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Infectious disease screening outcomes and reducing barriers to care for unaccompanied asylum-seeking children: a single-centre retrospective clinical analysis

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ABSTRACT

Objective Evaluate the Unity Clinic's infectious disease screening programme for unaccompanied asylum-seeking children (UASC), calculate rates of infection and identify further health needs.

Design Retrospective audit of electronic patient data.

Setting and patients UASC who attended the Unity Clinic between 1 November 2019 and 22 March 2022.

Main outcome measures Baseline demographics, social, mental health and journey details, infection screening and investigation results.

Results 155 UASC were reviewed: 89% (138 of 155) male, median age 17 years (IQR 16–17). Most frequent countries of origin were Sudan, Eritrea and Afghanistan. Median duration of travel to the UK (n=79) was 2 years (IQR 0.5–4); 35.6% (47 of 132) arrived by boat and 54.5% (72 of 132) by road. 44.8% (69 of 154) had one or more positive infection screening results: 22.7% (35 of 154) and 1.3% (2 of 154) positive for latent and active tuberculosis, respectively; 4.6% (7 of 152) chronic active hepatitis B and 17.1% (26 of 152) for past infection; 1.3% (2 of 154) for HIV; 13.0% (19 of 146) for *Strongyloides*. There were three cases of syphilis (n=152; 2.0%) and one chlamydia (n=148; 0.7%)—none of whom disclosed prior sexual activity during screening. 39.6% (61 of 154) and 27.9% (43/154) reported disturbances to mood or sleep, respectively. 55.2% (85 of 154) disclosed traumatic incidents during and/or prior to their journey, including physical and sexual assault.

Conclusions The Unity Clinic provides a thorough infectious disease screening service for UASC following national guidance. Results highlight the need for universal, non-judgemental screening for sexually transmitted infections, as targeted screening would not identify positive cases. High rates of well-being issues and previous abuse emphasise the need for multidisciplinary, collaborative approaches to care.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Unaccompanied asylum-seeking children (UASC) are a vulnerable population with complex health needs.
⇒ There is a need for holistic approaches to care for UASC, including multidisciplinary collaboration.

WHAT THIS STUDY ADDS

⇒ Infectious disease screening and treatment remain essential to support the health of UASC but should be performed alongside mental health support.
⇒ Infectious disease screening should include universal, non-judgemental screening for sexually transmitted diseases, although more data are needed to strengthen this guidance.
⇒ The Unity Clinic, and the model developed as a result of these data, are examples of how to provide holistic approaches to care, including collaboration between hospital and community health services, social care and interpreters.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ Moving forward, services should consider methods of improving multidisciplinary collaboration and reducing barriers to care for UASC.
⇒ Examples of reducing barriers to care include collaboration or integration of health services, presence of interpreters and assurance of free and confidential services.

INTRODUCTION

A refugee is someone who, 'owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality, and is unable to or, owing to such fear, is unwilling to avail himself of the protection of that country'.[1] An asylum seeker is an individual who has claimed for refugee status but whose claim has still not been processed.[2] Unaccompanied asylum-seeking children (UASC) are asylum seekers aged less than 18 years who are separated from both parents or legal carers.[3]

In the year ending March 2021, over 32 400 individuals claimed asylum in the UK[4]; 2044 (6%) were UASC, with over half aged 16–17

years and more than 90% male.[4] Initial decisions were made for 1071 children, with 82% granted asylum.[4] Those whose claim is refused can appeal or have to leave.[5] As per the Children Act 1989, UASC are supported by local authorities including financial support, accommodation, education and healthcare.[6]

There have been several studies summarising the mental health of UASC in Europe, highlighting varying high rates of post-traumatic stress disorder (PTSD), depression, anxiety and sleep disorders.[7–11] These were summarised in a review by Kien *et al* with 19.0%–52.7% experiencing PTSD, 10.3%–32.8% depression and 8.7%–31.6% anxiety.[10] There have been fewer studies evaluating the physical health of UASC; however, preliminary data show high rates of tuberculosis (TB) infection, blood-borne viruses (BBVs) and parasitic infections.[9 12–14]

UASC receive healthcare as looked after children (LAC) through community paediatric services with a recommendation for communicable disease screening in national guidance.[15 16] Prior to the COVID-19 pandemic within the triborough of Westminster, Hammersmith and Fulham and Kensington and Chelsea, UASC received BBV screening through primary care, and TB screening in secondary care with LAC medical examination prompting further symptom-based investigation and referral. The COVID-19 pandemic heightened concern of foster carers around transmissible infections, delaying placement for vulnerable children and prompting a request by social care for a rapid infectious disease screening service. Therefore, a face-to-face (F2F) 'one-stop shop' infectious disease clinic, the Unity Clinic, was implemented in May 2020. At this time, Initial Health Assessments (IHAs) faced substantial delay and were performed remotely, instead of F2F. Therefore, in addition to infectious disease screening and baseline blood tests, the consultation also involved taking a general history and examination if an IHA had not been completed previously (online supplemental appendix 1). The clinic is run by a group of healthcare professionals specialising in paediatric and adolescent infectious diseases, where general history and examination are required, and consultations are doctor led. Otherwise, as IHAs returned to F2F, clinics became nurse led with consultant review if symptomatic. All discussions are confidential, and interpreters, ideally in F2F, are provided as required.

The aims of this audit were to evaluate the Unity Clinic's screening programme, and to calculate rates of infection and identify further health needs, to understand how to best support this vulnerable group.

METHODS

Data were collected through a retrospective analysis of the electronic patient records for UASC attending for infectious disease screening from 1 November 2019 to 22 March 2022. Data collected included: baseline demographics (age, sex, country of origin), social and mental health history (alcohol, smoking, recreational drug use, sexual intercourse (consensual and non-consensual), mood and sleep) and journey details (date of arrival, date of consultation, mode of arrival to the UK, length of journey, significant events during travel). Mental health and journey history were only asked if the young person had not yet had their IHA, unless there was a reason to believe this should be updated; data were instead collected from details shared by LAC. This approach avoided repeating questions about what are undoubtedly emotionally challenging, triggering events. Data collected from investigations included: weight and height, infection screening (TB QuantiFERON Gold (QFT) and chest X-ray; serology: hepatitis B, hepatitis C, HIV (1 and 2), human T-lymphotropic virus (HTLV 1 and 2), *Strongyloides* and syphilis; urine nucleic acid amplification tests: *Chlamydia trachomatis* and *Neisseria gonorrhoeae*) and baseline blood tests (full blood count, haemoglobin electrophoresis, liver and renal function, vitamin D). Additional symptom-directed test results were also collated, with rates of follow-up and onward referrals.

TB infection was classified as positive QFT with no symptoms or chest X-ray changes; TB disease as positive QFT with symptoms and/or chest X-ray changes. Hepatitis B was classified as susceptible if all hepatitis B serology tests were negative or hepatitis B surface antibody (HBsAb) <12 mIU/mL; past infection if positive hepatitis B core antibody (HBcAb) and negative hepatitis B surface antigen (HBsAg); and chronic active infection if positive HBsAg and HBcAb (IgG). *Strongyloides* was classified as negative if IgG serology results were <9 ng/mL, indeterminate if between 9 and 12 ng/mL and positive if ≥13 ng/mL.

Vitamin D levels <52 nmol/L were classified as vitamin D deficiency; 52–75 nmol/L as insufficiency and >75 nmol/L as normal. Anaemia was defined as a haemoglobin level of <130 g/L in males and <115 g/L in females.

Data were anonymised with median and IQR summarising non-normally distributed continuous variables, and numbers and percentages summarising categorical variables.

National guidance was used as criteria to audit this service.[15 16]

RESULTS

Demographics

A total of 155 UASC were reviewed; 148 (96.1%) following national lockdown on 24 March 2020. One hundred thirty-eight of 155 (89.0%) were male, median age 17 years (range 13–18, IQR 16–17). The countries of origin by frequency were as follows (n=154): Sudan (25.3%), Eritrea (18.8%), Afghanistan (16.9%), Ethiopia (9.1%), Iran (9.1%), Syria (3.9%), Iraq (3.2%), Albania (1.9%), two each (1.3%) from Chad, Gambia, Libya, Nigeria and Vietnam, and one each (0.6%) from Algeria, Angola, El Salvador, Kuwait, Mauritius, Senegal, South Sudan and Yemen (figure 1). Length of travel to the UK was recorded for 79 patients; median duration was 2 years

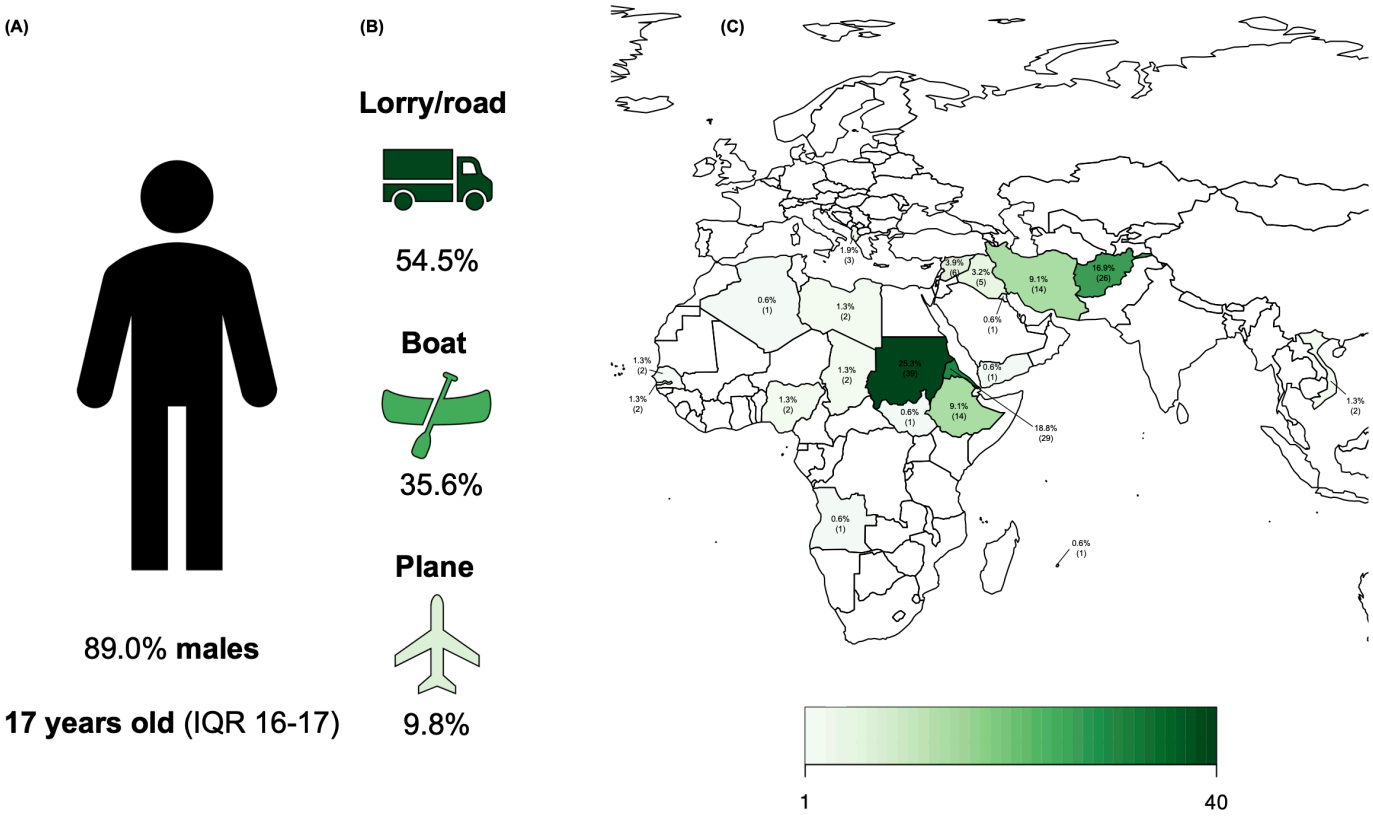

Figure 1 (A) summary of patient characteristics, including percentage of males and median age (n=155); (B) mode of arrival in UK (n=132); (C) map showing UASC countries of origin with percentages and absolute values (n=154).

(IQR 6 months–4 years). The mode of UK entry was documented for 132 adolescents: 72 (54.5%) by road, most commonly by lorry, 47 (35.6%) by boat and 13 (9.8%) by plane. The median time between documented arrival in the UK and screening (n=140) was 2 months (IQR 1–3 months). Interpreters were present in the consultation: 64.9% (100 of 154) F2F, 24.7% (38 of 154) by phone. The remainder did not have interpreters because they did not need one (10.4%; 16 of 154).

One 17-year-old girl went missing from social care prior to review and is excluded from the screening analysis, as only demographic data are available.

In clinic, all were asked about significant events during or leading up to their journey, and 85 disclosed: 46 (54.1%) physical assault (including beatings, torture and gunshot injuries), 6 (7.1%) sexual abuse, 11 (12.9%) forced labour, 9 (10.6%) reported witnessing murder, and 17 (20.0%) other accidents, illness, or hospital admission.

Infection screening

Sixty-nine of 154 (44.8%) were positive for at least one infection requiring further management (figure 2).

Tuberculosis

All patients were screened for TB by ELISPOT (2) and QFT (152): 37 (24.0%) were positive, with 2 having active TB disease—1 pulmonary TB (cough, abnormal chest X-ray, positive QFT) and 1 marked cervical lymphadenopathy (normal chest X-ray, positive QFT) admitted directly from clinic to paediatric inpatient services.

Bloodborne viruses

Two young people (2 of 154, 1.3%) were living with HIV: one male and one female. Both were aware of their HIV status prior to screening and were on suppressive antiretroviral therapy (plasma HIV viral load of <20 copies/mL, CD4 560 and 552) with continuing care in the adolescent HIV service.

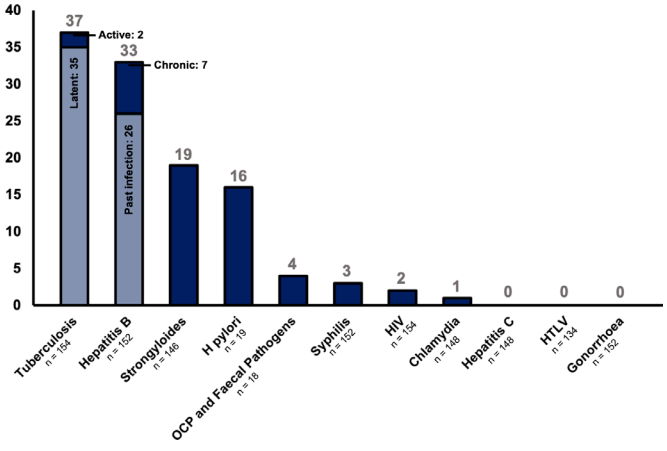

Figure 2 Number of positive results for each infectious disease screened. OCP: Ova, Cysts and Parasites.

One hundred fifty-two patients had complete hepatitis B serology. Seven young men (4.6%) had chronic active hepatitis (hepatitis B virus (HBV)) infection. On referral to the family hepatitis service, two were hepatitis B(e) antigen positive (HBV DNA 244 750 000 and 388 250 000 IU/mL), with five having undergone e antigen seroconversion (median HBV DNA PCR 527, IQR 247–631). Twenty-six (17.1%) had evidence of past HBV infection with documentation to primary care outlining potential risk of reactivation in the event of future immunosuppression. Most (106, 69.7%) remained susceptible to infection, with HBsAb level <12 IU/L thus vaccination in primary care recommended.

One had evidence of past hepatitis C virus (HCV) infection; HCV serology positive but PCR negative on two occasions with no UASC having positive serology for HTLV (n=134), which was subsequently removed from screening in 2022.

Sexually transmitted infections

Three cases (2.0%; n=152) of syphilis and a single case (0.7%; n=148) of chlamydia were identified in young men aged 16–17 years. None disclosed prior consensual/non-consensual sexual activity at screening. All were referred for management to genitourinary medicine (GUM).

Gastrointestinal infections

All attendees were offered an empirical dose of albendazole 400 mg orally at screening. Of the 146 patients tested for *Strongyloides*, 19 (13.0%) had positive or indeterminant serology (IgG ≥9 ng/mL) and were recalled for ivermectin (single dose 200 µg/kg orally for 2 days).

Symptom review prompted stool screening for 18 patients, with 2 positive results for *Entamoeba hartmanni*, 1 for *E. coli* and 1 for *Giardia*. Nineteen patients were tested for *Helicobacter pylori*, of which 16 were positive. All patients with positive results were recalled and attended for antimicrobial therapy.

Chest X-rays

All patients were offered a chest X-ray until January 2022, after which this was only offered if there was symptomatic chest disease due to low additional diagnostic rate on screening. Of 142 images, 9 (6.3%) were abnormal: pulmonary TB (1), hilar lymphadenopathy (2—both determined not to be TB after further investigation), cardiomegaly (1 echocardiogram normal), rib fracture (1), parenchymal scarring (1), mild airway thickening (1), mild lower zone peribronchial markings (1) and apical scarring (1).

Baseline blood tests and body mass index

All 154 patients had baseline blood tests; 11 (7.1%) had raised alanine transaminase (ALT) (median 82 IU/L, IQR 61.5–86, where raised ALT defined as ALT >40 IU/L) prompting investigation—all received follow-up liver screening including a Fibroscan. Of these, six had negative screens, ALT normalised and were discharged. One case of schistosomiasis and *H. pylori* with non-alcoholic fatty liver disease, two cases of chronic active HBV and one case of persistently raised ALT despite negative screen were referred to hepatitis clinic. There were five cases of mild anaemia (three female (haemoglobin 1000–1150 g/L), two male (1150–1300 g/L)) with beta-thalassemia trait (2) and sickle cell trait (1). All except one were vitamin D deficient (median 22.5 nmol/L, IQR 17.2–32.1). All received empirical cholecalciferol 20 000 units once weekly for 12 weeks at initial screen preventing need for recall.

The median body mass index (BMI) (n=151) was 21.2 kg/m^2 (IQR 19.7–23.0) with 120 (79.5%) having a healthy weight (BMI 18.5–24.9), 13 (8.6%) underweight (BMI <18.5), 15 (9.9%) being overweight (BMI 25–29.9) and 3 (2.0%) obese (BMI ≥30).

Social history and well-being

Eighty-five of 154 (55.6%) were living in supported accommodation, 61 (39.9%) with foster carers and the remaining 8 in hostels or with extended family. Seven of 154 (4.5%) reported current/previous alcohol use, 36 (23.4%) current/previous cigarette smoking, 5 (3.2%) recreational drug use and 24 (15.6%) prior sexual activity. One female reported female genital mutilation (FGM) and was referred to appropriate specialist services.

Nearly half (72 of 154, 46.8%) reported disturbance to their sleep and/or mood (figure 3). Conversely, at least 10 (6.5%) reported feeling optimistic and/or happy having reached the UK. Where this was not already known to the LAC team or general practitioners (GPs), these were informed to enable appropriate referral to Child and Adolescent Mental Health Services.

Referrals and follow-ups

Of all 154 patients, 44 (28.6%) were referred to TB (n=34), hepatology (6), GUM (4), HIV (2), cardiology (1) and general paediatrics (1). GP letters highlighted the need for catch-up vaccination, as children of unknown vaccination status, following national guidance.[17]

One young man in follow-up is known to have died, murdered less than 6 months upon arrival in the UK.

DISCUSSION

UASC are a vulnerable group with complex physical, mental and social health needs. National guidance recommends thorough history taking, including medical and family history, full physical examinations, screening for nutrition deficiencies, mental and sexual health reviews and thorough infection screening.[15 16] Disruption to local community paediatric services due to the COVID-19 pandemic with IHAs for LAC moving online resulted in reconfiguration of services and the development of the Unity Clinic. While primarily an infection screening service, a wider assessment of the complex psychosocial needs of the young people attending, including sexual and mental health, facilitated onward referral. As IHAs now return to F2F practice, this experience has led to

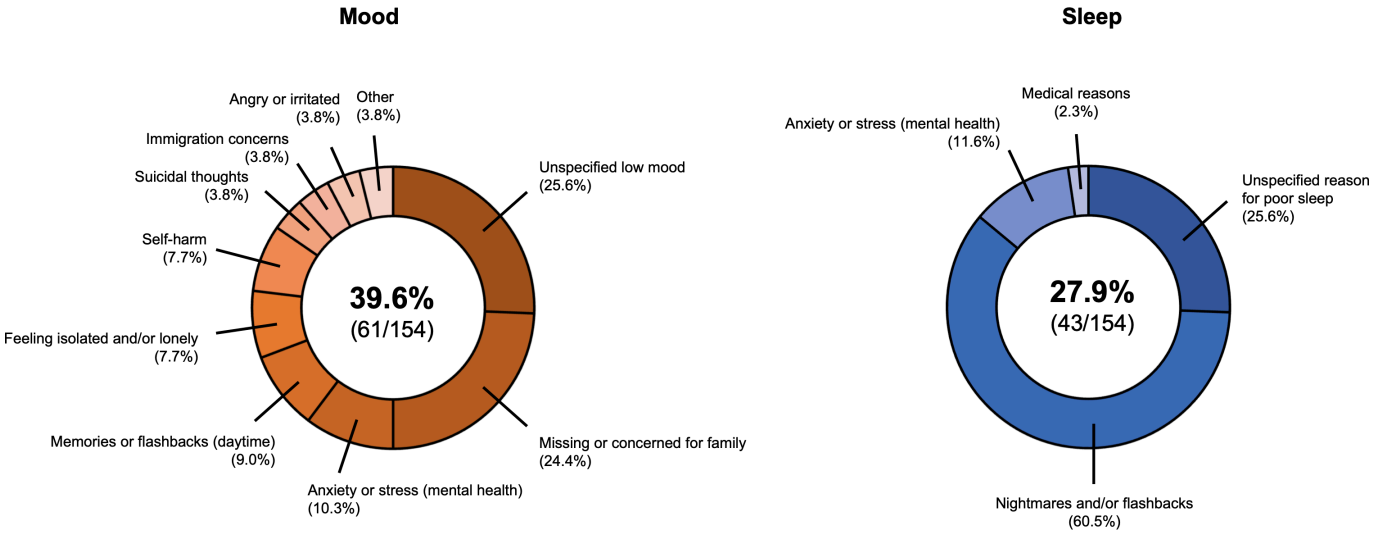

Figure 3 Reported reasons for issues with mood (n=61) and sleep (n=43).

the development of an integrated model between these services: a joint IHA and infectious disease screen, including mental health assessments and referral to support services where appropriate.

Fourteen adolescents (9.1%) had infections with the potential for community transmission failing diagnosis and linkage to care: TB disease (2), HIV (2), chronic active HBV (7), syphilis (3) and chlamydia (1). Over one-fifth of adolescents had evidence of TB infection, rates consistent with comparable studies of UASC arriving in Europe.[12 14] UASC are at additional risk of contracting TB during journeys with little access to healthcare and overcrowded conditions as well as originating from TB-endemic settings. Although numbers are small, rates of HIV infection were higher than previously reported, with fewer cases of hepatitis B and C.[12 13] The majority remained susceptible to HBV infection, highlighting the importance of comprehensive vaccination programmes for UASC upon arrival in the UK—a similar conclusion to that of a German study.[13 15 16] Rates of *Strongyloides* infection were higher than that of a previous UK study (13% vs 8%); however, only UASC with eosinophilia from sub-Saharan Africa were screened in that study.[12] By contrast, rates of other parasitic infections were lower than that in other studies,[9] although only those symptomatic were offered stool tests at the Unity Clinic, which may have contributed to the lower positivity rates. Universal screening for helminths, including *Strongyloides* serology and stool analysis, should be considered to improve diagnostic rates.

For the four patients positive for a bacterial sexually transmitted infection (STI), none disclosed prior consensual or non-consensual sex. Barriers to disclosure may include fear, stigma, embarrassment and language.[18] Guidance recommends STI screening for those who disclose sexual activity, but this approach would have missed all STIs diagnosed. Three of the STIs diagnosed were cases of syphilis, which may also be congenital; however, all subsequently disclosed were prior consensual sexual activities during the period of follow-up and treatment.[19] Previous reports from the UK and Germany have not included universal STI screening.[9 12 20] Findings in this study suggest a need for universal non-judgemental asymptomatic STI screening; however, more data are needed to strengthen this recommendation. One recent UK study describes a model where, following their infectious disease screening appointment, all UASC were signposted to a walk-in sexual health clinic; however, only approximately half attended STI screening, and no new STIs were diagnosed.[21] Prior FGM should also be explored with referral to a specialist services as required.[15 16] Additionally, clinicians should be aware of the risk of non-disclosure, particularly at an initial consultation. It is important that patients are made at ease during consultations, explaining that information shared is confidential, that treatment is free and having translators present.[15 16 22]

Literature suggests that rates of transmission from refugee communities to local populations are low.[23 24] Greatest concern lies in the impact of infections on UASC's own health, alongside complex mental health and social needs, which should be core priorities of services supporting refugees or asylum seekers. UASC are exposed to traumatic events throughout their journey: before they leave their home, during the journey and upon arrival in the UK.[25] They are highly vulnerable to trafficking and forced labour.[26 27] It is likely that significant events are under-reported because they find it difficult to discuss or for fear of not being believed.[18] These events can have significant impacts on UASC's mental health and cognitive development[25 28] and may be further compounded by stress regarding immigration outcomes, adaptation to new cultures and living away from home and family.[18 29] Over half of the cohort reported disturbances to their sleep or mood, often due to poor mental health. More research and training are needed in how to effectively support the physical and mental health of UASC and integration within the community.[18 25] As the Unity Clinic moves towards formally integrated IHA and infectious disease

model, a service improvement activity is currently underway to evaluate the use of a validated mental health screening tool for refuges aged 14–18 years (Refugee Health Screen-13[30]) to standardise mental health assessments and facilitate onward referral.

CONCLUSION

The Unity Clinic provides a thorough screening programme for the majority of infectious diseases of high prevalence among the UASC population and recommended in national guidelines.[15 16] Infectious disease screening, including STIs, and treatment are essential to support UASC, as are general health check-ups and provision of immunisations. Cooperation between multidisciplinary teams and services available to support UASC's physical and mental health, and reducing language, cultural and financial barriers, are essential to ensure that this vulnerable population feels supported and can thrive in this new environment.

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Contributors ACP collected data, performed the analysis and wrote the first draft of the manuscript. PS supported data collection, edited and reviewed the manuscript. CF supported data collection, edited and reviewed the manuscript, supervised the work and is the guarantor for the work. All authors provided critical feedback that helped shape this audit, discussed results and contributed significantly to the final version of the manuscript.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not required.

Ethics approval The study was categorised as a service evaluation of routinely collected clinical data, so research ethics approval was not required.

Provenance and peer review Not commissioned; externally peer reviewed.

Data availability statement Data are available upon reasonable request.

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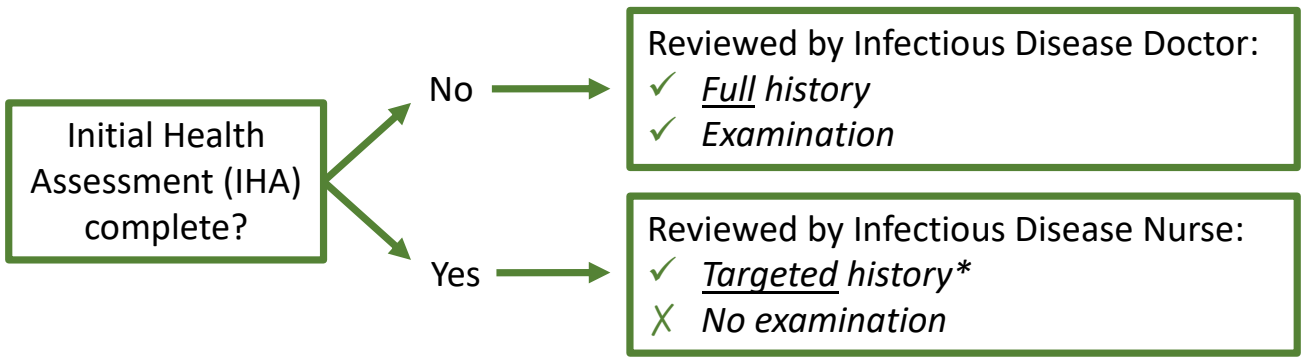
Overview of the Unity Clinic assessments



Components of the consultation:

History

Personal details*: name, age, sex, country of origin

Journey:
- → Date of arrival
- → Mode of arrival
- → Length of journey
- → Description of journey
- → Significant events during travel

Current health*: new or untreated symptoms and injuries

Past medical history*:
- → Any known medical diagnoses
- → Previous hospitalisations
- → Significant illnesses and surgeries

Drug history*: medications taken currently and allergies

Family history:
- → Including any known medical diagnoses
- → Current contact with family

Social history and wellbeing:
- → Housing
- → School/Education
- → Hobbies
- → Alcohol*
- → Smoking*
- → Sexual activity (consensual/non-consensual)*
- → Recreational drugs*
- → Eating*
- → Sleeping*
- → Mood*

if positive findings → Mild → Inform social worker/carer for further assessment and refer if deteriorates

if positive findings → Moderate/Severe → Inform GP/LAC Team for CAMHS referral Social worker/carer also informed

Examination

- → Height
- → Weight
- → Cardiovascular
- → Respiratory
- → Abdominal
- → Musculoskeletal

} if positive findings, refer to relevant specialty and/or imaging

Investigations

All

- → Baseline blood tests
  - → FBC
  - → Haemoglobin electrophoresis
  - → LFT
  - → U&Es
  - → Vitamin D
- → TB QuantiFERON Gold
- → Serology:
  - → Hepatitis B
  - → Hepatitis C
  - → HIV (1 and 2)
  - → HTLV (1 and 2)
  - → Strongyloides
  - → Syphilis
- → Urine nucleic acid amplification tests:
  - → Chlamydia trachomatis
  - → Neisseria gonorrhoea
- → Chest x-ray

Any positive findings → Treatment + Referral to relevant clinic/specialty for long-term follow-up

Targeted

If abdominal symptoms: stool sample

- → Ova, cysts, parasites
- → Helicobacter pylori

If raised ALT and/or eosinophilia

- → Schistosomiasis