

Intravenous drug user infections



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Procedures



Outpatient Infusion Clinic (OPIC)

Outpatient Parental
Antibiotics Therapy (OPAT)

Should we be treating IVDU patients in OPAT?

- ❑ Any policies for treating IVDU patients with OPAT (appropriately) offer little guidance
- ❑ It can be argued that (more than anyone) a proactive stance is needed
- ❑ Improving treatment models in IVDU patients could lead to improved patient compliance and therefore outcomes in addition to cost savings
- ❑ Inclusion of IVDU patients at NUH OPAT since 2005

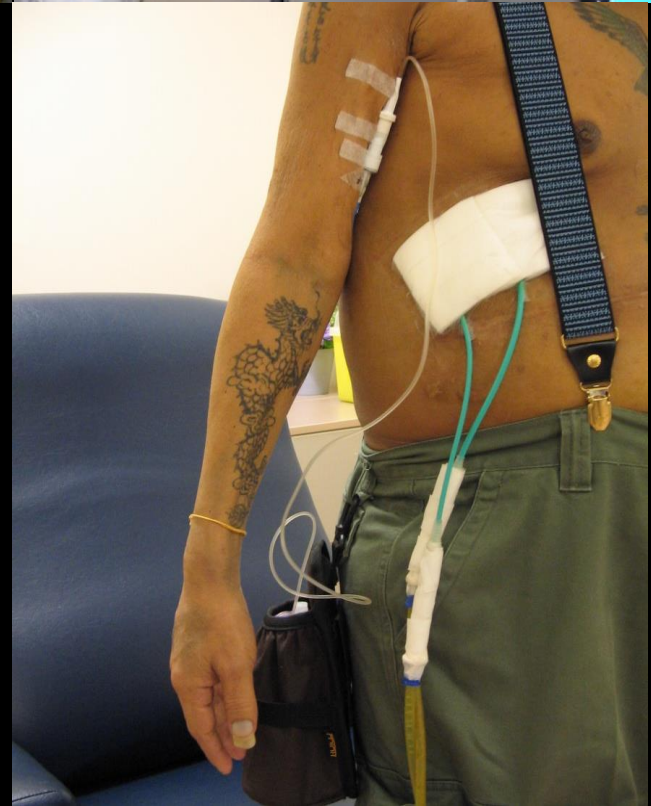
Good practice recommendations for outpatient parenteral antimicrobial therapy (OPAT) in adults in the UK: a consensus statement.

Patient selection.

- 2.1 It is the responsibility of the infection specialist to agree specific infection-related inclusion and exclusion criteria for OPAT. These should incorporate specific infection severity criteria where appropriate.
- 2.2 There should be agreed and documented OPAT patient suitability criteria incorporating physical, social and logistic criteria. These should be documented for each patient.
- 2.3 Initial assessment for OPAT should be performed by a competent member of the OPAT team.
- 2.4 Patients and carers should be fully informed about the nature of OPAT and should be given the opportunity to decline or accept this mode of therapy.
- 2.5 All patients who have been assessed as being at risk of venous thrombosis as inpatients should be considered for further prophylaxis during OPAT if assessed as having ongoing risk.

OPAT Patient Enrolment Checklist

- Diagnosis and treatment plan is confirmed by an Infectious Disease physician
- Medically stable
- Patient understands the diagnosis and treatment (including compulsory attendance and PICC/infusor care)
- Patient understands OPAT and emergency numbers
- Adequate care of home needs (by self or family)
- Patient future contact arranged (ie. will come to infusion center each day or as scheduled, nurses to visit home commencing on date scheduled)
- Consideration of caregiver home administration made
- Financial counseling completed
- Adequate IV access (ie PICC, daily insertion, IV in site);
- Other nursing care needs identified (ie; wound care)



What Can we do for our Patients?

Expected: PICC care, antibiotic decisions and monitoring, clinical, serological & radiologic response monitoring, address ADRs

In addition: Dressings, BSLs, INR, wounds, drain care

And Now: PICC insertions

But are we always as patient centred as we could be?

Patient selection; crucial

- ❑ Eligibility criteria:
 - Adequate housing
 - Reliable guardian
- ❑ Signed contract:
 - Compliance with daily OPAT clinic reviews
 - Will not access PICC line
 - Will not take any drugs not prescribed by hospital
 - Zero tolerance



Outpatient Parenteral Antibiotic Therapy (OPAT)

Letter of Agreement

I, _____ (NRIC: _____) hereby agree to comply to the following while having my treatment with OPAT:

1. Present daily in OPAT centre.
2. Do not misuse my Peripherally Inserted Central Catheter (PICC).
3. Do not tamper with the security seals on infusor and on PICC.
4. Do not take any other drugs that are not prescribed by the hospital.
5. Others (*please specify*) _____

I have been counselled for the following:

1. The consequences of misusing of the PICC.
2. The consequences of misusing of drugs.

I understood that I would be handed to the police if any of the above is not complied.

Name and Signature of patient

Date

Name of Doctor/Nurse and
Signature

Date

Preventing PICC abuse – Security Seals



Preventing PICC abuse - Security Seals



Prevention strategies

- ❑ Patient & family/guardian education
 - Appropriate care of PICC
 - Hazards of PICC abuse
 - Zero tolerance policy
- ❑ Formal drug counseling
 - At start of treatment and subsequently on an as needed basis
- ❑ Urine drug screens
- ❑ Open, non-judgmental communication

STUDY OF IVDU PATIENTS AT NUH OPAT

Ho J, Archuleta S, Sulaiman Z, Fisher D. Safe and successful treatment of intravenous drug users with a peripherally inserted central catheter in an outpatient parenteral antibiotic treatment service. *Journal of Antimicrobial Chemotherapy Agents* 2010; 65:2641-2644.

Study of IVDU patients in OPAT

- Prospective observational study of IVDU patients in NUH OPAT center: Jan 05 – Dec 09
- Aim: to assess the safety and efficacy of treating IVDU patients in OPAT
- Selected hospitalized patients were enrolled with various strategies utilized to optimize safety & efficacy

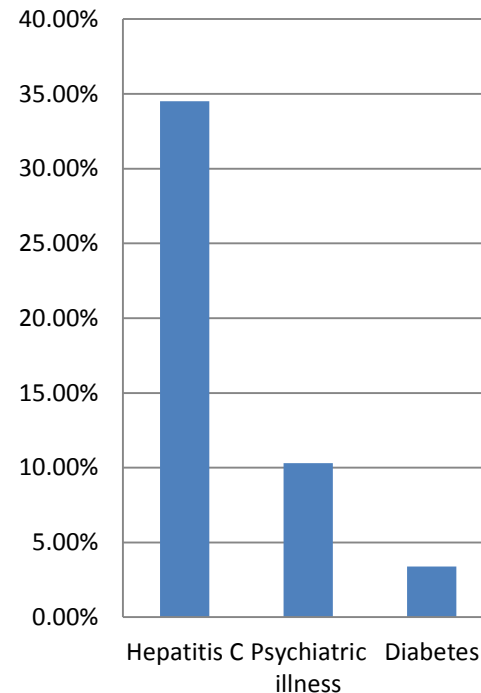
Study Outcomes

- Mortality
- Completion of therapy
- PICC abuse
- Readmissions for complications during OPAT and a 30 day follow-up
 - Infection related
 - Treatment related

Subject Characteristics

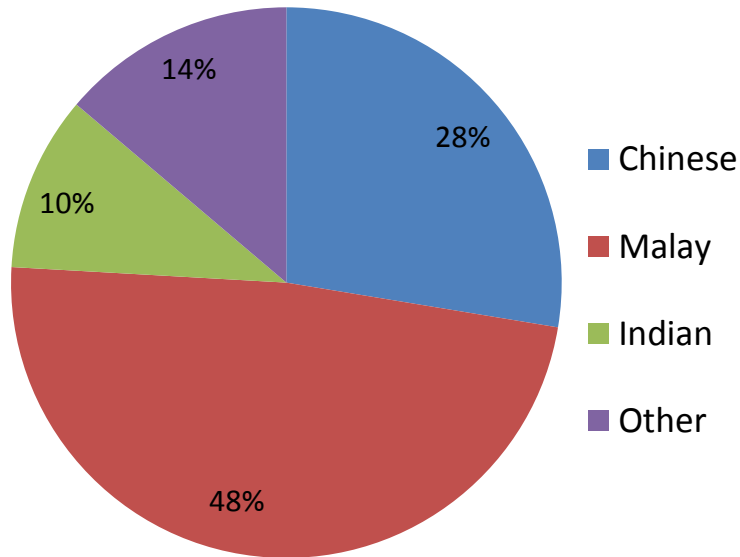
- 29 IVDU patients
 - 3.2% total OPAT patients
- Median age 41 (26 – 53)
- 90% male

Co- morbidities



Subject Characteristics

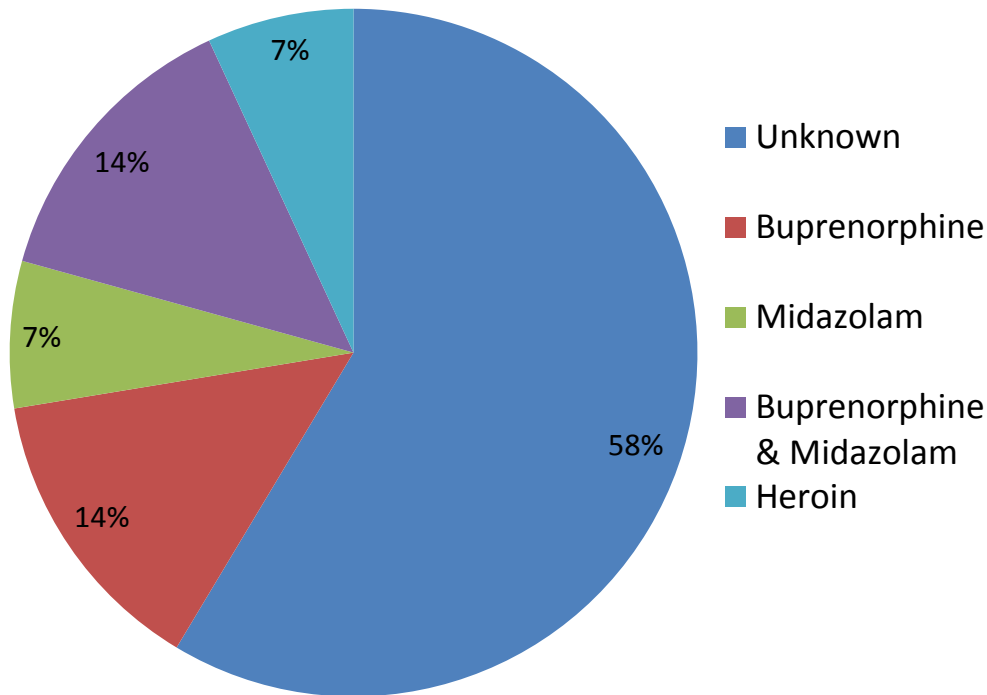
Ethnicity in study



Ethnicity in Singapore

- Chinese 76.4%
- Malay 14.9%
- Indian 6.4%

Type of Intravenous Drug Use

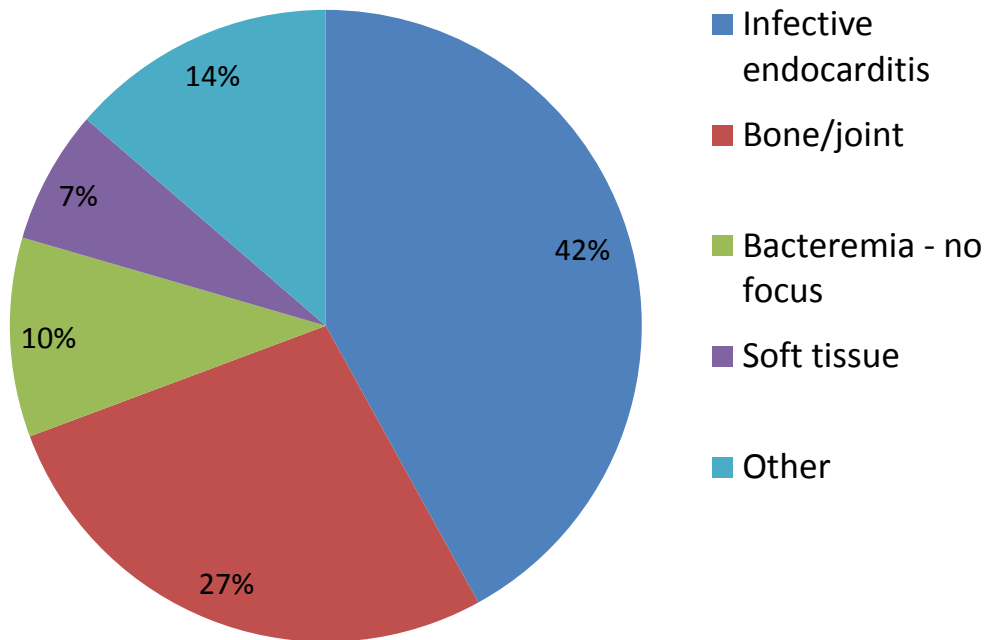


Lee CE. Singapore Med J 2006 47(11) 919-921. Tackling subutex abuse in Singapore

Louis Y, Chai A. CID 2008;46 953-954. Buprenorphine diversion: a possible reason for increased incidence of infective endocarditis among injection drug users? The Singapore experience

Chong E, Poh KK et al. Singapore Med J 2009: 50(1) 34-42. Infective endocarditis secondary to intravenous subutex abuse.

Type of Infection

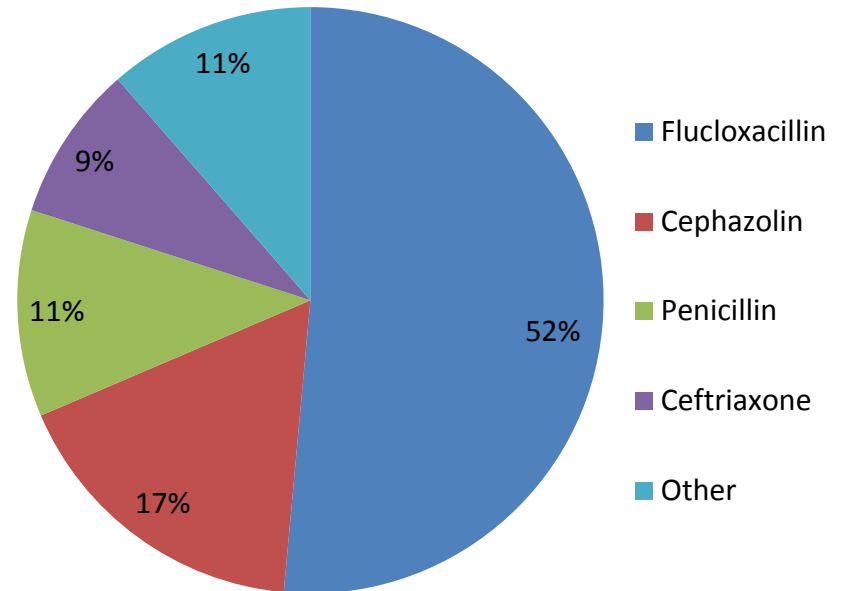
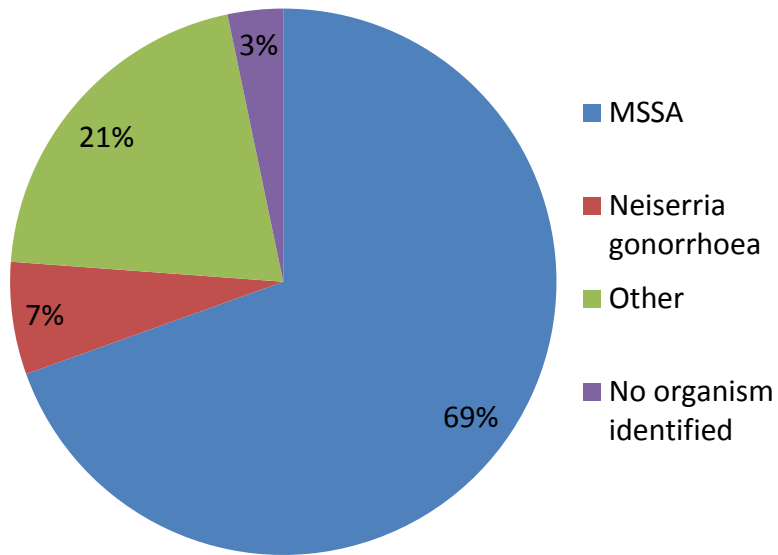


New Diagnosis

HIV - 2

Hepatitis C - 3

Micro-organisms & Antibiotic



Hospital Admission

- Median length of hospital stay: 15 days (2-48)
- 6 patients (20.7%) required ICU management
- 2 patients (6.9%) absconded
 - readmitted with sepsis → subsequently successfully treated in OPAT

OPAT Treatment

- Median length of OPAT Treatment: 17 days (1-85)
(675 patient treatment days)
- 97% patients completed treatment in OPAT (6 readmitted to hospital but 5 returned to OPAT)
- Complications during OPAT:

Complication	Number (%)	Comment
PICC infection	2 (7)	Similar rate of PICC infections seen in general OPAT population
PICC abuse	0	Indicated by absence of security seal tampering
Deaths	0	No deaths during OPAT treatment or follow-up period

Unscheduled readmission rates during OPAT & follow-up

Patient	Initial Infection	No. OPAT Rx days prior to re-admission	Reason for readmission	Return to OPAT for completion of Rx
During OPAT Rx : 5 patients (17.2%)				
1	Osteomyelitis, MSSA	12	<u>PICC infection</u> , <i>Pseudomonas aeruginosa</i>	Yes
2	Endocarditis, MSSA	5	Worsening <u>lung emboli</u> plus <u>bacteraemia</u> , <i>Streptococcus salivarius</i>	Yes
3	Endocarditis, MSSA	3	<u>PICC infection</u> , <i>Klebsiella pneumoniae</i>	Yes
4	Endocarditis, MSSA	15	<i>Haemophilus influenzae</i> <u>bacteraemia</u>	Yes
5	Endocarditis, MSSA	14	<u>Worsening vegetations</u> & valvular dysfunction	No
During follow-up period after OPAT : 1 patient				
1	Endocarditis, MSSA	14*	Streptococcal sp bacteremia	Yes

* Number of days post completion of OPAT

Comparison of re-admission rates in general OPAT population

Study	No. of patients in study	Type of Infection	Unscheduled readmission rates
This Study	29	Infective endocarditis 42% Bone/joint 27% Soft tissue 7%	20.7%
Studies in non-IVDU patients			
Larioza J, Heung L et al ¹	43	Infective endocarditis 100%	23%
Fisher DA, Kurup A, Lye D et al ²	225	Bone/joint 39.2% Soft tissue 9.1% Infective endocarditis 7.5%	8.9%
Nathwani D, Morrison J et al ³	101	Soft tissue 51.5% Bone/joint 22.8% Infective endocarditis 3.9%	7.5%

1 Southern Med J 102(6) June 09 575-579. Management of infective endocarditis in outpatients: clinical experience with OPAT

2 Int J Antimicrob Agents 28 (2006) 545-550. Outpatient parenteral antibiotic therapy in Singapore

3 Health Bull 57 (1999) 332-7. Outpatient and home parenteral antibiotic therapy: evaluation of the impact of one year's experience in Tayside

Summary

- Infective endocarditis was the most common infection
- MSSA was the most common organism
- Out of the 29 patients
 - 23 completed treatment uneventfully
 - 5 required hospital re-admission
 - 1 defaulted from OPAT treatment
- There were no cases of PICC abuse
- Unscheduled readmissions (including PICC infections) were NOT more common

Conclusion

- “Package Intervention” - careful selection, counseling, prevention strategies and monitoring of IVDU patients in OPAT
→ safe and successful treatment
- Some patients are likely to do better with outpatient treatment, compared to inpatient management

International approaches to treating IVDU patients in OPAT

- The use of OPAT in IVDU patients is controversial & it is unknown what the approaches and outcomes of these patients are from around the world
- An international survey was conducted to gain a better understand of this issue

Methods

- A survey was conducted using an on-line survey program from May to October 2010 to OPAT centres from around the world.
- Issues addressed:
 - the approach of health institutions on the treatment of IVDU patients requiring prolonged parenteral antibiotics
 - the outcomes of IVDU patients treated with OPAT
 - the providers' concerns and views on this form of therapy

Results

- 64 OPAT centres participated:
 - Australia 29, New Zealand 8
 - Asia (India and Singapore) 4
 - North America 13
 - United Kingdom 8
 - Europe (Italy) 2

Results

- The majority of centers (84.4%) treat patients with a history of IVDU
- 44.2% use PICCs
- Most (84%) believe that the use of OPAT in IVDU patients is beneficial and outweighs the risks with little inter-regional variation in this approach and opinion.

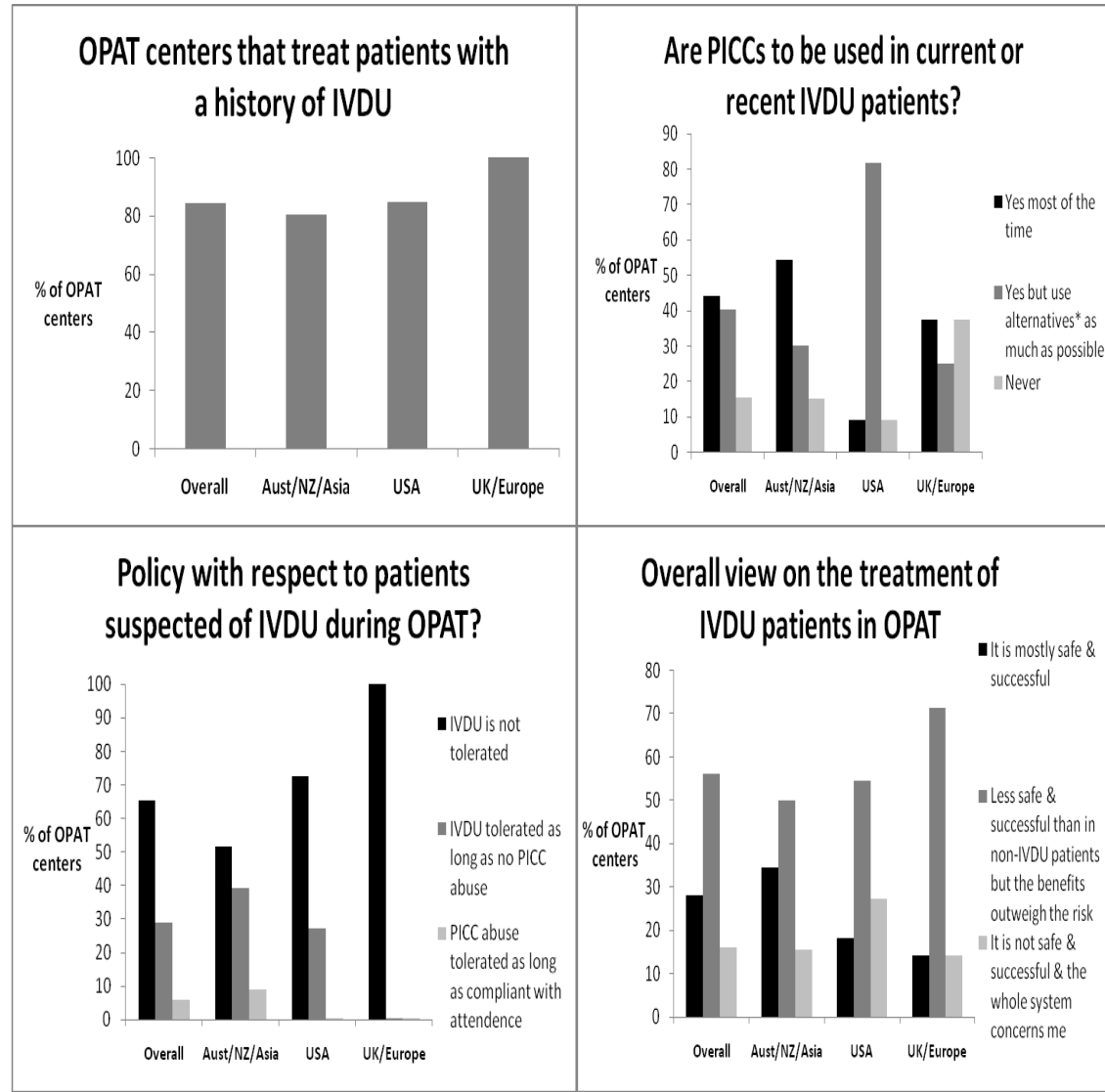
Question and multi-choice responses		Number of responses (%)
1.	Approximately what percentage of your OPAT patients are current or recent IVDUs? <1 1-5 5-10 >10	23 (42.6) 26 (48.1) 5 (9.3) 0
	Do you allow PICCs to be used in current or recent IVDU patients? Yes, most of the time Yes, but use alternatives as much as possible (eg intramuscular injections, removal of needle after infusion) Never	23 (44.2) 21 (40.4) 8 (15.4)
1.	What routine measures are used in your centre when treating current or recent IVDU patients? (select all that apply) Counselling on compliance and risk of PICC abuse Substance abuse counselling No home infusions Signed contract Urine drug screens Tamper proof seals/dressings over PICCs	38 (74.5) 28 (54.9) 17 (33.3) 16 (31.4) 8 (15.7) 3 (5.9)
1.	What is your policy with respect to patients suspected of IVDU during OPAT? IVDU is not tolerated IVDU is tolerated as long as PICC is not abused PICC abuse tolerated as long as patient compliant with attendance	34 (65.4) 15 (28.8) 3 (5.8)
1.	Approximately what percentage of IVDU patients fail to follow-up with the OPAT plan <5 5-10 10-20 >20	31 (64.6) 9 (18.8) 2 (4.2) 6 (12.5)
1.	What legal concerns do you have with treating IVDU patients in OPAT? (select all that apply) Nil specific legal concerns Inadequate safety and efficacy data Inadequate follow up and support systems Difficulties proving that patient is sufficiently informed and consented Facilitation of drug abuse	21 (42.0) 19 (38.0) 18 (36.0) 12 (24.0) 6 (12.0)
1.	What other concerns do you have with treating IVDU patients in your OPAT? (select all that apply) Concerns for staff safety Inadequate formal drug counselling and support Extra demands on nursing time	23 (46.9) 21 (42.9) 21 (42.9)
1.	Which statement best reflects your view on the treatment of IVDU patients in OPAT? It is mostly safe and successful It is less safe and successful than non-IVDUs but benefits outweigh risks It is not safe and the whole system concerns me	14 (28.0) 28 (56.0) 8 (16.0)

Remarkably liberal

Generally successful

concerns

International comparison of survey responses



Conclusion

- Around the world, OPAT centres are treating IVDU patients with acceptable outcomes
- This form of therapy is increasingly regarded as a beneficial and a preferred treatment option in selected patients

International Society of ChemotherapyOPAT workgroup

1. share information on service models
2. create an international research agenda
3. support countries and institutions wishing to establish OPAT
4. formalise the relationship with industry.....pharma and devices
with a view to facilitating the above

Doctors (adults and paediatric), pharmacists and nurses from Singapore, Australia, New Zealand, Brunei, Japan, US, UK, Hong Kong

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