Needle-free IV OPAT administration

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Background:

West London based OPAT service with adult & paediatric population

- Originated from an ambulatory-care based service; evolving service to meet local demand

Ambulatory Care Clinic
"Walk-in"

- young, well patients
R/v'd by medical team
+ expert nurses+++

Short-term ABX
(2-5 days)

* AT CAPACITY *

District Nurses

- Limited Referrals
- Barrier to Refer for clinicians
- Multiple + Strict exclusion criteria

* Minimal usage *

Medihome

- easy
- no Referral needed
- R/v pt's in their home
- will use new devices/pumps
- take over-spill of Amb Care plus complex patients

Ambition

Pt's on < 7 days = Amb Care
Pt's on > 7days = District nurse, CW nurse or Self-admin

→ Minimise Medihome to complex pts only

No change

"Continue as is"

- Amb Care at Capacity
- High dependency on Medihome [£400k/yr]
- ↑ Drug Costs with pre-made "pumps" [£50 - 130/day]
- Lack of Governance

↑ Nursing / Pharmacy Staff

offset against

↑ Bed days saved
↓ Medihome (savings)

Develop 'Plug + Play'

24° Pumps

- ↑ OPAT option for "complex" patients
- Reduce Medihome dependence/cost
- ↑ Bed-days saved [↑ options for micro]

✓

X

a) Buy in pre-made £££
vs
b) Make on site (pharmacy support)

Self-Administration [Most Cost Effective]

- Teach suitable patients to admin.
- ↑↑↑ Capacity of Amb Care
- ↑↑ Bed days saved
- Lower drug cost

a) Requires additional staff for training

* Nursing Staff (2-4) in community Role

Develop CWFT community nurse program [collaborate with CCG/STP]

↳ CWFT nurses admin medication in patients home

↑↑↑ Capacity of Amb care
↑↑ Complexity of pt's treated
↑↑ Bed days saved

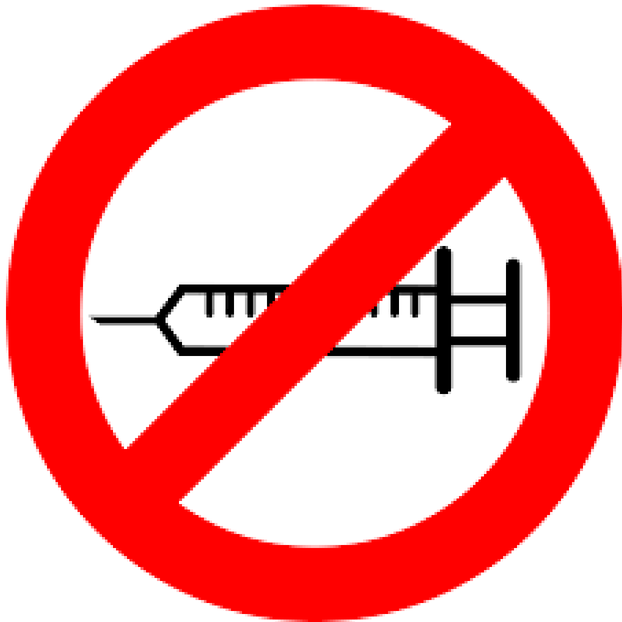
e.g. 2 FTE nurses seeing 5 pts a day would ↓ Medihome cost by £210K a year [Break-even is only 2pts a day]

Develop CCG / Chelsea Joint Service

* Chelsea OPAT expertise, Governance and micro input

↑ income for trust

Barriers to implementing ‘self-administration’



- Trust intravenous group
  - NO use of sharps for patients

Explored other options:

- 60 minute elastomeric pumps
- Pre-filled syringes via aseptic unit)

Needle-free administration

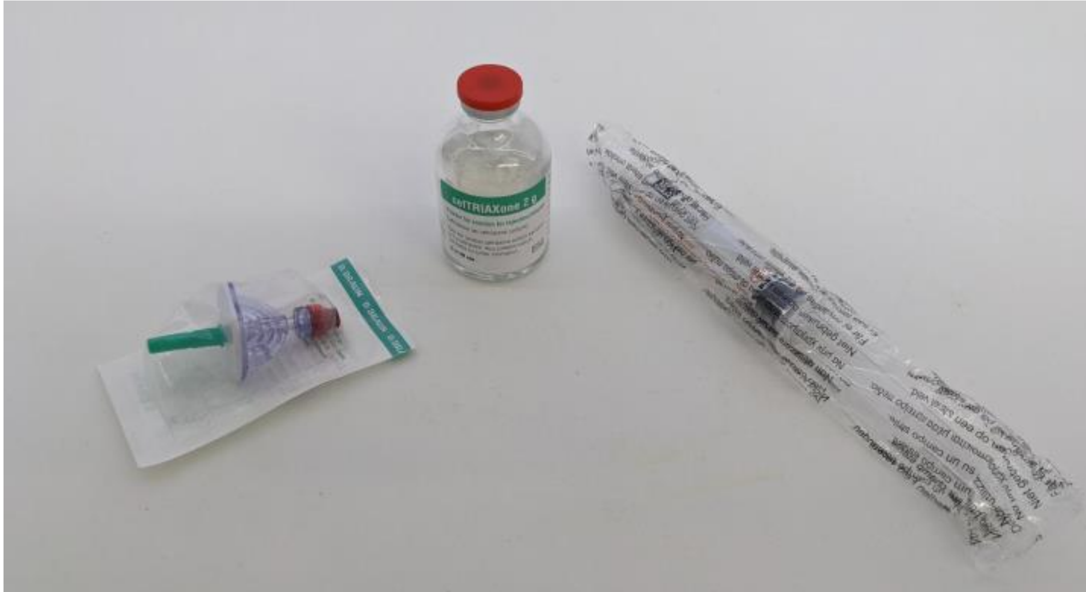
- Braun Mini-Spike® 2
  - Includes filter and luer lock connection

  £0.35 per spike

  Single-use only

  Used in most aseptic units (for multi-dose vials)

Needle-free administration



****Central line administration only****

- high osmolality (>600 mOsm/kg) [diluted in NaCl 0.9%]

Pharmacodynamic considerations for IV bolus administrations

- Teicoplanin (AUC/MIC)
- Ceftriaxone (Time/MIC)
- Ertapenem (Time/MIC) – off-label*

Needle-free administration

Needle-free administration

Needle-free administration

Small overage with IV vials

Filter removes air bubble / undissolved powder

Single use filter per vial

Limitations

- **Central line use only (high osmolality)**
- Limited dosing options
  - Ceftriaxone 2 x 1g vials (ONCE or TWICE daily)
  - Teicoplanin max 800mg per dose (higher doses by infusion)
  - Ertapenem off-label administration [IM licensed in non-UK countries; safety and tolerability studies for IV bolus]

Summary

- **Needle-free bolus administration**

- **Needle-free elastomeric pumps**

Easy to teach
Low risk of needle-stick injury
Central line essential
Off-label use of drugs and IV flush