

I-Pathway 2019 – Infection and the vulnerable patient: Meeting

Proceedings

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This two-day meeting held October 4th and 5th, 2019 (Royal College of Physicians, London) brought together a faculty from across the UK to present the latest updates in all aspects regarding the treatment of infection in the vulnerable patient. This report provides an overview of the content of the meeting.

The meeting was organized by Dr Eoghan de Barra (Dublin), Dr Claire Mackintosh (Edinburgh), Dr Simon Tiberi (London) and Dr Ruaridh Buchanan (London). The meeting was sponsored by an unrestricted educational grant from Correvio.

The emerging themes from this meeting highlight that there is a disparity not only in access to treatment and supportive care for the vulnerable patient, but also in terms of understanding and willingness of Trusts to adopt new methods of working to assist this patient cohort.

The “need” to care for these patients exists but the scale is generally hidden as many of these patients do not present themselves to healthcare institutions. There appears to be a general need to share best

25 practice which is emerging in pockets around the UK and Ireland but also to support healthcare
26 professionals to lobby for increased resources for support and research.

27 **Session 1: Infection and the vulnerable patient pathway – what’s the problem? Introduced by Dr**
28 **Claire Mackintosh, NHS Lothian**

29 The main challenges faced by infection in the vulnerable patient were initially highlighted by the
30 presentation of three case studies.

31 **Case 1 presented by Dr Desmond Hsu, Barts Health Trust, London**

32 A middle-aged Lithuanian man was admitted with breathing difficulties, high fever and vomiting. A
33 physical examination suggested he was a person who injected drugs (PWID). The Emergency Department
34 report describe the patient as being “agitated and aggressive”, repeatedly shouting and being
35 uncooperative and generally obstructive with healthcare staff and patients.

36 Investigations revealed multiple lung abscesses, aortic and tricuspid valve vegetations, severe aortic
37 regurgitation and multiple septic emboli with haemorrhagic transformation in the brain. The patient’s
38 blood cultures were positive for *Staphylococcus aureus*; he also tested positive for HIV and Hepatitis C.

39 The patient was known to community drug and alcohol services, but his case was closed for non-
40 attendance. He was homeless and sleeping on the streets; his drug use included heroin, cocaine, and
41 amphetamines; on admission he was commenced on methadone.

42 During his stay he worsened clinically and absconded from the ward several times before he became too
43 unwell to do so. The MDT recommended that due to the state of physical deterioration, compliance and
44 access issues, he was not an operative candidate.

45 End of life care was talked about quite early in during his stay as an inpatient and unfortunately, he
46 passed away on day 63 of his care in hospital.

47 This case was used an example of conflict surrounding the duty of care from medical professionals when
48 dealing with “difficult patients”.

49 *“frustration with patients”* should not be *“sublimated into musings about the waste in medical*
50 *care”* (1)

51 When discussing the care of such patients the need to ascertain whether they can “turn their life
52 around” and avoid recidivism is often raised. However, in practice this is extremely challenging. In this
53 case the patient stated that he was determined to change his lifestyle; despite this, surgery was not
54 performed. This raised a discussion point around the moral obligation of clinicians to provide treatment
55 that may be deemed futile. The point was highlighted that Trusts may be concerned about these types of
56 patients adversely affecting performance statistics.

Key points of the Case Study

- Best care should be provided to all patients regardless of circumstances
- Future behaviour should not influence medical care.
- Healthcare professionals must be prepared to advocate for vulnerable patients.

57

58 **Case 2: A Hurdle too High? Presented by Dr Emer Kilbride, Whipps Cross Hospital**

59 A 40-year-old male presented to the Emergency Department with lower back pain. There was no
60 numbness or loss of sensation and it was noted he was walking with an aid; there were no other
61 significant factors in the history. He was diagnosed with musculoskeletal pain and given analgesia, a
62 back-pain card and advised to follow up with his GP.

63 Two weeks later he presented to an urgent care facility with worsening back pain. At this point it was
64 noted he was a recent immigrant and did not yet have a GP. No red flag symptoms were noted, and he
65 was discharged with a back pain leaflet and advised to self-refer to a physiotherapist. Three weeks later
66 he re-presented with his sister acting as translator. This was the first time the notes included that he was
67 from eastern Europe and could not speak English. He was now experiencing red flag symptoms and was
68 using a wheelchair. It was also documented for the first time that he was a person who injects drugs
69 (PWID).

70 Investigations revealed multiple abscesses, particularly around his left hip and pelvis where he had been
71 injecting into his groin. His history was taken in Russian by a native speaker from the microbiology team

72 who established he was in a road traffic accident at age 16; he likely had an infection surrounding
73 metalwork in his hip, subsequently removed five years later. He was also found to be Hepatitis C positive.

74 The patient was challenging to manage due to issues with pain and addiction management. He would
75 frequently approach staff to ask for doses of analgesia and methadone to be given early; he refused to
76 meet with the alcohol and drugs service for the first three months of his hospital stay. Lack of full
77 disclosure also led to a failure to recognise the patient took methadone as well as heroin, cocaine and
78 prescription opiates.

79 The mental health needs of this patient were also challenging to address. He refused formal psychiatric
80 assessment but depression with suicide ideation was noted on admission. He had become very socially
81 isolated and vulnerable as a result of the language barrier, recent immigration and lack of social support,
82 as well as his physical and mental health issues, including a mistrust of the healthcare system.

83 This case raised the important issue of Hospital Trusts employing reliable translating patient advocates to
84 assist in consultations and, more broadly, to help patients navigate what may be an unfamiliar and
85 intimidating health care system.

Key points of the Case Study

- Patient vulnerability can be a combination of factors including language barriers, recent immigration/lack of social support, addiction issues, physical disability, mental health issues and mistrust of the system.
- Increased investment in some organisations of sufficient language services is required.
- Effective communication is the biggest barrier to patient care in the vulnerable patient.

86

87 **Case 3 presented by Dr Claire Mackintosh Infectious Diseases Consultant, NHS Lothian**

88 Dr Mackintosh described a 52-year-old with type II diabetes and a history of alcohol abuse and
89 depression.

90 The patient reported his ankle giving way in the pub and a subsequent x-ray showed a fracture of the
91 ankle joint. An open reduction and internal fixation (ORIF) procedure was initiated and the follow up at
92 one month described the wound as clean but two ulcers had developed where the cast had rubbed.

93 One week later the patient was admitted after being found collapsed and unresponsive due to a drug
94 overdose. However, the patient self-discharged and this became a recurrent pattern. After multiple
95 admissions the patient was referred to inpatient psychiatric services as he presented an ongoing suicidal
96 risk.

97 A subsequent orthopaedic review stated that the wound had healed well, however a follow up x-ray
98 showed the failure of ORIF with considerable shift. Internal pins were placed and the wound left open
99 with a VAC dressing in-situ.

100 Nearly two months later, plastic surgery performed a skin flap due to poor wound healing. A superficial
101 wound swab produced polymicrobial infective organisms, and an intra-operative note from plastic
102 surgery suggested all the pins in the ankle were likely to be infected.

103 The patient was admitted to a plastic surgery/orthopaedic ward with the following notable clinical
104 features:

- 105 • profoundly depressed and suicidal
- 106 • very distressed at times and socially isolated
- 107 • poor mobility (unable to weight bear)
- 108 • On multiple anti-psychotic and anti-depressant medications
- 109 • Required nurse administration of insulin
- 110 • Huge pain control issues
- 111 • Infected ankle with metal work in situ - high risk of fracture mal-union, failure of graft,
112 uncontrolled infection and ultimately amputation
- 113 • With multiple organisms isolated his requirement is for broad spectrum antimicrobial coverage
114 but due to interactions with anti-depressants and anti-psychotics he was unsuitable for oral
115 antibiotics.

116 The treatment objective was salvage of the foot with the surgical team hoping for healing of the fracture
117 allowing for the removal of the metalwork at a future time.

118 The patient was transferred to an inpatient psychiatric hospital where hospital transport would facilitate
119 access to the OPAT (Outpatient Parenteral Antimicrobial Therapy) service three times a week for IV
120 teicoplanin. The surgical team agreed to monitor healing on a monthly basis.

121 Unfortunately, the patient self-discharged from inpatient psychiatric services and although he continued
122 attending the OPAT, he started to weight bear sooner than advised and two weeks later he returned
123 with increasing pain in his ankle joint.

124 Unfortunately, the patient necessitated a below the knee amputation for non-healing and poor pain
125 control. With multiple teams in place trying to coordinate this patient's care, in addition to the OPAT
126 team, there was a lack in overall patient advocacy and support to navigate a complex healthcare system.
127 It may have been the case that had this man had support to attend appointments, attend rehabilitation,
128 and support at home to encourage proper adherence to non-weightbearing guidance, then his foot could
129 have been salvaged.

Key points of the Case Study

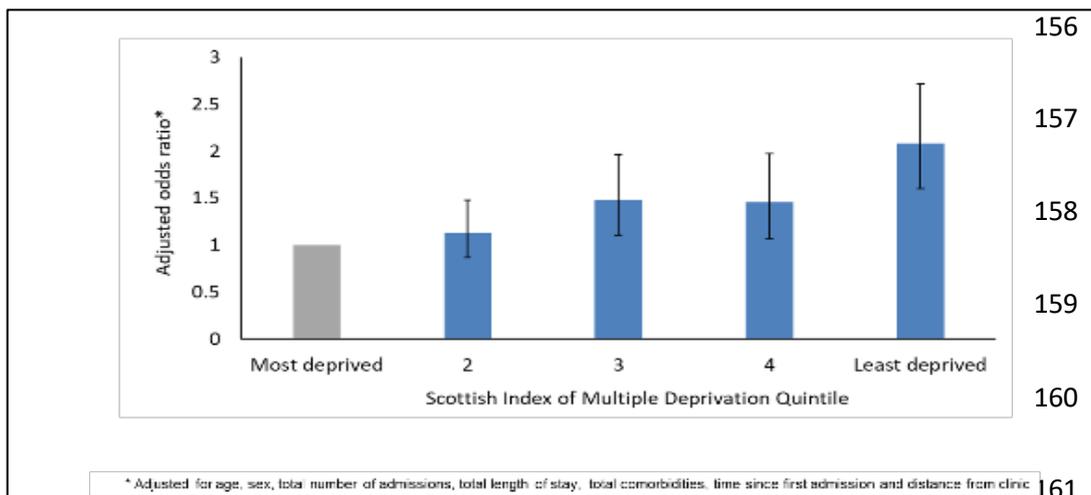
- Importance of multidisciplinary discussions amongst all involved specialties with a clear plan including escalation.
- Importance of engaging the patient fully in their treatment plan, understanding what is important to them and supporting them through the treatment.
- The management of non-infection related problems that can be the key to success.

130

131 **Session 2: Equality, equity and access to the infection pathway presented by Dr Colin Sumpter,**
132 **Speciality Registrar (Public Health), NHS Lothian**

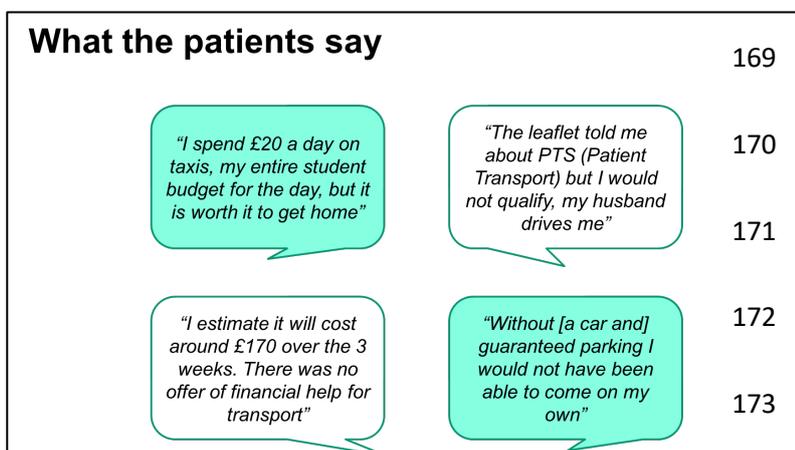
133 The aim of this presentation was to illustrate why health services should take account of the differing
134 abilities of patients to access and use them.

135 The presentation began by explaining the difference between equality and equity, aided by a bicycle
136 analogy. Equality is where everyone has access to the exact same services and resources, for example an
137 identical bicycle. However, equity of access is where resources and services are matched to the needs of
138 the people; the bicycles are adapted to suit their own situation.



162 **Figure 2:** Results of study which assessed access to OPAT services in Edinburgh, Scotland, between different
 163 socioeconomic groups and between men and women.

164 The drivers of inequity of access for their patients were examined. In Lothian the cost of transport was
 165 highlighted because it is an avoidable inequity for the patients. Inequity is contextual and in other areas
 166 of the UK, some centres provide taxis or hospital transport. The quotes from patients (Figure 3) indicate
 167 the views of patients regarding transport and provide insight into the obstacles faced by patients with
 168 limited means to be able to access the system.



174 **Figure 3:** Quotes from patients when asked about their view of transport to medical facilities.

175 Patient-centred equity improvement measures and an equity audit could be built into routine reviews
 176 and could include colleagues from external organisations such as public health. Further research could
 177 evaluate the reasons for gender inequality and equity in admission avoidance, with evaluations of equity
 178 improvement also suggested.

179 The study will be published in full in the International Journal for Equity in Health in 2020.

180

Key points - Equality, equity and access to the infection pathway

- Inequitable access to OPAT services has been demonstrated to favour men over women and the rich over the poor. This is likely to arise due to avoidable factors in service provision.
- Further research is required to understand the underlying reasons for this inequity in each service and how “the right bicycle” can be provided for each patient.

181

182 **Session 3: Resources should be directed to treating vulnerable patients with infection – a group**
183 **discussion**

184 The discussion opened with an understanding that services responsive to patient’s needs, and accessible
185 to all, will benefit the health system as a whole by promoting better health outcomes in the population
186 and thereby reducing pressure on the hospital and on primary care. This depends on services
187 understanding what might limit an individual’s access and ensuring equity to all services is a key
188 component of service development.

189 It was felt that the term “vulnerable patient” was often used to define patients who are homeless or at
190 risk of homelessness or who are suffering from addiction issues, but it is important to widen the term to
191 all who struggle to engage with the healthcare system, for whatever reason. Developing novel and
192 robust pathways for access, such as an outreach health model, may help in increasing access to patients
193 regardless of the reasons they find navigating the healthcare system difficult.

194 There are examples of good practice and these were discussed. Such examples include the hospital
195 service that meets weekly with community partners and attempts to establish trust and contact with
196 patients by phone calls every day. Pathways are being trialled where GPs and training patient peers (e.g.
197 people who have been or are homeless or suffering from addiction themselves) to help guide patients
198 through the process of accessing care. Complex patients were highlighted as often needing a “care
199 navigator”, someone who has or can build a relationship with the patient as their needs will always be
200 complex.

201 It was thought that good qualitative data to support the development of novel assistance for vulnerable
202 patients would be essential to show the benefit to the whole healthcare economy in the medium to long
203 term

Key points - Resources should be directed to treating vulnerable patients with infection

- Patient advocates and care navigators are required in hospitals.
- There is a disparity between community and hospital in all locations represented in terms of service provision for the vulnerable patient.
- Communication and connectivity appear to be the biggest problems faced among practitioners.

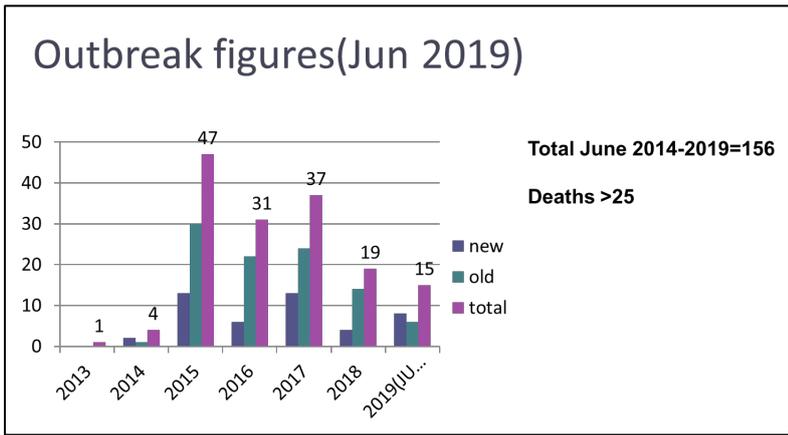
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205 **Session 4: Can a HIV service deliver in PWID? Presented by Dr Erica Peters, NHS Greater Glasgow**
206 **and Clyde**

207 Data was presented on the HIV outbreak among injecting drug users and focused on the success of
208 subsequent interventions and the challenges that were faced.

209 Prior to 2015, the majority of attendees of the Glasgow HIV service were male with similar risk factors for
210 infection to the overall HIV UK epidemiology. PWID-related new HIV infection was uncommon, although
211 there were some long-term patients who had been infected in the 1990s.

212 In 2015, Glasgow's virology lab highlighted an increase in the number of new HIV infections amongst
213 people who inject drugs (PWIDs). An outbreak incident management team was set up. An enhanced
214 focus on establishing the extent of the problem led to increased testing, partly explaining the initial spike
215 in numbers (Figure 4). The data from Glasgow shows 156 cases recorded, with many old infections being
216 identified which could have previously been missed.



217 **Figure 4:** Outbreak figures regarding new HIV infections amongst people who inject drugs (PWIDs).

What are the risk factors?			218
HIV +		HIV -	219
Female	34%	24%	
Age <35	25%	14%	
Homelessness	64%	25%	220
Incarceration	35%		
Heroin+Cocaine	47%	3%	221
Self reported sharing	48%	10%	
Sexually active	60%		
Sexual risk	46%		222
Unsched care 1-5	56%		
Early	34%		
HCV PCR pos	59%	34%	223
OAT	82%	80%	

224 **Figure 5:** Risk factors of PWIDs.

225 Risk factors were assessed for this group of patients and as expected homelessness was the highest
 226 independent risk factor (Figure 5). Whilst the majority of HIV patients were identified as male, around
 227 1/3 were very vulnerable women (Figure 5). This cohort were regularly sleeping rough, frequently in
 228 prison and high users of unscheduled acute emergency care. Rates of active addiction and mental health
 229 problems are high.

230 The previous model of centralised HIV care was located several miles from the city centre, requiring 2
 231 buses for many. In addition, set appointment times and communication challenges, for example no
 232 phone, added to barrier to care, putting them at risk of advanced HIV but also increased likelihood of
 233 onward transmission of the virus. The patient pathway needed to change quickly and thereby the
 234 Glasgow Enhanced Care for HIV in Outreach (GECHO) began.

236 Key features of the GECHO and public health approach:

- 237 • Increased awareness amongst the group affected
- 238 • Partner notification - working closely with colleagues in sexual health to take on this important
- 239 step
- 240 • Increased and regular testing
- 241 • Make sure IEP (Injecting Equipment Provision) is robust
- 242 • Support OAT (Opiate Agonist Therapy) and other drug recovery services
- 243 • Treatment as prevention
- 244 • Taking care and treatment to the patients

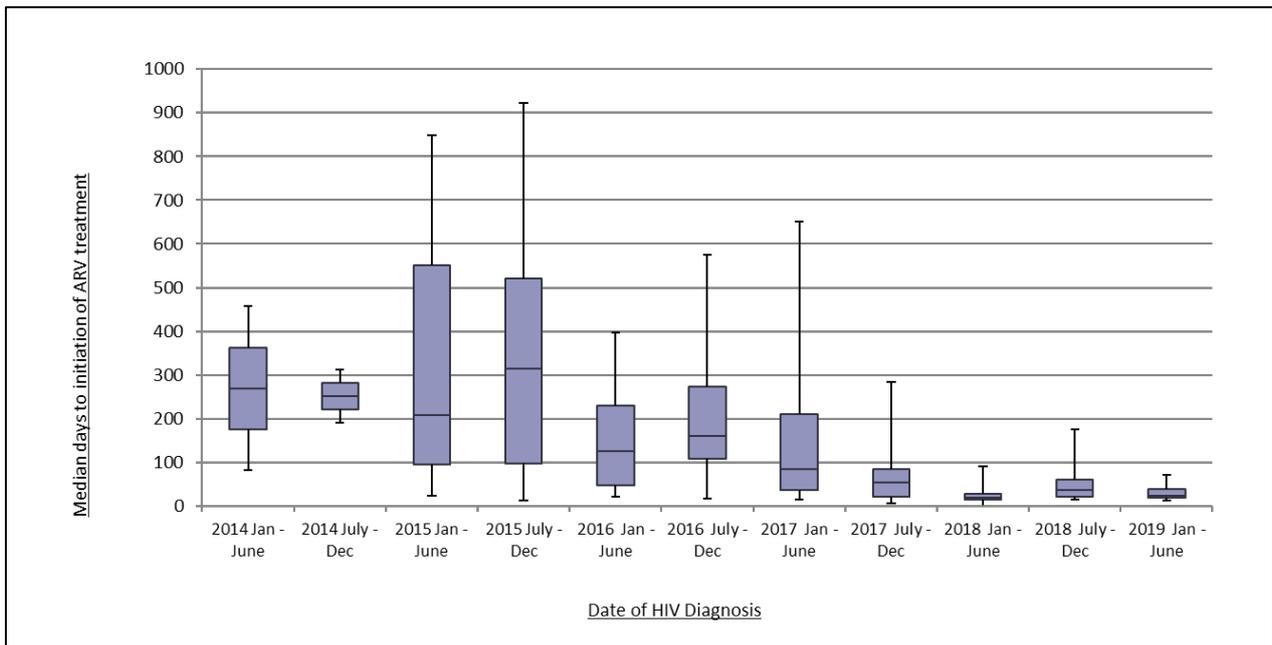
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246 HIV medication was made available in community pharmacies that already dispensed methadone to
247 enable the patient to get their daily HIV treatment alongside their opiate therapy. Treatment as
248 prevention meant HIV viral loads were suppressed to reduce and eliminate onwards transmission.
249 Logistically there were some challenges, but this was seen as a key public health intervention so was
250 supported by the local health board. In addition, a blood-borne virus nurse was funded who works in the
251 community to find and support patients into sustainable treatment, literally on the streets.

252 A nurse-led clinic is now held in the local homeless healthcare centre. Strong links were established with
253 existing 3rd sector organisations who already had relationships with these patients. Resource was also
254 made available for the Infectious Disease and a Genitourinary Medicine Consultant to deliver a blood-
255 borne virus clinic weekly within the homeless centre.

256 One of the key indicators of performance has been the reduction in time between diagnosis and the
257 patient commencing on antiretroviral therapy (Figure 6).

258 Whilst maintenance and adherence to treatment is difficult to measure and compliance can be poor, the
259 overall trend shows a significant increase in proportion of this cohort achieving viral suppression.



260 **Figure 6:** Graph showing the reduction in time between HIV diagnosis and the patient commencing on antiretroviral
261 therapy.

262 The challenges for this patient cohort were and remain significant. The word “outbreak” is used but this
263 word might imply an end. These patients will have life-long HIV infection requiring supportive care.

264 Patient negativity and distrust of healthcare workers and systems is also unlikely to change so
265 maintenance of testing and treatment must be supported in the long term.

266 Justifying this labour-intensive care model to funders can be difficult as it does require a relatively high
267 level of staffing to achieve equal outcomes to other HIV-infected individuals. However, the economic
268 cost to healthcare systems is very likely to be higher in the longer term if patients do not have well-
269 controlled HIV infection. Uncontrolled, the outbreak will increase in overall numbers and may spill into
270 the non-PWID population. In order to manage this at an individual level, but also at population and
271 health economic level, ongoing support of enhanced care that is adapted to the patient’s circumstances
272 must realise long-term investment.

273

274

Key points - Can a HIV service deliver in PWID?

- Location, location, location- Taking care to the patients was paramount to managing HIV in a largely homeless, vulnerable population.
- Dispensing medication alongside opiate therapy enhanced compliance.
- Utilising familiar staff that take the time to build relationships and trust is vital.
- Multi-agency working with careful and sensitive information sharing covers gaps in service provision.
- High quality HIV care with similar outcomes to other population groups can be achieved in PWIDs.

275

276 Session 5: Public health, Psychiatry, Police tackling the legal highs – Edinburgh presented by Dr

277 Duncan McCormick, Consultant in Public Health Medicine, NHS Lothian

278 Dr Duncan McCormick focused on the ongoing risk posed by the outbreak of a novel psychoactive
279 substance in Edinburgh.

280 After this outbreak in 2015 there were still 148 drug-related admissions per month to the hospital. 50%
281 of these patients were in the unit for less than 24hrs, however in cases requiring a longer stay there was
282 perceived to be a way of making a difference to the pathway.

283 The infection rates shown continued to be high but the surveillance data was not optimal and did not
284 give a great level of detail on the patient history (Figure 7).

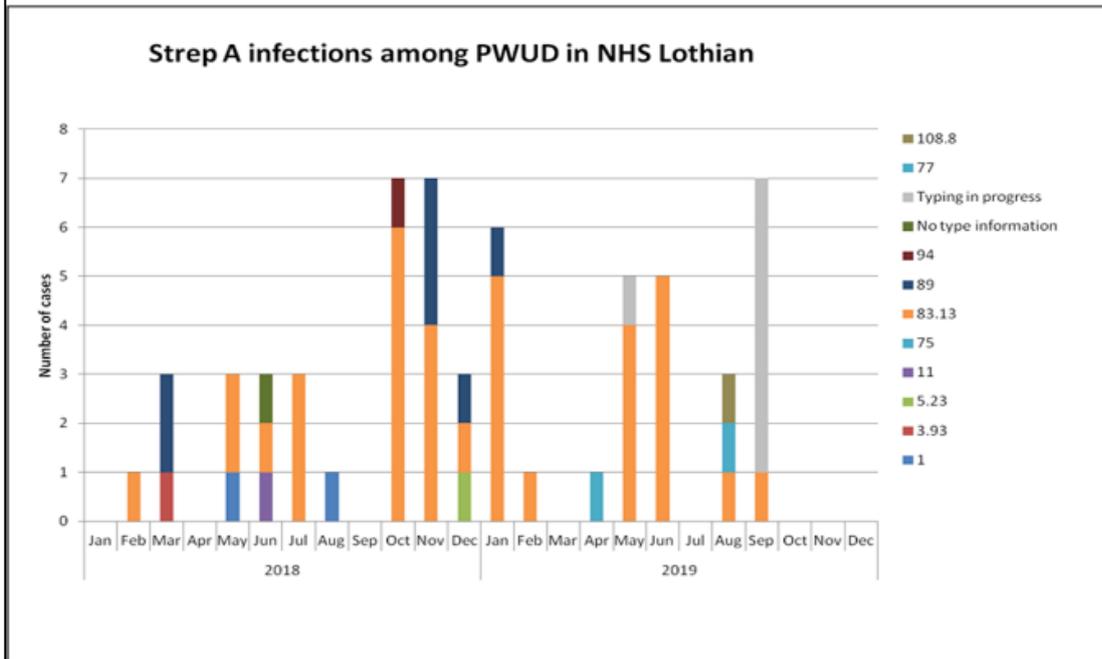
285 Intelligence showed that IEP (Injecting Equipment Provision) use was going down. Less needles were
286 collected suggesting the number of people smoking drugs instead was increasing.

287 “Drugs, bugs and behaviour are ever evolving complications that can challenge healthcare services”

288 Control measures were subsequently put into place. Firstly, surveillance and communications around
289 new drug trends were improved. Hygiene training was increased and the distribution of hygiene packs
290 with injecting equipment was initiated. Drug liaison nurses were also introduced to follow up vulnerable
291 patients out of hospital.

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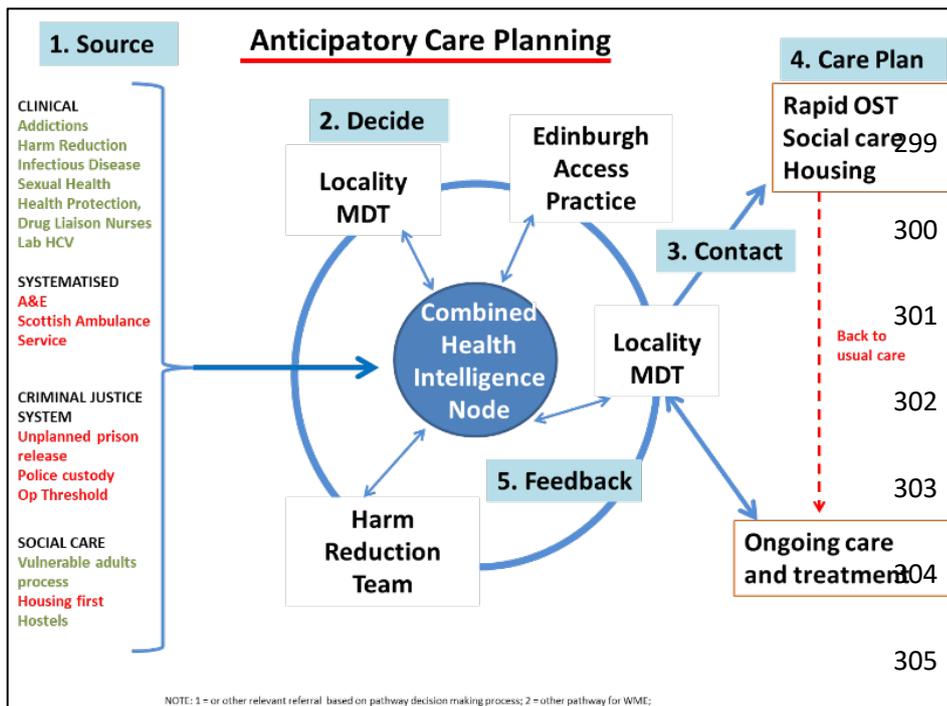
Infections continue



293 **Figure 7:** Graph showing Strep A infections among PWUD in NHS Lothian.

294 Outreach was another huge area of improvement. Resources were utilised to follow up tests to ensure
 295 that results reached the patients regardless of whether they were presenting to healthcare facilities or
 296 not. Outreach helped to successfully engage a quarter of this vulnerable patient group.

297



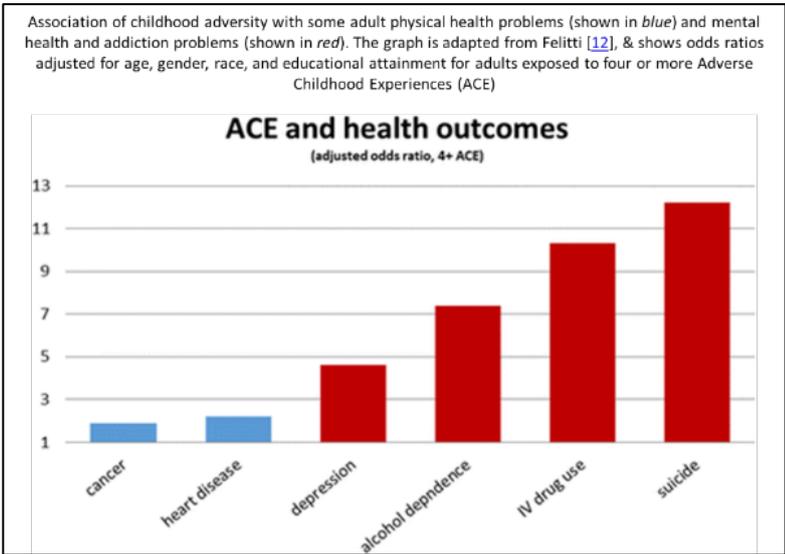
306 **Figure 8:** An improved system designed to control drug-use.

Key points - Public health, Psychiatry, Police tackling the legal highs – Edinburgh	307
<ul style="list-style-type: none"> • Surveillance is essential to identify outbreaks and new risks. • Harm Reduction network with data sharing. • Clinical capacity to respond. • Data and evaluation capacity. • Intelligence is key. 	308
	309

310 **Session 6: Joined up and reaching out - bridging the divides to eradicate Hepatitis C – Dr John**
 311 **Budd, General Practitioner, NHS Lothian**

312 Dr John Budd, NHS Lothian, began by identifying the pathway to individual marginalisation by society and
 313 healthcare. Homelessness, substance misuse and the criminal justice system can play a role but almost
 314 universally, these individuals will also suffer with mental illness and poverty. A complexity of patient
 315 factors leads to complex medical needs.

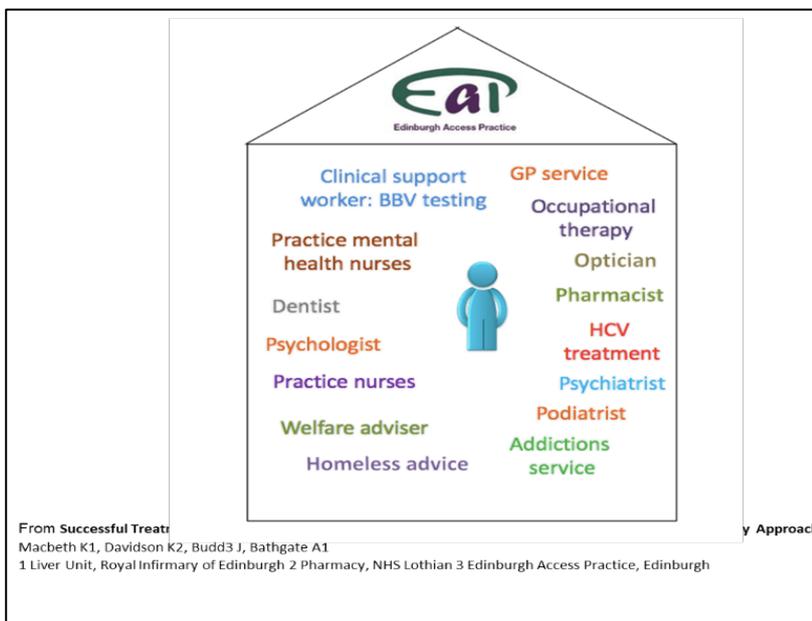
316 Dr Budd described the impact of ACE (Adverse Childhood Experiences) on future health outcomes and
 317 explained that the mental impact of ACEs in a patient’s life often leads to anxiety around engaging with
 318 any future care setting (Figure 9). Recent studies have shown nearly one in two children in the UK are
 319 being raised in poverty leading to an increasing risk of vulnerability in the future. Dr Budd highlighted
 320 that in order to help patients engage it is vital to take a psychologically informed approach. He also
 321 suggested that clinicians were required to become advocates of the need to drive change in this patient
 322 group.



323 **Figure 9: ACE and health outcomes (4)**

324 Communication between all healthcare professionals and the service users is seen to be crucial with all
325 interactions encouraged and valued, and it was felt that all decision-making needs to be transparent with
326 any authority acknowledged, accountable and open to discussion. Dr Budd recommended a change to
327 existing practice is to remove the barring of argumentative or disruptive discussions as these must be
328 seen as meaningful and helpful for understanding (6). Utilising people with lived experience to help
329 design services and think of ways to deliver the services means more people are reached. These
330 individuals with lived experience help engage and reach those who do not show up and struggle to
331 engage.

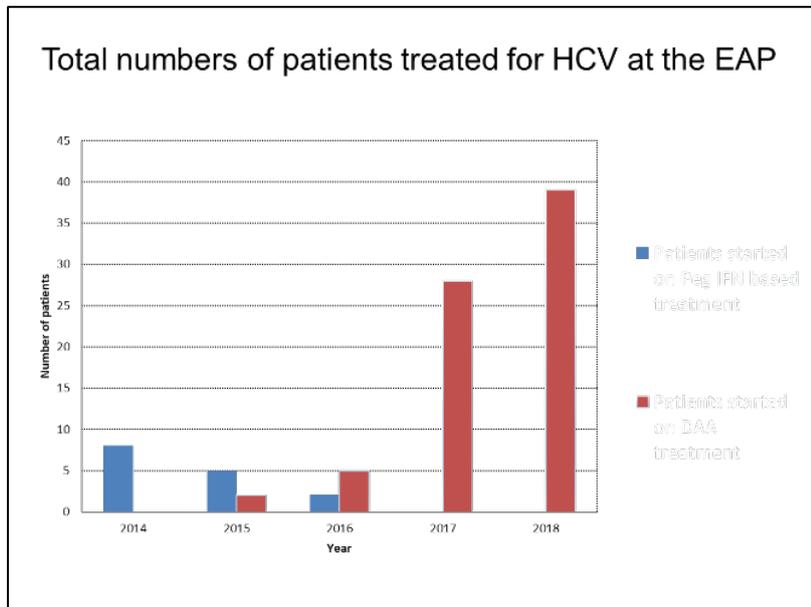
332 EAP (Edinburgh Access Practice) provides a number of services including welfare rights services which
333 has helped generate nearly £888,000 of income for many patients; and the pet clinic does a fantastic job
334 of engaging those who care more for a pet (very common among this population) than their own health
335 (Figure 10). By being able to bring companion animals to get checked, the individuals can get more
336 familiar with the clinic and eventually feel comfortable enough to allow themselves to receive care while
337 they are there.



338 **Figure 10:** Integration of HCV outreach treatment within the Edinburgh Access Practice (5).

339

340 The EAP hepatitis C infection audit in 2017 showed that 740 patients were registered, and just under had
341 had been tested for the HCV (Figure 11). Of those, over half were HCV antibody positive, 70% had
342 chronic infection and 65% of this was among those with a history of drug use. These numbers are above
343 the UK norm, mainly due to the population of patients.



344 **Figure 11:** The 2017 EAP hepatitis C infection audit results.

345 There were several strategies involved with targeting this group which made these outreach clinics so
346 successful. Identifying and targeting those at risk, the service relocated to a community setting and
347 provided regular testing there. Engaging patients with treatment involved providing flexible/ drop-in
348 clinics, integrating them into routine care and generally making treatment easily accessible and
349 convenient. Helping adherence to treatment incorporated a lot of liaising with community pharmacies,
350 linking with hospitals and homeless support networks. Again, making accessibility of treatment easy was
351 paramount. Preventing infection or reinfection led to the clinic linking with OST (Opioid substitute
352 services), injecting equipment exchange facilities and, most importantly, peer support.

353 In 2016, free access to the direct acting antivirals changed treatment for this group in a huge way
354 because it was simply easier than the interferon-based treatment as shown above in blue. Free access to
355 testing and treatment has led to a culture shift, so patients know if you turn up on a Tuesday you can get
356 tested. They have found 95% of patients completed the full course of treatment and there have been
357 some cases of reinfection which means this service is beginning to reach the extent of patients who

358 actually require the service. While much of these cases are due to the fantastic work from Dr Budd and
359 his team, he explicitly says to tell the patient that they cured themselves; for some of these patients it is
360 the first time they have completed anything which can lead to a massive shift in mental health and
361 attitude. A story is shared about a particular case who many thought would be in the clinic for life but
362 finished her Hep C treatment, worked with the services to get herself housed, and began attending
363 college 6 months later.

364 The team also managed to do some research to find out about the patient experiences at the general
365 practice and outreach clinics. The key themes that came back were:

- 366 • The familiarity of the EAP – made to feel at ease
- 367 • The positive relationship with staff
- 368 • Geographic proximity of the clinic to patients
- 369 • Short waiting times for treatment
- 370 • Convenience of combining healthcare appointments
- 371 • Drop in and ‘open door’ policy – less stigma
- 372 • Convenience of daily dispensing of antivirals at community pharmacy.

373 *“A homeless guy actually said there is a place up there where you can get a sandwich for free and*
374 *there is actually a doctor what will sit and listen to you and not just give you a prescription and rush you*
375 *out the door”*

376 Patients felt being heard, feeling safe, getting more time and feeling a sense of belonging all helped
377 break down barriers they felt came between them accessing healthcare in a regular setting. To finish, Dr
378 Budd stated that in order to address the health inequalities we are facing, the NHS must be functioning
379 at its absolute best.

380 There was a question about waiting times and queuing from Gyles Wren. Dr Budd replied that this was
381 one of the areas they were working on. He explained that it is part of the psychologically informed
382 approach and one of the reasons this patient group tend to prefer going to the outreach clinics rather

383 than a GP. He stressed the importance of the outreach centres drop-in facility and using this for
384 opportunistic testing as his patients know that they will get approximately 15 minutes with a GP or 20
385 minutes with a mental health consultant.

386 Another question was raised about how this practice links with the hospital, with other practitioners in
387 the room sharing how they have struggled to get psychiatric care for patients. Dr Budd shared how the
388 outreach clinic now has a psychiatrist once a fortnight who is helping them work towards establishing a
389 better pathway to get these patients the care they need. He also mentioned a plan to have a GP or
390 homeless specialist nurse in each hospital to try to establish contact and get information, especially as
391 very little information is passed on when the patient self-discharges (as is often the case).

392 The last question was about how the practice manages resources and time in this intensive endeavour.
393 Again, reference to linking with various 3rd sector organisations is described as key.

Key points - Joined up and reaching out - bridging the divides to eradicate Hepatitis C

- Building positive relationships between staff and patients.
- Environment and relationships are key.
- Outreach allows us to reach the vulnerable, multiple excluded homeless.
- 25% of patients seen by the doctor at an outreach setting between January and May 2016 had no regular contact with a GP.
- Outreach working requires the support and infrastructure of the central specialist homeless/health service.

394

395 **Session 7: PWID inpatients in East London: issues and opportunities** Dr Ruaridh Buchanan,

396 **Consultant in Microbiology and Infectious Diseases, London**

397 Dr Ruaridh Buchanan began by describing the challenge to his Trust as it serves areas with significant
398 deprivation; as a consequence, there is a high incidence of people who inject drugs (PWIDs) presenting
399 to the hospital with complex medical and social issues.

400 A study was conducted within the Trust that focussed on patients under the care of the Infectious
401 Diseases team. Of this cohort, 10% were identified as PWIDs; bacteraemia was identifiable in
402 approximately 75% of this subset with the majority identified as *Staphylococcus aureus* infections. These
403 patients required lengthy courses of intravenous antimicrobial therapy – whilst such infections can be

404 treated via outpatient parenteral antimicrobial therapy (OPAT) services, these patients all had very long
405 hospital stays. This was due to difficulties in identifying a “home” destination for discharge, making OPAT
406 very complex or even impossible. There were also concerns around the possible misuse of indwelling
407 vascular devices.

408 Several interventions that could lead to a shorter length of stay for PWID patients were discussed:

- 409 • locating appropriate accommodation for discharge under OPAT
- 410 • switching to oral therapy
- 411 • the use of long acting intravenous agents negating the need for indwelling vascular access

412 Each of these options presented separate issues that would need to be addressed and monitored.

413 Options for reducing the use of intravenous access devices for illicit drug injection were discussed,
414 including tamperproof clamps and dye injections to detect leaks; however, teaching safe usage was also
415 considered as perhaps a more realistic option. It was also seen as critical to tie in psychiatric and
416 community services to ensure appropriate follow up and support for these individuals, but it was
417 acknowledged that these services frequently struggle with resource and capacity.

418 It was acknowledged that moving patients closer to home is a priority for all Trusts and Clinical
419 Commissioning Groups, but that patients with no fixed abode often have no specific pathway to care in a
420 particular area and may be deemed problematic and a financial burden

421 Vaccination was another point of discussion for this patient group. Blood-borne virus infection among
422 this group mainly consisted of hepatitis C; there was a local needle exchange offering hepatitis B
423 vaccination and good number of the patients had protective levels of antibody; there were no HIV
424 infections in the cohort. Finally, the risk of tuberculosis (TB) was reviewed, along with the attendant
425 needs for long-term follow up and the risks of drug interactions with TB medications and drugs used in
426 addiction recovery. Models combining daily pharmacy attendance for opiate replacement with hepatitis
427 C and TB treatment were also discussed.

428

429

Key points - PWID inpatients in East London: issues and opportunities

- PWIDs form a significant proportion of the infectious diseases burden in East London.
- Barriers to high quality medical care are not predominantly medical.
- Housing/adherence to therapies and access to care remain significant barriers.
- PWID patients are responsibility of the Trust and the treating physician.

430

431 **Session 8: Bridging gender inequalities in infection management Dr Chi Eziefula, Senior Lecturer**
432 **in Infectious Diseases, Brighton and Sussex Medical School**

433 Dr Chi Eziefula challenged the delegates to consider whether they apply a “gender lens” on their own
434 practice. While women are not a minority in our population there is evidence to show that they are more
435 vulnerable in treatment pathways. This evidence points to individual unconscious bias in healthcare
436 professionals with a resulting negative impact on patient outcomes.

437 In the case of HIV, women, particularly in low and middle income countries, make up a higher proportion
438 of patients and currently receive vastly different quality of care to male patients. Women are more
439 vulnerable to HIV-1 infection for various reasons including the use of hormonal contraceptives including
440 DMPA (Depomedroxyprogesterone acetate), which can increase the risk of infection two-fold hence the
441 WHO recommends the concomitant use of condoms. Women are more likely to disengage from care in
442 general during HIV treatment but men are reported to have a lower adherence to ART (Anti-retroviral
443 therapy) (Table 1). In last 15 years, women have been significantly under-represented in clinical trials of
444 HIV prevention, care delivery and curative interventions. Such a gender imbalance in trial participants
445 leads to insufficient knowledge on how to generalise study findings to support women with HIV. Animal
446 studies typically use male mice or females whose hormones have been modulated with DMPA to
447 increase efficiency of the controlled infection. This means there is insufficient data regarding the role of
448 normal female hormones on both disease acquisition and treatment effectiveness.

449

450

451 **Table 1:** Gender inequity in HIV infection. Abbreviations: WHO: World Health Organization; DMPA:

452 Depomedroxyprogesterone acetate; ART: anti-retroviral treatment; PrEP: Pre-exposure prophylaxis.

Gender inequity in HIV infection	
Women are more vulnerable to HIV-1 infection	Different pharmacokinetics and pharmacodynamics <ul style="list-style-type: none">E.g. Lower concentration of tenofovir PrEP in vaginal than rectal tissues
<ul style="list-style-type: none">Socio-economic	Women more susceptible to adverse events <ul style="list-style-type: none">Women more likely to disengage from care or change ART
<ul style="list-style-type: none">Efficiency of exposure method	Men have lower adherence to ART
<ul style="list-style-type: none">Men more infectious at a given CD4<ul style="list-style-type: none">Women lower VL at higher CD4 countsWomen higher neutralising antibodies	Women lower adherence to PrEP
<ul style="list-style-type: none">Use of hormonal contraceptives<ul style="list-style-type: none">2-fold increase in acquisition with DMPA. WHO recommends condoms.Rhesus macaque models use DMPA to enhance infection so unable to assess hormone effects	Women significantly under-represented in clinical trials of HIV curative interventions.

453

454 Tuberculosis is a leading cause of death in women, with a higher mortality rate in women who are
455 pregnant and in women who are co-infected with HIV. However, 59% of TB cases globally are reported in
456 men (7). This difference in prevalence and mortality raises questions regarding whether the risk of
457 mortality, as opposed to susceptibility of the host to infection or reactivation, is affected by socio-
458 cultural factors or even access to services. Gender desegregation of data is required to define future
459 effective interventions.

460 Global malaria data is also not segregated by gender and it is not routine practice to report numbers of
461 cases or deaths from malaria in pregnancy. As a result, we do not have a clear idea of the size of the
462 problem of malaria in pregnant women. Pregnant women are more susceptible to malaria infection and
463 more likely to have severe disease if they contract the infection but there is a paucity of research to
464 quantify the impact of malaria on pregnancy (8). Dr Eziefula described the suboptimal detection systems
465 in place globally, which consequently lead to sub-optimal treatment pathways for female malaria
466 sufferers.

467 Flanagan *et al.* 2017 (9) conducted a study showing gendered responses to vaccines. Women and girls
468 have a larger immune response to vaccines leading to a significant difference in the incidence of adverse
469 events. The malaria vaccine in west Africa reduces the instances of malaria in girls but not attributable
470 mortality, and this therefore raises further research questions.

471 Cellulitis is a common infection treated by nearly all infection specialists globally. However, even in
472 resource-rich countries where treatment can be targeted by microbiological diagnosis, one of the only
473 factors significantly affecting a patient's chance of clinical response and recovery was female sex (10).

474 There is little data overall on the access to infection services, however it was cited that a previous
475 presentation had noted the NHS Lothian report that men are 31% more likely than women to be referred
476 to OPAT services. Dr Eziefula concluded her talk with the following quote from the United Nations
477 Foundation Data 2x "Achieving gender equality requires quality, policy-relevant data on women and girls.
478 Without it, we cannot make informed decisions, and we cannot track if those decisions are improving
479 lives" (11).

Key points - Bridging gender inequalities in infection management

- There is a gender data gap.
- An attitude and culture shift to recording outcomes data is required.
- Gendered incidence and prevalence data is also required so that future interventions can be measured.
- Specific gender data gaps for infection include: Disease pathogenesis, basic research on females, impact of sex hormones, pharmacokinetics, epidemiological gender data disaggregation.
- For further information look to the 3D data group and Data 2X group.

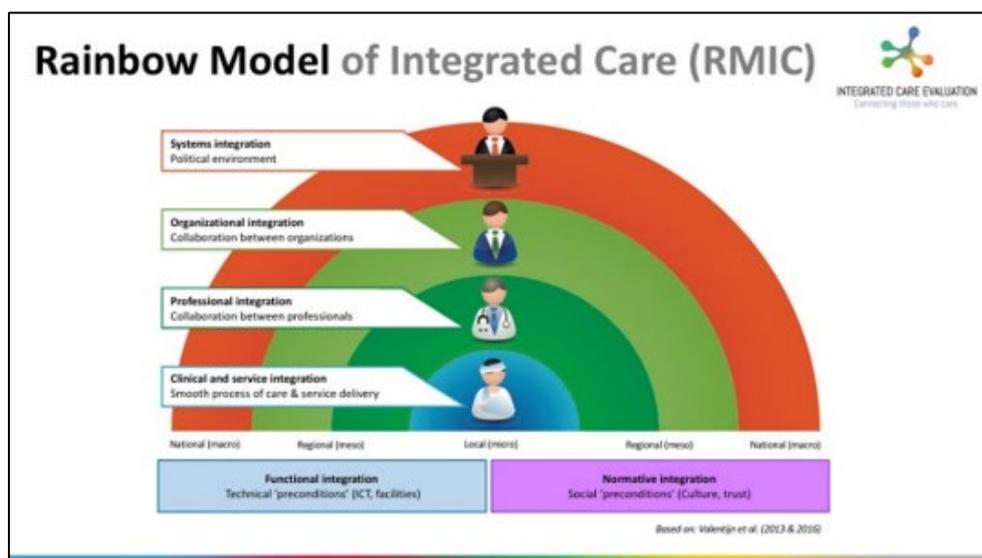
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481 **Session 9: Inclusion health: An approach to engaging excluded people in care presented by Dr**
482 **Cliona Ni Cheallaigh, Associate Professor, Clinical Medicine, Trinity College Dublin**

483 Dr Cliona Ni Cheallaigh examined the concept that poverty is bad for health but social exclusion
484 exacerbates the problem. The socially excluded are 8 times more likely to die in the next year if male and
485 12 times more likely if female. Many vulnerable patients have suffered Acute Childhood Experiences
486 (ACEs) neglect during childhood can lead to a lack of self-worth in the adult, leading to increased chance
487 of risky behaviour such as drug use and any associated infection.

488 Shame can be a massive barrier to accessing healthcare for this vulnerable group and the response of
489 healthcare professionals where services are accessed is critical. These patients can be seen as a drain on
490 healthcare resources and there can be a temptation to respond in anger and to discharge the patient as
491 soon as possible instead of taking into account a more holistic view of the needs of the patient.

492 Integrated and person-centred care may be the answer (Figure 12). Dr Ni Cheallaigh spoke about the
493 benefits of a weekly Multidisciplinary Team (MDT) and involving people from every sector that is
494 involved with the specific patients. The process employed is that following a referral, a comprehensive
495 assessment is completed to derive a sustainable discharge plan and, most importantly, a follow up plan
496 for the patient. It was acknowledged that this programme is resource-intensive, but unless the
497 underlying problem is addressed patients eventually rebound into hospital and cause a significant long-
498 term drain on resources.



499 **Figure 12:** Rainbow Model of Integrated Care (RMIC). Based on Valentijn et al., 2013 (12).

500 In order to integrate this model into institutions, there is a need to provide quantitative and qualitative
501 research that will show how this new model of care can be cost-effective, as well as providing a strong
502 ethical argument.

Key points - Inclusion health: An approach to engaging excluded people in care

- Social exclusion is a biological threat to health.
- Breaking down psychological barriers not just for the patient but for staff can be difficult but the return on investment is valid in the longer term.
- Social inequality and exclusion creates financial strain on hospitals. Research shows that the homeless experience hospital stays that are on average 10 times longer than housed patients.
- Data needs to be produced that appeals to the needs of funders in institutions.
- Importance of working with organisations in the 3rd sector to share knowledge and responsibility.

503

504 Session 10: The Glasgow experience presented by Dr Neil Ritchie, Consultant Physician in

505 Infectious Diseases and Acute Medicine, NHS Greater Glasgow and Clyde

506 Glasgow have extended their OPAT service by utilising dalbavancin particularly with the vulnerable

507 patient group. Dalbavancin is a novel lipoglycopeptide antibiotic which is highly active against gram-

508 positive bacteria. As Glasgow has no support from Hospital at Home services, the advantage of using

509 dalbavancin as the drug choice is that it is administered via intravenous infusion over 30 minutes and has

510 a prolonged half-life permitting once weekly dosing. This convenience of dosing and good side effect

511 profile has made it a good candidate for the vulnerable patient group.

512 Difficult populations who struggle being in hospital can end up with prolonged admission, risk of

513 hospital-related harm and ineffective management of infection. Dr Ritchie shared two case studies of

514 patients, who were examples of the vulnerable patient groups being discussed, who were both suffering

515 with cellulitis. One was detained in psychiatric services with severe depression and psychosis but was

516 found with a soft tissue infection to the groin. The other was a homeless man who frequently attended

517 the emergency department with spreading cellulitis but frequently absconded from the hospital. Both

518 patients were given dalbavancin before being discharged and both had experienced clinical cure on

519 review.

520 Rappo *et al.* (13) suggested that after 6 weeks patients are likely to have a plasma and bone

521 concentration of dalbavancin that is well above the minimum inhibitory concentration (MIC) for

522 *Staphylococcus aureus*. More than 90% of patients had good clinical outcomes at 3 weeks, 6 weeks, 6

523 months and 1 year. The literature presents a wide range of dosing so further research is required.
524 Further cases were presented in difficult and complex patients where dalbavancin enabled psychiatric
525 services to be involved. This led to the patients being able to access to the OPAT service, lessening the
526 agitated state of the patients, and provided a better opportunity for a positive health outcome.

Key points - The Glasgow experience

- Although dalbavancin has a similar spectrum of activity to vancomycin, it has a more beneficial dosing regime and has reduced side effect profile.
- The ease of administration with dalbavancin make it ideally suited to the management of patients who may not be suitable for conventional OPAT therapies.
- Clarity is needed regarding the optimum dosing strategy with reported variation in the literature.

527

528 **Session 11: Innovative clinic for adolescents infected with HIV at birth presented by Dr Caroline**
529 **Foster Consultant in Adolescent Infectious Disease, Imperial College Healthcare NHS Trust**

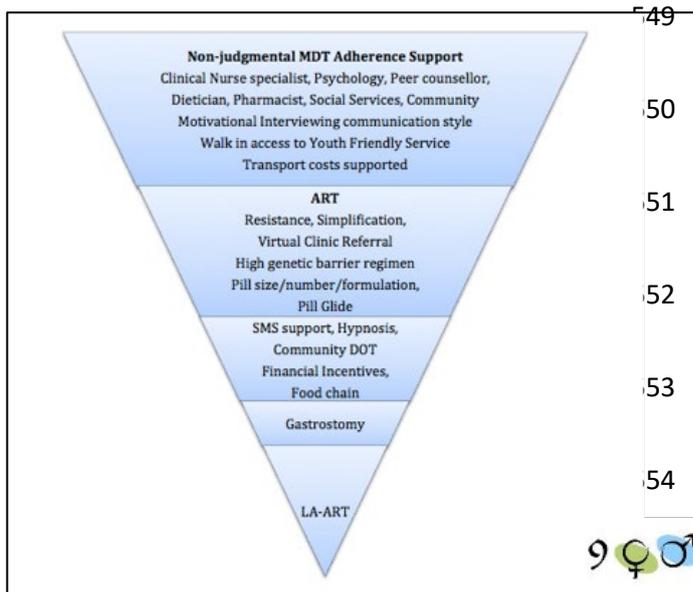
530 Global mortality rates in the 15-19 year old bracket is the only age group where HIV mortality continues
531 to rise.

532 HIV diagnosis can lead to shame and secrecy even within families, let alone in healthcare settings, and
533 there is a great deal of psychological adjustment required for children learning their positive status for a
534 potentially sexually transmissible disease at around 9 or 10 years old. This group often have many social
535 risk factors leading to difficulties in accessing services and poor adherence to treatment. When
536 adolescents transition from paediatric to adult HIV services, some struggle with engagement with a new
537 healthcare team and the increased demands in managing their own healthcare. They particularly
538 struggle with admission to adult in-patient services which are more suited to older adults than 16-24
539 year olds, and lack the multidisciplinary psychosocial and educational support available in paediatric
540 wards.

541 This issue has led to the establishment of a clinic in a London hospital which has become a lifelong
542 perinatal HIV clinic. Some key principles of the clinic are: a multidisciplinary team; “one stop shop”

543 addressing physical, mental and sexual health; paid peer support; afternoon walk-ins and open access to
544 patients.

545 It is also important to build trust in this vulnerable patient group through positive communications,
546 avoiding shame or judgement. For example, instead of asking the patient the number of doses that have
547 been missed, it is more valuable to ask for the number of doses that have been taken. The diagram
548 below illustrates how medication adherence is supported (Figure 13).



556 **Figure 13:** Diagram illustrating how medical adherence is supported.

557 Detailed data collection on this cohort shows that this approach is effective and has increased adherence
558 to therapy. Results from the audit show that 99.4% of patients received ART, with 80% of patients
559 achieving viral loads of less than 200c/ml; and in 12 years of the service there has only been 4 deaths
560 reported. An optimal staff ratio is important for this patient group but the real key to transitional
561 services is providing excellence in communication between paediatric and adult HIV services.

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Key points - Innovative clinic for adolescents infected with HIV at birth

- Adolescents have the highest and increasing mortality rate of all age brackets living with HIV. The ease of administration with dalbavancin make it ideally suited to the management of patients who may not be suitable for conventional OPAT therapies.
- Adherence to therapy in the transition age group is poorer than in younger children or older adults. However, if you can keep them engaged in care through the critical years, typically 14-24, those that do struggle frequently improve their health management as adults.
- There are many psychological barriers unique to this group receiving care.
- Consistent care by multidisciplinary healthcare professionals is vital.

566

567 Session 12: Managing complex TB cases in hospital and community presented by Ceri McSparron,

568 Lead TB Nurse, NHS Lothian

569 There are many issues associated with complex tuberculosis. However, a multidisciplinary team with
570 effective discharge planning and communication are shown to be positive interventions in these cases.

571 A patient with a complex TB infection was presented. They were resident in the area for seasonal manual
572 labour and initially admitted after collapsing at home. The admissions process was hampered by a lack of
573 English and concern about the ability to continue working. Therapy for TB was initiated in the hospital,
574 but there were indications that the patient would not adhere to treatment. An adherence intervention
575 was employed which included pill counts and video footage. Despite the intervention being effective, a
576 second hospital admission was required due to the organism being resistant to pyrazinamide and
577 ethambutol. This was the first case of this type of resistance pattern in Lothian and therefore referred to
578 as Poly Drug Resistant TB.

579 This second hospital admission impacted the patient physically, psychologically, socially and financially
580 and this patient highlighted the need to find joint working solutions. For example, the patient was given
581 access to the hospital WiFi to be able to contact family in native language, and benefit support for the
582 family of the patient was arranged. He was also paid an equivalent wage by public health as allowed
583 under the Public Health Scotland Act. This meant he was able to remain in hospital until safe to be
584 discharged. This case also highlighted internal communication issues from the staff on the ward and
585 training measures were employed to give effective instructions and lessen frustration for the patient, the

586 extended family and the staff. This resulted in a safe discharge, continued care and communication with
587 the patient in the community and ultimately led to completion of TB treatment as planned.

Key points - Managing complex TB cases

- A multidisciplinary team approach is essential in preparing patients for a potentially long hospital admission.
- Consistent messaging is essential.
- Patient-centred care is needed to modify care to the needs of the patients.

588

589 **Session 13: Migration and refugee health – the problem of infection presented by Dr Aula**

590 **Abbara, Consultant in Infection, Imperial College, London**

591 Healthcare professionals experience a unique challenge with the refugee population. Health priorities for
592 a refugee change throughout their journey. In the country of origin, it is likely that the patient will have
593 experienced a destroyed health system, with potentially poor sanitation, leading to trauma and a high
594 prevalence of communicable and non-communicable diseases.

595 During the journey these patients will have had to deal with overcrowding and poor sanitation leading to
596 communicable diseases transferred between individuals. Refugee camps hold many health risk-factors
597 due to the environment.

598 Data on communicable diseases in Greece which are reported to the Greece CDC estimate that around
599 57% of cases were respiratory, with skin and soft tissue infections also being important. A concern for
600 any infection in the refugee population is antimicrobial resistance, as the data shows that migrants and
601 refugees may have a higher prevalence of MDR organisms, though there is little evidence that this is
602 transmitted to the local population.

603 Mental health support is also very important for refugees at all parts of their journey but particularly in
604 the destination country, and this should be considered as an essential component of the
605 multidisciplinary approach to treatment. A complete holistic approach needs to be considered to
606 communicate both the healthcare and social care system that is available to patients.

Key points - Migration and refugee health – the problem of infection

- There are different risks among different migrant and refugee populations.
- There are screening programs for communicable diseases for planned migrants but they are of mixed efficacy/cost-effectiveness.
- Healthcare institutions need to treat the individual but communication style needs to be adapted to understand the journey and trauma of the patient.
- Build the relationship and be aware of the language used by healthcare professionals.

607

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