Developing effective out patient access to intravenous therapy – OPAT

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15th September 2017
Workstream 1: Publication of peer reviewed standards for the delivery of adult and paediatric OPAT services

Workstream 2: Business case models to assist HCPs develop local OPAT services

Workstream 3: Measure the impact of the project (clinical effectiveness, economic impact, patient experience)

Workstream 4: UK-wide educational workshops to inform, instruct and support those wishing to implement OPAT services in their locality

Workstream 5: Development of web-based educational resources to support those with, or wishing to establish OPAT

Start Smart then Focus in infection treatment

- OPAT included as an outcome as day 3 review of SSTF.
- Data submitted to PHE as part of the 2016-7 AMR-CQUIN on D3 review outcome (optional) shows only 0.5% is for OPAT (n=111 trusts)
- Considering hospital bed-days avoided as an outcome of D3 review for model hospital indicator (Carter)
What is OPAT?

Out patient (or home) antibiotic therapy

- Used to describe (usually) IV therapy outside of in-patient settings
- First described in 1974 in cystic fibrosis patients
- First described in UK in 1990s

Service Delivery Models

- Self-administration (S-OPAT)
- Hospital or clinic administration (H-OPAT)
- Administration in patient’s home by a general or specialist nurse (C-OPAT)
Why do we need OPAT?

NHS Five Year Forward View

1. Health and wellbeing gap
   - Radical upgrade in prevention

2. Care and quality gap
   - New care models
   - Efficiency and investment (sustainability & transformation plans)

3. Funding gap
   - 2017: harnessing technology & innovation
   - 2017: free up 2000-3000 acute hospital beds from delayed community & social care

Clinical engagement
Patient involvement
Local ownership
National support
NHS Outcomes Framework

Hospital admission avoidance or ↓ duration for chronic conditions eg diabetes

↓ emergency admissions for acute conditions that should not usually require hospital admission eg cellulitis

Domain 1:
Preventing people from dying prematurely

Domain 2:
Enhancing quality of life for people with long-term conditions

Domain 3:
Helping people to recover from episodes of ill health or following injury

Domain 4:
Ensuring people have a positive experience of care

Domain 5:
Treating and caring for people in a safe environment and protecting them from avoidable harm

↓ incidence of HCAI eg MRSA, MSSA, C. difficile,

(Positive) patient experience of hospital care
2015: 50 vanguards selected to develop 5 new care models, and act as blueprints and inspiration for the rest of the health and care system.

- Integrated primary and acute care systems (9)
- Multispecialty community providers (14)
- Enhanced health in care homes (6)
- Urgent and emergency care (8)
- Acute care collaboration (13)

By 2020 NCMs will cover >50% of population. >5m patients will currently benefit from the first 29 vanguards.
Gateshead Community Administration of IV Medications

• Originally started in 2008 using rapid response intermediate care (RRIC) nurses
  – Treated 125 patients in 6 months saving 1319 bed-days (mainly cellulitis). No re-admissions or line-related problems

• 1st Oct 2016: Vanguard Care Home Programme OPAT pathways for chest infections and urinary tract infections

• Early evidence suggests that 38% can be treated in care home rather than hospital admission

• 2 pathways: GP initiation (step-up) OR hospital initiation (step down) to 24/7 community nursing team

• Contact: ngccg.vanguardcarehome@nhs.net
Salford Integrated Care Organisation

- Salford Royal, CCGs and Social Care merged
- Central health & social care ‘hub’, supporting MDT groups of staff and co-ordinating the use of telecare
- Home IV Therapy including OPAT will become a major strand of the vanguard

www.salfordtogether.com
OPAT: clinically & cost effective, & safe in UK?

- Much of the evidence is not from UK
- **Sheffield** (hospital outpatient) Durojaiye (2017 IJAA)
  - 3812 episodes saving 49k bed-days (2006-16): 88% cure, 7% re-admission, high patient satisfaction, 15 line-related infections
  - OPAT costs: 15% of ID unit, 39% avg of English costs or 44% of HRG
- **Glasgow** (mainly hospital OP) - Barr (2012 IJAA)
  - 10yr = 2638 episodes = 39k days,
  - 92% cure, 9% readmission, only 14 line-infections
- **Nottingham** – FY1516 OPAT service £1.5m block contract, commissioner savings £446k (Snape 2016 BSAC OPAT conference)
  - 458 pts discharged early (12k bed-days saved: 45% pre-trim point & 55% post trim) £1.5m saving for commissioners
  - 166pts had admission avoidance (2937 bed-days) saving £543k
- Growing evidence for poorer outcomes in BJI (Mackintosh 2011) & endocarditis (Duncan 2013). Helps to predict difficult patients
Reduction in HCAI with OPAT

• Available evidence from large OPAT cohorts (predominantly ceftriaxone use) suggests CDI risk is small ~0.1% of treatment episodes across three separate published UK cohorts. Duncan IJCP 2012

• In Glasgow 10 year review of OPAT, CDI risk was quantified as 0.05 events per 1000 OPAT patient-days. Barr IJAA 2012

• Low incidence of OPAT-associated CDI is presumed to reflect lower-risk patients, shorter hospitalization and shorter duration of therapy in ceftriaxone OPAT-treated patients predominantly with skin and soft tissue infection (SSTI). Gilchrist JAC 2015
OPAT standards & best model?

• Now have UK good practice standards for adults (Chapman 2012 JAC) & paediatrics (Patel 2015 JAC) **Follow them!**

• NIHR CIVAS Study – Dr Jane Minton (BMJ Open 2015)
  – What is already known about OPAT in NHS?
  – What is the best value NHS service model?
  – What model do patients prefer and why?
  – Recommendations on how to plan NHS OPAT services for the future?
NIHR CIVAS OPAT studies

• Metanalysis of OPAT vs IP treatment: no difference in duration but OPAT gave better cure rates Mitchell BMJ Open 2017

• Cost-effectiveness of OPAT (simulation modelling) based on published data & expert opinion:
  – short term (<7d): Specialist nurse (SN) visiting patient at home was most cost-effective (£710). Gen nurse £788, mixed SN/HO (hosp OP) £841, HO £973
  – Long term (>7d): self-admin (SA) £1883, SN £2379, GN £2957, HO £5135
    – Vargas-Palcios JAC 2013

• Further work on describing best provision model is planned eg community, hospital, private company or mixed (see BSAC NORS)
## Table 1 Effect of OPAT on clinical success and safety

<table>
<thead>
<tr>
<th>OPAT model(s)</th>
<th>Study ID</th>
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<th>Superior</th>
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<td>General nurse vs. inpatient treatment</td>
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- Small study in FN with 1 death vs 0

Key: ● found in ≥75% studies considering outcome; ○ found in ≥50% studies considering outcome; □ evidence of effect supported by <50% studies considering outcome.

CF, cystic fibrosis; FEV<sub>1</sub>, forced expiratory volume in 1 s; FVC, forced vital capacity; OPAT, outpatient parenteral antimicrobial therapy; PEFR, peak expiratory flow rate.
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NZ home CAP study

NZ home CAP / Australia cellulitis

Small study in FN with 1 death vs 0
What do patients prefer?

- Overall preference for nurse at home ahead of hospital ahead of self administration (for 39 out of 48 groups)
- Nurse at home always preferred to self administration
  - white males under 50 living alone marginally prefer hospital to nurse at home
- Some groups prefer self administration to hospital treatment:
  - Aged between 50 & 65, white, and either:
    - not living alone (male or female)
    - female, living alone
  - male, living alone and with a university degree
Are IV antibiotics always the best option?

- **IV – oral switch**: growing evidence for use of highly bioavailable quinolones, rifampicin, clindamycin, linezolid (now cheap), tedizolid (Gilchrist 2015)

- **OVIVA study**: Oral vs IV Antibiotics for Bone and Joint Infections – 1050 pts from 18 UK centres. 12 month follow up = No difference. LOS 11d v 14d. Oral paper ECCMID. Yet to be published. [www.journalslibrary.nihr.ac.uk/projects/113629/#/](www.journalslibrary.nihr.ac.uk/projects/113629/#/)

- **New long acting agents** – dalbavancin: single IV infusion lasts 2 weeks for ABSSSI ~£2k. Launched Dec-16. SMC supported. Ongoing trial in osteomyelitis.
119 (63%) response - 68% had an OPAT service

- 82% Hospital based OPAT team
- 85% would like to extend the service
- 57% Nurse resource main barrier to development
32% had no OPAT service

- 87% would like an OPAT service
- 41%: Cost most important reason for not having a service
- 60%: Nurse/clinician availability main barrier to service provision

Data on file BSAC – not for further circulation without consent
Why don’t we have identified OPAT tariffs?

How is income generated by outpatient parenteral antibiotic treatment (OPAT) in the UK? Analysis of payment tariffs for cellulitis

G. R. Jones¹, D. V. E. Cumming²*, G. Honeywell², R. Ball³, F. Sanderson⁴, R. A. Seaton⁵, B. Healy⁶,⁷, S. Hedderwick⁸ and M. Gilchrist⁴,⁹ on behalf of the BSAC OPAT Standing Committee†

- In-patient 7d uncomplicated cellulitis £1361
- Admission avoidance £2084 (+£723 for hospital)
- Discharge at D2 then virtual ward £1361 (same)
- Discharge at D2 to OPAT £773 (£588 loss)

NHS-Eng best practice tariff for same-day emergency care helps

NHS-Eng: Need OPAT pathways to develop tariffs.

Overall financial envelope must be no more than current BUT current PBR tariff is unaffordable (STPs)

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<th>HRG</th>
<th>HRG Name</th>
<th>BPT Clinical Scenario Name</th>
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<th>LoS &gt;=1 (£)</th>
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<td>Cellulitis</td>
<td>684</td>
<td>454</td>
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Are there other ways to promote OPAT?

London Specialised Pharmacy Services developed a local CQUIN template for OPAT

- Allows pump priming of a service
- [www.sps.nhs.uk](http://www.sps.nhs.uk)

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**How to: Use the CQUIN framework for the development of an Outpatient Parenteral Antimicrobial Therapy (OPAT) service**

**Introduction**

The Commissioning for Quality and Innovation (CQUIN) framework enables commissioners to reward excellence by linking a proportion of providers’ income to the achievement of local quality improvement goals.

There are many options for the delivery of antimicrobial therapy other than the inpatient setting: outpatient or community clinics, community nursing in the patient’s residence, through home care with nurse administration or self-administration by the patient. A multidisciplinary OPAT service, either in the acute or community setting provides the structure for safer transfer and monitoring of these patients in the non-inpatient setting.
How will we get the data to help describe service provision models?

Key OPAT service delivery metrics

- Patient episodes / treatment days saved by primary infective diagnosis and anti-infective(s)
- Number of patients who have a line or drug adverse drug event
- Infection outcome & OPAT outcome

Launching late 2017
## Acknowledgments

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<tr>
<th>Name</th>
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<tr>
<td>Dilip Nathwani</td>
<td>Mark Gilchrist</td>
<td>Brendan Healy</td>
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<td>Andrew Seaton</td>
<td>Matthew Dryden</td>
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<td>Ann Chapman</td>
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<td>Lorraine Jefferies</td>
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<td>Sarah Hedderwick</td>
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<td>Albert Lessing</td>
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<td>Frances Sanderson</td>
<td>Paul Jass</td>
<td>OPAT Teams across the UK</td>
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<td>Correinne Reed</td>
<td>Sue O’Hanlon</td>
<td>Imperial OPAT Teams</td>
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<td>Vicky Parker</td>
<td>Susan Snape</td>
<td>- Richard Cele/ Theresa Eigo</td>
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<td>Graham Tanner</td>
<td>Tim Hills</td>
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<td>Helen Scurell</td>
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<td>Estee Torok</td>
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<td>Paul Steckler</td>
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<tr>
<td>Mike Allen</td>
<td>Pharma-Mix Production Team</td>
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Thank you

2017 NATIONAL OPAT CONFERENCE

ICC BIRMINGHAM, 11TH - 12TH DECEMBER 2017

This year's National OPAT Conference intends to build and grow on the successes of previous events and will once again bring together world renowned speakers and experts to discuss and learn about upcoming challenges in the OPAT setting.

www.e-opat.com