>
<tr>
<td>More suitable options (eg oral agents, OHPAT as required)</td>
<td>8 (6%)</td>
</tr>
<tr>
<td>Geographical constraints</td>
<td>6 (5%)</td>
</tr>
<tr>
<td>Not yet organised</td>
<td>5 (4%)</td>
</tr>
<tr>
<td>Not cost-effective</td>
<td>5 (4%)</td>
</tr>
<tr>
<td>Patient expectations</td>
<td>4 (3%)</td>
</tr>
<tr>
<td>Don’t know</td>
<td>3 (2%)</td>
</tr>
<tr>
<td>Total number of respondents</td>
<td>124 (100%)</td>
</tr>
</tbody>
</table>

Seaton & Nathwani 1999
<table>
<thead>
<tr>
<th>Question</th>
<th>YES</th>
<th>NO</th>
<th>NOT SURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you run an OPAT service (83 respondents)</td>
<td>45%</td>
<td>55%</td>
<td></td>
</tr>
<tr>
<td>If no, would you be interested in establishing a service in your locality? (48 respondents)</td>
<td>88%</td>
<td>6%</td>
<td>6%</td>
</tr>
<tr>
<td>How long has service been established? (22 responses)</td>
<td>7-10 years: 7 services</td>
<td>2-6 years: 6 services</td>
<td>1 year or less: 9 services</td>
</tr>
<tr>
<td>Number of patients treated each year (23 responses)</td>
<td>35 or less: 7 respondents</td>
<td>40-65: 4 respondents</td>
<td>100-150: 6 respondents</td>
</tr>
</tbody>
</table>
Barrier and Solution

1. Guidance and UK standards of care
2. Influence key national and regional decision makers regarding need, value and safety
3. Business case based on needs assessment, clinical outcomes, patient views and healthcare resource benefits
4. Support new services—pilots and evaluate benefits
5. Share good practice, education

1. BSAC AND BIS working group to develop standards of care
2. Involve government and other key stakeholders in new healthcare agenda. Identify leadership or champions
3. Develop business case from a multi-stakeholder perspective
4. Support innovative service models with evaluation and
5. Road show of workshops, website, publications
BSAC OPAT PROJECT

- STANDARDS OF CARE
- BUSINESS CASE
- OUTCOMES REGISTRY
- WEB BASED MULTI-DISCIPLINARY LEARNING COMMUNITY
- SUPPORT AND EVALUATE NEW PROGRAMMES
- DOH REPRESENTATION
- EUROPEAN COLLABORATION AND MEETING
OPAT AND QUALITY √

Characteristics of quality
- Evidence based standards of care √ (BSAC)
- Measurable √
- Transparent √

Specific aims of healthcare should be:
- SAFE √
- EFFECTIVE √
- PATIENT CENTERED √
- TIMELY √
- EFFICIENT √
- EQUITABLE √
From Guidance to care standards
## Guidelines for OHPAT

<table>
<thead>
<tr>
<th>Guideline</th>
<th>Country &amp; year</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice guidelines for OPAT</td>
<td>US, 2004. [1] Evidence based</td>
<td>The most complete updated guideline on all aspects of OHPAT but primarily aimed at UK healthcare system</td>
</tr>
<tr>
<td>Hospital0in-the home (HIH) treatment of ID</td>
<td>Aust; 2002, 2 AUTHORS [2]</td>
<td>Good practice statement written by 2 Australian experts; good practical advice. Emphasis on home therapy and infusion options</td>
</tr>
<tr>
<td>Advisory group on home based and outpatient care (Adhoc): an international consensus statement on OHPAT</td>
<td>International (non-US); 2000 [4]</td>
<td>Useful perspective on models of care and how to overcome clinical, logistic, fiscal and political barriers to setting up OHPAT service</td>
</tr>
</tbody>
</table>

1. Tice et al. CID  
2. Howden and Grayson MJA  
3. Nathwani & Conlon CMI  
4. Nathwani & Zambrowski CMI;  
5. Eron et al JAC
Guidelines

- Why parenteral?
- Which infections?
- Which bacteria?
- Which antibiotics?
- Which devices?
- Which patient?
- Which setting?
- Patient/carer support, information etc
- Monitoring and review?
- Organisational models of care?
- Risk management & Safety?
- Health economic benefits
- Quality assurance?
Guideline problems

- Poor dissemination / appreciation
- Now “old” or not UK relevant
- Lack of ownership and “team will”
- Not helpful for “local adaptation”
- No champions
- Low priority at national, regional, and local level
- Low perception of need
- Poor perceived “Evidence base”
- Why iv v oral
- Concerns about resistance and *C. difficile* through use of broader spectrum agents
What are Standards?

A standard represents an agreed level of performance. The level should be determined by those who are involved in delivering / receiving the service.
Is it safe AND effective?
## Comparison between H-OPAT (n=1536) and S-OPAT (n=473)

### Complications

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>H-OPAT (% of diagnosis)</th>
<th>S-OPAT (% of diagnosis)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total complications</td>
<td>23.2</td>
<td>23.6</td>
</tr>
<tr>
<td>Drug related complications</td>
<td>12.2</td>
<td>12.5</td>
</tr>
<tr>
<td><em>C. difficile</em></td>
<td>&lt;0.1</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>Line related complications</td>
<td>-0.6</td>
<td>1.0</td>
</tr>
<tr>
<td>Other complications related to therapy</td>
<td>2.9</td>
<td>3.8</td>
</tr>
<tr>
<td>Other complications not related to therapy</td>
<td>6.3</td>
<td>7.3</td>
</tr>
</tbody>
</table>

BSAC OPAT PROJECT REGISTRY

- WEB BASED
- COMPLETE IN REAL TIME
- LOCAL INFORMATION ON VARIETY OF OUTCOMES FOR AUDIT AND QI
- SHARING OF DATA
- NATIONAL OUTCOMES
- SUPPORT BUSINESS CASE
Top Ten Diagnoses Treated with OPAT

- Cellulitis
- Osteo
- Wd Inf PostOp
- Bacteremia
- Wd Inf Other
- Septic Arthritis
- Pyelonephritis
- Pneumonia
- Sinusitis
BUSINESS CASES
The total cost of delivering OPAT over the 2 year period was £612306, i.e. just over £300000 per year.
- Staffing costs accounted for 42% of the total cost of OPAT, mainly the OPAT specialist nursing team.
- Non-pay costs (56% of total) comprised drugs, consumables and equipment, and also the overhead and support costs: these included laboratory services, pharmacy, physiotherapy, patient transport and direct costs of running the unit.
• The total cost of delivering 334 patient episodes OPAT over the 2 year period was £612306, or ~£300000 per year. Total costs were measured by multiplying 334 episodes@ directorate costs per day for each respective HRG to which the diagnosis belonged by the number of days of OPAT for each diagnosis.

• Real costs of the OPAT service over the 2 year study period were calculated, and compared with estimated costs of equivalent inpatient care for these patients using costs of managing these conditions in the Infectious Diseases Unit. OPAT cost 41% of the estimated equivalent inpatient cost. **Total number of bed days saved were 4034.**

• Total cost of equivalent inpatient care for the 334 episodes using Trust’s own directorate costs was £1502769.

• Total cost of equivalent inpatient care for the 334 episodes using national average costs was £1312537. This comparison showed OPAT (£612306) to be 47% of the cost of inpatient care.

• Total cost of equivalent inpatient care for the 334 episodes using minimum costs (OPAT patients are relatively fit group) for each HRG chapter for each diagnosis was £1005676. This comparison showed OPAT (£612306) to be 61% of the cost of inpatient care.

---

### Table 3. Estimated theoretical inpatient costs (£) of care for patients receiving OPAT

<table>
<thead>
<tr>
<th>OPAT diagnosis</th>
<th>HRG V3.5</th>
<th>Number of bed days</th>
<th>National average total cost&lt;sup&gt;a&lt;/sup&gt;</th>
<th>National total “hotel” costs&lt;sup&gt;b&lt;/sup&gt;</th>
<th>STH total costs&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft tissue sepsis</td>
<td>J42</td>
<td>972</td>
<td>314928</td>
<td>235224</td>
<td>355752</td>
</tr>
<tr>
<td>Cardiovascular infections</td>
<td>E17</td>
<td>554</td>
<td>170632</td>
<td>140162</td>
<td>228802</td>
</tr>
<tr>
<td>Bacteraemia</td>
<td>S12</td>
<td>288</td>
<td>80064</td>
<td>69696</td>
<td>89568</td>
</tr>
<tr>
<td>Invasive fungal infections</td>
<td>A34/S15</td>
<td>182</td>
<td>55434</td>
<td>42604</td>
<td>59006</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>D18</td>
<td>268</td>
<td>82544</td>
<td>65928</td>
<td>102912</td>
</tr>
<tr>
<td>Intra-abdominal abscesses</td>
<td>G06</td>
<td>579</td>
<td>185859</td>
<td>149961</td>
<td>230442</td>
</tr>
<tr>
<td>Central nervous system infections</td>
<td>C17/A25</td>
<td>459</td>
<td>163950</td>
<td>107100</td>
<td>178209</td>
</tr>
<tr>
<td>Leishmaniasis</td>
<td>S15</td>
<td>71</td>
<td>23217</td>
<td>17182</td>
<td>26483</td>
</tr>
<tr>
<td>Genito-urinary infection</td>
<td>L32</td>
<td>158</td>
<td>54194</td>
<td>38236</td>
<td>35550</td>
</tr>
<tr>
<td>Bone and joint infections</td>
<td>H26/H30</td>
<td>481</td>
<td>174111</td>
<td>134199</td>
<td>188314</td>
</tr>
<tr>
<td>Pulmonary infections</td>
<td>D14/D16</td>
<td>15</td>
<td>4041</td>
<td>3690</td>
<td>5995</td>
</tr>
<tr>
<td>Thrombocytopenia</td>
<td>S04</td>
<td>7</td>
<td>3563</td>
<td>1694</td>
<td>1736</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>4034</strong></td>
<td><strong>1312537</strong></td>
<td><strong>1005676</strong></td>
<td><strong>1502769</strong></td>
</tr>
</tbody>
</table>

<sup>a</sup>National average non-elective costs per day for each HRG multiplied by number of bed days for that HRG.

<sup>b</sup>Minimum national average non-elective cost per day for HRG within each HRG chapter multiplied by number of bed days for each OPAT diagnosis.

<sup>c</sup>STH Directorate of Communicable Diseases average cost per day for each HRG multiplied by number of bed days for each HRG.
Economics of OPAT provision

- Oxford programme
  - 2005
  - 286 patients for OPAT
  - >6200 bed days saved

- Singapore programme (S-OPAT)
  - 2004
  - 53 patients
  - 7022 bed days saved


Ingram PR et al. JAC2007
HIGH BURDEN INFECTIONS AMENABLE FOR AMBULATORY TREATMENT

- Skin and soft tissue infections
- Surgical site infections
- Bone and Joint infections
- Diabetic foot infections
- Prosthetic infections
- Endovascular infections
Cellulitis: High burden, low risk

- Scottish total annual number of patients/ mean duration of hospitalisation
  - 1997/8 : 4434 (5.33d)
  - 2003-2004 : 9947 (5.92d)
  - NI 2003-2004 cellulitis discharge diagnosis with mean LOS of 11 days
  - 3% of emergency admissions to DGH
  - 69,576 UK admissions with a diagnosis of cellulitis.

- Dundee total annual number of patients/ mean duration of hospitalisation
  - 1997 : 120 (5.8d)
  - 1998 : 102 (6.2d)
  - 2003 : 412 (3.2d)
Medical patients

Note: Average LoS = 7.24 days

? prevent admission

Take ½ day off clinically unnecessary LoS and it has a dramatic impact

These patients may have more complex support needs

Source: Richard Lendon / Improvement Partnership for Hospitals
EARLY DISCHARGE POTENTIAL

- In 1985 in the UK, skin and subcutaneous tissue infections (SSTI) resulted in 29,820 hospital admissions and a mean occupancy of 664 hospital beds each day.
- One day ~ £250/day
- **IF OPAT allowed one day of early discharge = £250 x 664 = £166,000 daily for patients with SSTI**

- MRSA SSTI STUDY 110 patients received IV therapy without oral switch during their admission for MRSA cSSTI
- **29 (26.4%) were potentially suitable for discharge on oral or OPAT Rx (had received > 72 hours IV AND were discharged within 72 hours of stopping therapy)**
PRIMARY HIP ARTHROPLASTY: UK

- ~50K each year
- ~80k by 2060
- 1.5% primary infection = 750 per year
- [3.2% revision infection = 1600 per year]

- Infected arthroplasty increases mean LOS from 14d to 28d
- Average DRG cost per day in orthopaedic ward = £381
- Annual cost of 750 infected hospitalised hip prosthesis = 750X381/14 = £4M per year
- If OPAT reduced 50% of this inpatient requirement it would reduce costs by £2M

- + 0.2% wound infections
Rolling out OPAT
Factors influencing OHPAT use
## Areas of Referral

<table>
<thead>
<tr>
<th>Department</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A &amp; E Depts.</td>
<td>6%</td>
</tr>
<tr>
<td>Orthopaedics</td>
<td>18%</td>
</tr>
<tr>
<td>GPs</td>
<td>20%</td>
</tr>
<tr>
<td>Cardiology</td>
<td>10%</td>
</tr>
<tr>
<td>ID Unit</td>
<td>25%</td>
</tr>
<tr>
<td>Medical</td>
<td>12%</td>
</tr>
<tr>
<td>Other (e.g. vascular)</td>
<td></td>
</tr>
<tr>
<td>Rheumatology</td>
<td>6%</td>
</tr>
</tbody>
</table>
US HOSPITAL Physicians Home Survey
(www.massmed.org/homesurvey09)

Selection of HIH services
Affiliation with hospital or network (79%)
- Patient request/preference (44.9%)
- Recommended by a case manager (29.2%)
- Recommended by HH liaison (24.7%)
- Nurse 13.3%
- Recommended by another physician 6.6%
- Literature/adverts 4.1%

Confidence when referring patients for HIH services
- Past positive experience 77.9%
- Organisation/accreditation 60.9%
- Specialty programs 54.5%
- Satisfaction survey results 48.1%
- Staff credentials (46.4%)
- QI activity (44.75)
- Outcome measures (40.4%)
Do you think HIH services can reduce inpatient admissions without compromising quality or patient outcomes?

- 89.4% = yes
- 10.6% = no
Patient Satisfaction Audit

98.5% Said this form of treatment met or exceeded their expectations
96.5% Preferred this service to in-patient treatment
96.5% Would prefer this form again of treatment if the need arose
96.5% Of family / carers were satisfied with all aspects of the service
98.0% Said the service improved the quality of their life
89.5% Of patients felt they were happy with all aspects of the service