**LIV-TB 12-2pm calendar invite-20230615\_123452-Meeting Recording**

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4h 0m 0s

started transcription

 **Lauren Ahyow** joined the meeting

 **Rachael OkeeffeJones** joined the meeting

 **Pasztor Monika (LTHTR)** joined the meeting

 **HOUGH, Claire (CHESHIRE AND WIRRAL PARTNERSHIP NHS FOUNDATION TRUST)** joined the meeting

 **Joy Gilroy** joined the meeting

 **Turnbull Louise (R0A) Manchester University NHS FT** joined the meeting

 **Crowther2 Nicola (R0A) MFT** joined the meeting

 **MCCLURE, Jonny (WIRRAL UNIVERSITY TEACHING HOSPITAL NHS FOUNDATION TRUST)** joined the meeting

 **CHANDRASEKARAN, Surendran (EAST CHESHIRE NHS TRUST - RJN)** joined the meeting

 **Helen Savage** joined the meeting

 **BARON, Rochelle (MANCHESTER UNIVERSITY NHS FOUNDATION TRUST)** joined the meeting

 **Stephen Flanagan** joined the meeting

 **Wong Waison** joined the meeting

 **Charles Winiarski** joined the meeting

 **HUSSEIN, Osama** joined the meeting

 **IBRAHIM, Abdalla (WARRINGTON AND HALTON TEACHING HOSPITALS NHS FOUNDATION TRUST)** joined the meeting

 **Farrow Stacey (R0A) MFT** joined the meeting

 **Baker Katie (R0A) MFT** joined the meeting

 **Merav Kliner** joined the meeting

 **BLACK, Mairi (NORTH CUMBRIA INTEGRATED CARE NHS FOUNDATION TRUST)** joined the meeting

 **Hilary deKock** joined the meeting

 **Wolfson M.Room 8** joined the meeting

 **Ewan Tomeny** joined the meeting

 **AHMED ALAHMAD** joined the meeting

 **Samihah Moazam** joined the meeting

 **Paladugu Madhavi (LTHTR)** joined the meeting

 **Tom Wingfield** joined the meeting

 **Angela Duckworth** joined the meeting

 **Pareek, Manish (Prof.)** joined the meeting

 **Anjila Shah** joined the meeting

 **Catherine Hay** joined the meeting

 **Child Fran(R0A) Manchester University NHS FT** joined the meeting

 **Pareek, Manish (Prof.)** 0:03
Though, so if I just start off, you will have all seen this and you will all be aware of this.
Do you know that TB incidence and mortality declined very sharply over the last 100 years or so, but what you want to what you can see particularly in terms of TB incidence and mortality, is that much of this decline has been through, not what we do as physicians or nurses or through antibiotic treatment really is through public health, so housing and hygiene, uh, pasteurization, BCG vaccination for example.

 **Fullerton Duncan (RBT) Mid Cheshire Tr** joined the meeting

 **Child Fran(R0A) Manchester University NHS FT** 0:31
How to make it come through here?
Use that thing anymore one.

 **Pareek, Manish (Prof.)** 0:37
Now what you can see here is that late in the late 90s, through to about 2010, what we actually saw was an increase in TB incidence.
So this decline that we've seen for over 100 years had started to reverse and that was obviously a concern.
The mortality decline continued, but the incident was starting to write, and that is a problem and I I hope I can make the case to you today that I think this is primarily been driven by migration, but also about underserved populations and also the importance of the interaction thereof.
So in terms of what we can do, I'm gonna really focus on migrant screening for this talk to public health measures, continue and inequalities that we will have become very apparent, particularly during COVID have been wide.
And during COVID I think are very important in terms of tuberculosis care.
So what about TV in the UK?
So we know that TB predominantly effects individuals were born overseas and you can see here this is TB case numbers, but also TB incidents in the UK and you can see the red line which is the TB incidence rate is significantly higher.

 **Barrera Manuela (R0A) Manchester University NHS Foundation Trust** joined the meeting

 **Pareek, Manish (Prof.)** 1:43
We're looking at around 11:50 times higher.
If you're born overseas, there's a disproportionate risk, and I think as a country we must bear that in mind.
That is a concern for us, that there are populations living amongst us who are experiencing significantly adverse outcomes because of this disease that we should really be able to eradicate in the UK.
Now this is data which is older but the picture is very similar now so you can see it again TB incidents particularly high if you're born overseas.

 **Cardwell Richard (LSCFT)** joined the meeting

 **Pareek, Manish (Prof.)** 2:13
But at the second important image from here is that actually, if you're of an from an ethnic minority background and born in the UK, so someone like me, who's what I would call a second generation migrant, the TB incidence is still much, much higher than it should be.
So we have some way to go to driving down incidents.
Morbidity and mortality in what I would call underserved communities.
But what drives it?
Well, predominantly, it's the synergy, it's it's migration, but it's also not just numbers, it's also patterns of migration.
And I'll come on to talk to you about why that's important.
And the reactivation of what I call remotely acquired latency TB.
So these are all the data from the International Organization for Migration, just to show you that over time, migration numbers have continued to rise and they continued to rise because people move for a number of reasons, humanitarian reasons to flee persecution, violence, war, but also to make a better life for themselves and for their families.

 **Raghda** joined the meeting

 **Pareek, Manish (Prof.)** 3:16
And I think that's important to bear in mind.
So what about in the UK?
So we know that in the UK you will have seen the recent data and I'll come on to that in a minute. You irrespective of which governments in in power, net migration remains about the same. It's 2 to 300,000 people.
Uh, and that's really been static, but a little bit of fluctuation fluctuation over the last 20 years or so.
But there are patterns which are important, and they're important if we're working within the field of TB and I'll show you why those are now.
So if you look at the patterns of migration, you can broadly break them down into a non EU migrants and EU migrants and you can see that, particularly if you're from the EU, there was very little, a relatively little EU migration going on in that sort of 2010 sort of period.
But most migrate migrants were coming from the non EU fig parts of the world.

 **Naomi Walker** joined the meeting

 **Pareek, Manish (Prof.)** 4:08
So that means sub Saharan Africa, Indian subcontinent for example.
You then see this pattern, particularly in sort of 2012 onwards, where you see increases across both non EU and EU migrants.

 **Vibol Iem** joined the meeting

 **Pareek, Manish (Prof.)** 4:21
And I, of course Brexit happens.
And what you see is you migration to dropping off very sharply and non EU migration starting to rise.
And I gave this talk these slides a few a year or two ago and I predicted that they would rise.
And of course, the data now shows that very much so that non EU migration continues to rise very sharply, predominantly actually for work and study rather than asylum seeker.
So that's very important to bear in mind.
These are individuals who are coming to our country to work as nurses, social care workers and work within a range of occupations.
But actually let migration is continuing to rise and probably will read some sort of plateau at this sort of level for some time, I suspect.
So in the UK, we're seeing different patterns of migration that are changing and I suspect that will have an impact on the types of TB and the numbers of TB cases that we will see in the coming three to five years.
But also we have a very specific pattern of migration, the UK, which is unique because of the this, which is the the British Empire.
The colonial structure that Britain sets up over hundreds of years around the world, and that's because many colonies were in Sub Saharan Africa and the Indian subcontinent, where we know TB rates are higher.
Actually, if you go back long enough in history, you'll actually see that the TB rate and those countries was actually lower than the UK.
But TB rates there are higher now, so individuals who are migrating will be coming from.
But I call high TB burden settings have latent TB infection and at risk of reactivating from latency be to active TB disease.
So and that's been see that if you look at the surveillance data and the epidemiological data that's been seen across a range of countries.
So I'm just showing you data from on the left panel.
I don't know if you can see my arrow, but the left panel is from Nordic countries.
The middle panel I think is from the Netherlands and the right panels from the US, but essentially it's the same high rates of TB notifications, particularly initial years, which decline over time.
So that's really important.
And the second important thing is this is not because there's transmission occurring you from migrants to the what I would call a local born population.
But there's and.
It's actually very little limited community transmissions.
These are unique isolates through reactivation of latency P So I'm giving you a lot of information there and I just want to summarize it.
Just say everyone's on the same page TB cases in the Foreign Board make up the significant proportion to TB burden in the UK.
It's migration, but it's also the reactivation of latent TB, or LTBI, and the highest rates really are in the initial five years after entry.
So I'm just going to break it up now with a little case of.
So this is a 25 year old who I saw in my clinic.
She had arrived in the UK in July 2018.
She was an asylum seeker at that time.
The hotel system had not been set up, so she was living in shared accommodation as part of the migrant screening programs.
She had been screened for, yeah, HIV have scientists and also for latency of it.
So she is quantity gram positive in primary care, but had only minor dry cough cheap and GP had an organized a chest X ray but didn't really have any concerns about her.

 **Jacob Parkes** joined the meeting

 **Pareek, Manish (Prof.)** 7:43
And there were no other real symptoms.
Now I don't know how well these X rays really project for those on screen, but there are changes in both the right and left upper lobe which would be concerning.
This is when she came to clinics.
So this is as she came to see me.
So we organized a CT scan and I should say that actually.
Interestingly, we increasingly find that people have normal chest X rays, but are often diagnosed with active TB disease subsequently.
But you can see she's got cavitary disease, biological changes, and as expected, she was beautiful.
Expert positive.
But she had no resistance.

 **Cheryl Stott** joined the meeting

 **Pareek, Manish (Prof.)** 8:20
Thankfully, she was started on treatment in hospital because of the shared accommodation to ensure that she completed the two weeks in hospital and she made a very good recovery and we've not seen her again.
So she's made a good recovery and I am.
And that's just one illustrative case.
But as to illustrate this really about how we might intervene, stuff spoken to you about high TB burden countries and that's their country of origin.
The migrant then moves to what I would call a low TB burden setting.
You may say that's debatable.
For the UK, compared to the rest of the UK, but we are a low, relatively low TB burden setting and then active TB can occur through really three main ways.
In my view, you can have prevalent active TB, so they've come into the country and they have active TB, which is kind of travelled with them, they've it's prevalent.
Secondly, they might reactivate and the latency of infection and become develop active TB disease or there is community transmission.
So they're infected and they breakdown and develop active TB disease.
So those are the three places that I think three ways that commonly to be can occur.
So how can we intervene?
Well, firstly we might do pre arrival active TB screening and of course that is in place and I'll talk about that in a minute.
Secondly, you might wanna think about routine identification.
So if there are contact of someone who's been diagnosed with active TB, and of course we do that and in the UK and then we have post arrival screening for active TB or prevalent active TB.
And so that doesn't happen so routinely.
But there is latent TB screening and I'll talk about the the byproduct of diagnosing someone with active TB has gone through the LTI program.
Today's is a different ways that I think you can really intervene in in the UK, but also more widely in in high income settings and the post arrival active TV screen is really very limited.
Routine chest X-ray as I'll come down to show you, is actually relatively high cost, requires a lot of input and actually in terms of yield is relatively poor.
But irrespective of that and I think of, I hope I've made the case that most TB occurs in in migrants through the reactivation of latent Fabian infection.
What do countries actually what do policymakers and government do?
Well, governments, what governments actually do is they predominantly screened for active TB rather than latency TB, and that is not because it's necessarily evidence based, but because it's also driven by political nuance about to be seen to be doing something for, against, for tuberculosis.
So most countries screen for active TB.
Latent TB screening is much more ad hoc, and I'll talk about the specifics of that in a minute, but we know that the yields for active TB screening, particularly in different migrant groups, it's really very, very variable.
So this is from a meta analysis from some medical students imperial some years ago now, and you can see actually the yields about 3 and 1000.
So relatively low when you're screening across the board for active tuberculosis, but there is also, if you remember pre arrival.
Screening factor 2B.
So pre arrival screen fields for active TB probably are a little bit higher.
This is from U.S.
Data for US bound migrants, published in New England some years ago now.
And you can see that overall the yield is about 1% if you're screening pre arrival, you're probably have a high yield than doing it post arrival.
That's the first important message.
And then secondly, the yield depends on where the migrants are coming from and as you'd expect, the higher the burden of the setting that they're coming from, the higher the yield for active tuberculosis.
Now, that's not surprising.
And in the UK we have implemented pre arrival screening.
So UK Jessa, with the Home Office, for example, intervene and we've got the pre rival screening program and what this image shows you is that you are picking up people who would have presented perhaps in the UK relatively early on at a slightly different point in their disease process prior to the migration.
I think the other thing that I would say about the pre arrival program, apart from the fact that it picks up active TB disease, particularly in the initial phases of people's migrant journey, is that it is the migrant that picks up much of the cost for this screening program.
So that's important when you're thinking about policy implications and you may have a view about that, I certainly do.
But I wouldn't make that apparent today.
And so the other thing to say that in terms of cost effectiveness, so where we've looked at kind of screening, there's a number of studies and there's cost effectiveness, but also there's important.
The other issue that's important is about equity, and I'll talk about equity later on.
So as active TB screening or screening migrants for active tuberculosis, cost effective, well, actually there's relatively little data.
This is the data that's available in terms of screening for active tuberculosis.
This is data from \*\*\*\* Menzies Group from in Canada 2 studies published looking at this and what they've basically found is they've come to two slightly different conclusions, although from the same group.
So the first conclusion was that it wasn't cost effective to screen migrants for active tuberculosis.
Too many X rays, not enough for yield.
Therefore, therefore not cost effective, and then the second study suggests that it's cost effective if your screen from a higher burden setting, because your yield is going to be higher.

 **Cheryl Stott** left the meeting

 **Pareek, Manish (Prof.)** 13:52
So you have to do fewer xrays to pick up more cases of active TB.
I have said the pre arrival program.
As far as in ways not yet undergone a cost effectiveness analysis, and but it may be, perhaps that's underway and UK just say colleagues may be aware of it.
And So what I would say about this is that screening for active TB is really limited in terms of knowing whether it's cost effective.
And that's really because we have limited data to look at it and actually a lot of the cost effectiveness is based on what we would call mathematical modelling studies and those relate and those have different structures and different parameters.
So essentially, we don't really know.
So the second case is a lady who I saw who's 23 from Pakistan.
She had come down.
She got married and she's joining her husband in the UK.
She arrived in April 2018.
She had had actually a pre arrival chest X ray done prior to migration which were hadn't seen but will she was told was normal and there was allowed to migrate and she's married joining her family just extra in Pakistan as I say it was normal but she was Quantiferon positive in primary care and she was completely asymptomatic.
So this was her chest X ray when she came to clinic.
And I think I hope you can see that there are changes in the right upper zone here, and she's also got some changes here and see what I want to have the CT and you can see that she's got quite pronounced.
Kate changes consistent with active tuberculosis, but she was completely asymptomatic.
No cough.
No, she had a bronchoscopy.
She was expert positive, but no Rif resistance thankfully, and she started started standard antituberculosis therapy as we would and, and she cultured relatively quickly after 14 days and she actually unfortunately was found to be isoniazid resistant.
So this is someone who would not have cut normally come to the attention of any healthcare professional until she became more sick.

 **Anna Trelfa** joined the meeting

 **Pareek, Manish (Prof.)** 15:45
So actually what we would probably doing is picking her up at an earlier point in her disease process.
Anyway, she was ignited. Resistant.
She was treated appropriately and she's made a good recovery and is now been discharged from care and that just shows you then.
Actually, the the screening program has obviously the looking for latency TB, but has important byproducts about engagement with healthcare, but also about the engagement with and making sure that individuals are identified as activity.

 **Francine Mahoro** joined the meeting

 **Pareek, Manish (Prof.)** 16:15
We are very at an earlier stage, So what about screening for latency TB?
So you will remember that I told you that countries, governments don't really screen for latent TB and and that continues to be the case really.
But where they do screen, they really are screening individuals who are we would call high risk.
So refugees are Sodom seekers and this is slightly older data, but historically it's always been based on the tuberculin skin test and that's because it's based on cost and we must not forget that the UK we of course have a very, you know using egress it's it's expensive and it's not available outside of many high income settings.
So it was that and also the clinical observation that we were seeing.
So as a registrar in Leicester, seeing a lot of young, particularly South Asian Indian patients coming in with very severe active TB disease, that kind of led me on this path of trying to look at this in some detail.
And then I spent some years looking at this during my PhD.
So when we first looked at their site, I was slightly surprised because what we found was that actually in terms of screening for latent TB can migrant communities, there was really, it was a kind of a free fraud.

 **CHANDRASEKARAN, Surendran (EAST CHESHIRE NHS TRUST - RJN)** left the meeting

 **Pareek, Manish (Prof.)** 17:26
Everyone did pretty much what they wanted, and that was partly because they was different guidance in place.
People didn't really know because it wasn't really any evidence based guidance at that point.
And So what we found was that there's heterogeneity and who we should be screening, should we screening everyone or any of the highest migrant groups and how should we be screening them?

 **O'Keefe Georgina (R0A) MFT** joined the meeting

 **Pareek, Manish (Prof.)** 17:46
Should we bring chest X-ray and skin test or should we doing an egret et cetera so that really there was a kind of complete there's a mismatch across a range of areas in terms of what we're doing and the summer I may have even spoken some of the TB nurses and Liverpool I spoke to as part of this.
I spoke to every TV service pretty much pretty much in the UK to bring this together and that showed us that we really didn't have a good handle, adapt point or what?
But what was clear was that the services wanted some guidance and better guidance.
So when you implementing migrant screening, it's pretty clear to me what you need to do.
You need to know who you should be screening, how you should screen them, and where you should screen them.
Right, that's the.
Those are the three key tenants of any sort of intervention program.
So how should we screen and I won't go into this in too much detail today in terms of the background of the work is basically based upon some of this work that we did when I was at imperial some years ago now and the basic tenant of this is that when you look at individuals from migrant communities, you can't screen all groups because you are screening a lot of individuals who are at low risk and won't have prevalent latency be.
So you screened those at the at highest risk and in this case, what we've said is that you should screen and we did it the the modeling and the economics, but basically screen individuals above 150 per 100,000, but we also need to know it's not just about identifying latency, but it's about progression to active TB.
So who's at higher risk of progressing from latent to active TB disease?
And you, many of you be aware of the predict TB study, which is a very large.
So you led by Abraham, map of Bakker from UCL, and what that showed us was that actually across both migrants and contacts there was a very low progression rate and that's often used as an argument not to screen for later TV.
But what I have always thought about this is that we need to bear in mind that screening for latency be has the byproducts are looking for active TB disease, but also God in issues around equity and trying to build individuals who often have not been able to look at sort of wider health programs and making sure they're kind of engage in healthcare.
And I'll talk about that at the issue and that later on in this talk.
So when we looked at the cost effect, if you look at the cost effectiveness studies that have been done and some of them from the UK and from other high income settings, what you really should be doing is really screening recent migrants.
So that's usually within five years of entry and from high TB burden settings and that is OK probably about 150 to 100,000 if that's going to be most cost effective and the age groups remains less clear, right?
So we know that we in the UK, we screen 16 to 35 year olds.
That's because historically above 35, there's a high risk of liver problems with chemoprophylaxis, and children haven't been screened and there might be pediatricians on this who will ask about that.
And we can talk about that at the end.
What about in terms of how we should be screening?
So again, we've if you work within TB and there's many of you are nurses are working within TB Field, you have to constantly change the way that we screen in the UK we've had to.
We've had skin tests, we've had this double step where you do a skin test and if it's positive then you do an Egra you've had Egra loan and then we've had various kind of iterations of that.
And it's also not helpful for different groups to guide, and sometimes they do different things, and that's sometimes not helpful in terms of a screening program.
What probably is easiest is to do something which is single step, doesn't allow require individuals who are quite mobile, young, economically active and haven't got time to come back for readings to have a do a blood test, but also because that blood test can then be used for looking for other conditions which might be important.
And when we've looked at this.
Essentially, it's a single step egress.
Probably the easiest and the most cost effective way in migrant groups anyway, and I think that's what the guidance yes, but because of the but within even within egress, we know that the predictive value that there's a relatively low positive predictive value and a higher negative predictive value, we still need better tests.
And I think all Tubb positions have been asking this for decades, and I hopefully will come.
Those will come eventually and in terms of how we should be screening.
Really what we should be doing is looking and these there are some studies looking at how do we should it be screening apart from using the single step egerer, there's very little data on the different egress to use.
So you know, whichever one you have available to you and the migrant program is the one that you should use.
And there's not evidence that one is better than the other.
And I finally what about where we should be screening?
So there's some data suggesting and this is again from the imperial group that if you look at the pre rival screening program then link those individuals who've been screened overseas to their GP registration that the lowest TB incidence in the migrant groups occurs in those who've had pre entry TB screening.
As you might imagine, those who've had a very have been registered in primary care at an early point in their migration journey.
And then have been offered latency these screening, and that's primarily because I think you identify active TB and this is something that I've been mentioning.
So subclinical active TB or and and sometimes clinical active TB is something that I think we do see, it depends on how big your migrant program is.
So we screen quite a lot in Leicester.
This is from so if we just look at the unpublished data around 16% of our A individuals who are screen are equal positive and about 2.7%.
So that's quite a high incidence.
Actually our diagnosed with active TB, but I just wanted to highlight about 50% of them are asymptomatic, completely asymptomatic.
Half of them have a normal chest X ray, so that's important.
Makes you worry.
Actually, there's no about what you're doing and but most are identified through CT and the other thing to say is that actually about half of them are culture positive.
So we're probably picking up subclinical early disease, which would present to you guys in TB services at a later point, perhaps after they've infected more individuals and we've done some work and this is not yet published.
But what we see particularly important is that you is their country of origin.
Being particularly high, is it high risk gives it from Subsaharan Africa in terms of identifying subclinical activity TB?
Secondly, using the mom site lymph site ratio is important.
That's a simple test that many of you will have to hand, and that's got a very pretty high odds ratio of identifying active TB disease.
And I don't know if you guys do quantifier on in your services, but we get you get the quantitative results from the Quantiferon.
So we get something called the TB two response which is a CD4 CD eight response and what you can see is actually that is a quite an important marker of picking up someone and subclinical activity disease.
So if you use them on site website ratio and the quantity of you're on TBH 2, plus or minus their country of origin, you actually start to kind of almost risk stratify someone for identifying them at an earlier stage for active TB disease that's unpublished, but hopefully will be.

 **Stephen Flanagan** left the meeting

 **Pareek, Manish (Prof.)** 25:18
It's a bit as soon and so you know, I think we've been the only ones you've really looked at this, but basically the most of what cost effective way to look do this is screen post arrival in the community setting.

 **Merav Kliner** left the meeting

 **Pareek, Manish (Prof.)** 25:30
There will be referring large numbers of migrants to hospital.
TB services is not feasible.
It's also not going to be something that migrants want to do, so offering community based setting and I'm not making any judgment on where that community based setting is.
It could be a GP, it could be a pharmacy, it could be a school and college.
And I'll talk about that in a minute.
And that's because, you know, as an ID physician and as a TB physician and later TB screening is really one element of what we do now.
So we think much more broadly about other infections, think about vaccination programs and also then also about non communicable disease surveillance and all management.
So I was going to talk.
Did say I was going to talk about how this is translated into policy, so we published in 2012 the papers or 201120 between 2010 and 2012, and in 2015 the collaborative TB strategy was published.
And within that later TB screening was one of the elements and actually that was based upon the the work that we've done some years ago now and so has it been a success.
I think it's fixed and that's my personal view.
This is where we where we're stand for up to 2020.

 **Charles Winiarski** left the meeting

 **Pareek, Manish (Prof.)** 26:44
You can see that there's differences in terms of uptake of of screening in general.
There's been an increase.
I think COVID has resulted in a sharp decline in screening, particularly in our local service, which is now starting to pick up.
But I think what I see latency be or migrant screening as is really as one element of a package of care that you can offer to individuals and to develop and deliver holistic kind TB care.
And you'll be aware of the new TB action plan for England, which is obviously from 21 onwards and latency.
TB screening remains within it, but I just want to say that it is difficult to do.
You know, I, you know, I work as a clinician and and I know many of you will see patients across a range of different settings and it is really difficult.
This is data from hiking cust in in East London and what you can see this is where they've looked.
They've got slightly different model where GPS do the egrid testing and also try and manage some of the less complicated latency bees, but you can see firstly that there's a high proportion who never get their egrid done.
They're either the client or they just never get it done for whatever reason that we just don't know.
Second set of thing is that there's high DNA rates and that's something that you will see throughout and that's because these are mobile populations.
Many of you will be dealing now with individuals have to live in hotels, etcetera, and there's often very rapid transit through the immigration process.
And then finally, there's uptake or starting latent TB treatment can vary.
So you you have drop offs across the board and that's something that needs to be addressed.
So the question that you know is asked recurrently is about whether it has any impact and I think it, I think the jury is out really I think we know that this is some data from thorax, published.
Some time ago now and it it suggested that latency be screening had an impact.
I think it probably was multi factor or the drive the drops in TB incidents predominantly you know changes the migration patterns I think have more of an impact in terms of TB incidence rates.
But there is this specific analysis which was published last year from against from UKHSA colleagues with Imperial and they assessed through linkage and they essentially said that if you had latent TB screening, you had a low risk of future TB and and latent TB treatment reduced your future TB risk by about 85%.
This is only in migrants, so it was an effective program, but coverage it was an issue we write.
So we wrote this editorial associated with that paper, which said, well, we probably need to better target who are screening.
We need better tools.
We also need to reduce those drop offs that I've mentioned.
You know, a lot of this has been delivered and is being delivered and developed for patients and we need to really understand what patients are migrants think about what we're delivering for them and it's important to think also about coverage.
So if you have low coverage and you're targeting only a specific groups, you might actually not result in a huge impact at a population level.
And then the important thing that I think which is the broad and migrant health agenda, which I think is important.
So I'm just going to finish in a minute, but I just wanted to say that that those initial studies have resulted in these studies and combat prism and trap target ID, which are now ongoing and I are funded programs of work which are looking at combat ID and PRISM ID and looking at primary care pharmacy based schools and college based testing for multiple infections.
They're looking at acceptability.
They're looking at targeted programs and they're also now we have a single stop by group click which I run on Friday morning where individuals with any condition can essentially be seen in one go rather than having to go and see a TB physician and then hepatitis physician differently and it will be doing some health economics and then tag ID, which is very recently been funded by an ISR, is looking at losing machine learning and artificial intelligence to see whether we can identify the highest risk populations going forward.

 **Hilary deKock** left the meeting

 **Pareek, Manish (Prof.)** 30:53
So I'm just going to conclude by saying look. We know that in the UK foreign born individuals really disproportioned bad TB burden high income countries.
Somewhere work like Leicester.
Leicester is nearly 50% foreign born, has a significant TB burden which continues reactivation, latency is important and it's it's the impact of that plus migration that we need to think about as TB specialists or nurses.
For example, migrant screening is not one element.
It's not just latency TB screening, it's the pre arrival program, making sure that's efficient and as effective as possible to identify the highest risk groups.
And then secondly, thinking about targeted post arrival screening for latency B, so you're here, you can't screen everyone you think about the highest risk individuals, you single step egrid, but don't also remember that you're likely to pick up early subclinical often active TB, which wouldn't have been picked up through any other mechanism until they become sick enough to transmit.

 **AHMED ALAHMAD** left the meeting

 **Pareek, Manish (Prof.)** 31:53
And you know, every TB physician will run ends every slide and every talk saying that we need, we need better tools and we need better treatment pathways which are shorter.
So thank you very much for your attention.
I'm going to stop sharing Tom, if that's OK.
I'm happy to take any questions.

 **Wolfson M.Room 8** 32:16
Can you hear me now?
Yeah, yeah, yeah.

 **Pareek, Manish (Prof.)** 32:19
Yeah.

 **Wolfson M.Room 8** 32:20
Great.
So sorry.
Thanks very much.
You missed missed our virtual clap there and brilliant.
So, Helen.
Helen, you've got a question to kick things off, game for it.

 **Helen Savage** 32:32
I am.

 **Pareek, Manish (Prof.)** 32:33
Either.

 **Helen Savage** 32:34
My name's Helen and I'm a PhD student.
Animal Sarah ID registrar down in Bristol and I had two questions and one was that with screening, especially in migrants, do you think we miss opportunities for screening migrants later on when they're presenting to clinical services who may have missed out on those initial screening pathways?
And we've definitely had quite a lot of cases in Bristol where we've found people through other clinics who have either been immunosuppressed or had other medical problems.
So I think could come through probably less formal groups of migration, so had just not really been picked up by those services and it's something I don't think we do very well in Bristol and just wonder about that.
And the second question was just do you think the disruption of medical services and laboratory services through the war in Ukraine with their kind of drug resistant TB burden and alongside that migration might impact kind of how we're seeing TB in the UK because there are very different populations who what we're sort of used to screening potentially and just I guess how we might manage some of those challenges? Thank.

 **Pareek, Manish (Prof.)** 33:53
Yeah.
Thanks.
Thanks and that there's a great question.
So the first question about time.
So obviously you know we try and identify individuals as early as possible in their in their migration process and certainly, but we will know that still the highest burden's actually can occur post more than five years after arrival.
And that's because there's obviously a big there's a massive backlog of migrants who are living, have lived in the country for a long period of time.
My view is that we should be offering opportunistically individuals a screening, certainly for in I I I sent it up to 10 years probably for latent TB and but for blood borne viruses, you know as a routine I would suggest is something that we should be thinking about because you know we identify and that's what we do through our GP program.
So the GP program in Leicester is not just latent TB.
Now it's quadruple testing and it's they get blood borne viruses along the side of TB screening and we identify a lot of people who we wouldn't expect to.

 **HUSSEIN, Osama** left the meeting

 **Pareek, Manish (Prof.)** 34:52
The second question about Ukraine is interesting because I think and there are two issues here.
So migrants, you know, migrants often we we consider it because it's in the news about refugees and sylum seekers actually make up a really small proportion of overall migration to the UK.
So in my mind, the way I think about it is.
E as you say, the sort of refugees, asylum seekers, it kind of irregular roots as one group and then the sort of economic migrants.
So if you're because their risks are very different and I'll give you an example, if you're an IT worker and I'm just using this as an example coming from India to the UK, to London coming by flight, your risk is very different to a Sudanese migrant who's gone to Libya than in prison for in Libya for six months and then taking a boat across my training, et cetera.
The risks different and and I think also we need to think about the the Ukrainian and the drug resistant TB proportions, obviously high.

 **Wolfson M.Room 8** 35:41
E we know.

 **Pareek, Manish (Prof.)** 35:51
I've said that obviously TB instance in the UK is actually relative is relatively lower compared to the burden.
It depends, I think, at that point about thinking about it at an individual level, what their risks are and UK just say we'll have their own and the other problem that we have in the UK is that we've seen obviously Ukrainian migration and then we've had and we have obviously the migrant screening program, but there will be other prices that occur over time and making sure that we don't have different programs for all of them.
So trying to align them as the other issue, but thank you for that question.

 **Wolfson M.Room 8** 36:23
Thanks Helen.
Thanks, Manish.
Got Anna.
Anna, you've had your hand up Ana trailer.

 **Speaker 1** 36:28
Hi.
Yes.
Thanks.
I manage well from a consultant in Health Protection.
I work for UK Health Security Agency in Greater Manchester.
Thanks so much for the talk.
Unfortunately, only managed to catch the last sort of 25 minutes, so I will go back, but I just did have a question and you just briefly touched upon it actually, which I'm grateful for.

 **Cardwell Richard (LSCFT)** left the meeting

 **Speaker 1** 36:48
So we're increasingly seeing migrants arriving in the UK and through this I think you called it an irregular route who've acquired significant structural risk factors along their journey.
And so in a sense, there the incidents in the country of origin is becoming less relevant, is still relevant, but it, you know, actually the mode of travel and the risk factors acquired along the way.
Do you need to be considered?
You just mentioned individual risk assessments, but that is challenging for Commissioners to translate into, you know what they what they want providers to do if you like.
So I'm just wondering is there an easy way to quantify this and it include sort of mode of travel or structural risk factors as one of the variables in your model.
It would be really helpful to repeat this sort of cost effectiveness and study and and look at those thresholds again to to to consider that sort of mode of travel and those structural risk factors beyond just the country of origin.
So I'd be interested in your views.

 **Pareek, Manish (Prof.)** 37:52
Thanks Anna.
That's a that's a really important question.
If you're gonna give me the money, I'm very happy today.

 **Kate Bradfield** joined the meeting

 **Pareek, Manish (Prof.)** 37:56
But I'm just kidding.
What?
What we would, what we will say about what I would say about root is that it's actually really difficult because partly the issue that we have around roots is that it's very poorly recorded anywhere.

 **Wolfson M.Room 8** 38:02
Question check.

 **Pareek, Manish (Prof.)** 38:08
So I've not come across this and it's only partly 3 experience of seeing.
I see lots and lots of migrants through the clinic that we do take that into account very clearly.
And so the registrars will say, look, this guy's come from Sudan.
But the important question is about how they've come, how long they've been in prison in Libya, because they've been variably been imprisoned in Libya for between one and six months, and that's not in any of the guidance.
Actually, I don't think it's in any of the USA guidance and that's partly because of the experience that we have now.
The other issue that you say about doing the models again is that when this program was set up, it wasn't really set up for the relatively small proportion migrants who are and I use a regular routes in a very loose term.
I don't mean like irregular in that sense.
I mean the refugees, asylum seekers who are coming and they make up relatively small proportions of the actual overall migrant flow.
And I think that's something that you must we must bear in mind that the vast majority of migrants are coming through for either work study or joining family, for example.
So to develop a new program in a program that's already quite complex to deliver might be a challenge, and I would suggest that the easier way to do it is to where individuals are being seen, either through primary care or through other health professionals, is that the quantity run in some respects, does risk stratify them?
So if they're quantifier on positive at that point, you know that they've had enough exposure to be to have probable latency be to be seen by TB physician and maybe then the education happens at the TB positional nursing side said look, actually not just about where they've come from, but how have they come.
And then think about that in that way.
I don't think there's an easy solution, and I think we shouldn't forget that the program is the first in the world to really do this.
So actually I'm just mindful that trying to iterate it could be quite a challenge.
But you know, it's certainly possible to do.

 **Wolfson M.Room 8** 40:03
Thanks.
Thanks.
And we got a question, the chat read.
I don't know if you want to read it out.
Happy to to ask you a question you wrote in the chat and then we got two hands up afterwards as well.
Lauren and then one will I think it is.
And So what did you want me to ask?
Or are you happy to?
OK, so manager don't.
If you can see that.

 **Pareek, Manish (Prof.)** 40:25
Yeah, I can.
I can.
I've seen it.
Yeah, I've seen it.
So yeah, so that's a really good question.
So it it was exactly that as I've just mentioned, it was the, it was the hematological parameters, it was the TBD two response.
But it was also the fact that the individual I think had been in prison in for a prolonged period of time and had prolonged exposure.
And I think also.
And had a had exposure to individuals who we suspect had drug resistance.
So it was a sort of empty and logical risk factor rather than I have to say that speaking to my colleagues who did the contact tracing click and I don't do see contacts here unless the they are increasingly moving towards chest X-ray, moving away from chest X-ray as well because it picks up very early disease and we wouldn't have picked those individuals up if they just had their chest X-ray.
But that's a very good question about the.
So it's really about epidemiological risk factors alongside and what their background is.

 **Wolfson M.Room 8** 41:22
OK.
We've got three more quests, I suppose, just as a as an aside managed as well.
I think there's a lot of work to develop on how we treat people with subclinical TB disease, whether the treatment should be some kind of what the treatment should be, what the optimal treatment should be.
We've got Lauren and then we've got will and then we got Bertie in the room for questions.
Lauren, go ahead.

 **Lauren Ahyow** 41:43
Uh, thanks.
Hi Manish.

 **Pareek, Manish (Prof.)** 41:45
Hello.

 **Lauren Ahyow** 41:46
It just, it was really just a a point really from the UKHSA national team in response to Anna's queries and speaking to this issue about and migration trajectory and the route that migrants take.
So the new National TB surveillance system has only been capturing data specifically about asylum seekers for the last few years, so we've got we've got limited data, but we've begun to look at some of the patterns in that data.
And at the moment it's purely hypothesis generating and we do need to progress that to publication.
But one of some of when we're looking at rates, particularly individuals coming off the continent of Africa in Sub Saharan African countries, looking at the rates of TB on arrival versus The Who rates and country of origin, we're seeing the same as three and five fold increase in rates tactile and arrival versus country of origin.
And we don't necessarily see the same and, um, Afghanistan, Iranian arrivals?
And he also make up very significant proportions of that irregular group.
So that's something we're beginning to look at and we're trying to generate some of the hypothesis to explain what that might be, but certainly manage the they often come through that North Coast off through some of those Libyan army camps and and we're beginning to add that to you know, we're we're starting to see something in the data that's raised helping us raise questions.
We're very early stages of looking at the data and as you've said, we don't know, but that is work that is ongoing.
And I just want to take this opportunity to make stakeholders aware that the off O head office of health inequalities and disparities, along with UKHSA well next week, be publishing updates to the Migrant Health Guide and which you're looking to address some of the gaps and inequalities and the current offer within the national program.

 **Merav Kliner** joined the meeting

 **Lauren Ahyow** 43:45
So I won't say anymore about that now, but comms will be coming out.
So I just wanted to be a blatant opportunist to raise that.
Thank you.

 **Wolfson M.Room 8** 43:54
OK.
Thank.
Thanks very much, Lauren.
I think in the interest of time, so we're going to well, who is next then Bertie.
And we've got a question from from Doctor Ibrahim in Warrington.
Go for it will.

 **Wong Waison** 44:04
Tags. Tom.
How?
I'm well.
I'm one of the pediatric infectious diseases consultants based in Liverpool and I wanted to redirect the scrap, the discussions to pediatric migrant screening.
Managed you mentioned that this is a controversial topic in terms of the data and should we be screening this population or not?
I'm just increasingly worried that we have more and more regular route kind of entry migrants, particularly children, that are entering our region, and there is no consistent way of screening these children for a TUBERCULOSIS, but also for bloodborne viruses.
We tried to opportunistically screen as much as we can, but this of course is a a very small effort compared to how many children we have in our region.
One would you support the the routine migrant screening of of all children migrants for TB blood borne viruses and and is there an effort of trying to create more of a systematic way of screening, particularly the Afghan and Ukrainian children, because already in my team clean it this morning, just opportunistically screening a family of nine, seven of whom are children, all of them are Dr positive two with active TB.
And this is just one case of an active opportunistic screen.
I'm sure there are many more we're missing.

 **Wolfson M.Room 8** 45:24
Thanks Will manage just before you answer that actually comes with something in the chat.
That's for from Fran.
I think Child who said they got many thousands of unscreened new entrants are Greater Manchester and children are pushed to the bottom of the list but actually get severe long term sickly if they're not diagnosed, you know appropriately.
And any suggestions about pushing the priority list because there is transmission amongst especially teenage groups and so sorry, I just thought I'd chip in there, but go ahead.

 **Tom Fairclough** joined the meeting

 **Pareek, Manish (Prof.)** 45:51
And Tom. Yeah.
Thanks, will.
That's it.
And and and and also Fran for your comments, because children are in an area that I've been thinking about in, in terms of TB screening for some time and actually in the original economic analysis that we did, we did think about children and it was we said at that time it wasn't cost effective because of the yield, but actually what we I think I don't read the paper anymore, but I think our view was that it should be a policy level decision actually about whether the individuals children above in higher risk groups should be screened.
And I think and I would maintain that.
So the way that we have also a an ad hoc prescreening program, it's not very successful.
The adult programs probably much more successful because of what you've just said about people routinely getting tested the way that it sort of started to work is that children of the families are starting to be done opportunistically and for being screened, and we do pick up individuals, as you say, who are then children who are then positive and need management.
I think it's something that needs probably looking at again, I'm.
I can say that as an academic and as a clinician, not as a policymaker, but I do think it is an area that still causes some disquiet both amongst pediatric and TB nursing colleagues.
So I would you know, I I think it is certainly something that needs to be done.
I would the the anecdote you say is similar to what we're hearing locally, but I don't know whether we're seeing that much new active TB cases it locally that have occurred specifically in, for example, Ukrainian migrant children for example.
So that's to the other, just as the other side of the story and the other question, just so Tom, in what the Fran has said about hotels and so on is that they are a challenge for us.
There a challenge for everyone because they often haven't got any healthcare because there's no GP program that's or system that's set up to look after them.
So we've been exploring with our ICB about whether there should be almost sort of squads of squads.
Not really, but health care professionals that go in and offer individuals healthcare in some shape or form.
And I think it's down in Surrey.
They've got been giving us sort of enhanced payment for nurses and physicians to actually go out and offer healthcare, health, migrant screens essentially for a range of conditions.
So it is a challenge and it's similar to what we're seeing as well locally.

 **Wolfson M.Room 8** 48:20
OK.
Thanks very much.
I think probably end up with time for just two more questions.
So I think the one so Bertie next and then Doctor Abril matters.
But Bertie, go ahead.
Thank you.
And Manny, Bertie.
Squire here, aging ID physician and fabulous talk.

 **Hafidz Firdaus** joined the meeting

 **Pareek, Manish (Prof.)** 48:32
And listen.

 **Wolfson M.Room 8** 48:35
Thank you very much indeed.
I had a comment in two questions.
If I made a comment was just to reinforce what many have talked about, which is this the trajectory of arrival it, I mean it features in all of our TB MDT discussions I so I really think that is an important piece for us to consider.
But the two questions were first in relation to your suggestion of the one stop IGRA.
Excuse me, I'm wearing a mask.
Has got a nasty cough and and the 2nd in in relation to the difference between your recommendation and Nice France child and I were both on the TB Guideline Development Group.
That kind of ended up with the TST.
I mean, is it time and maybe you guys who are closer to it, N G33 for nice needs an upgrade presumably I think so.

 **Pareek, Manish (Prof.)** 49:23
I yeah.

 **Wolfson M.Room 8** 49:23
What?
Just just your thoughts on whether it whether, whether it it does and then if I made my second question was in your analysis around risk, have you looked at sex?
I mean it just we we run a program about masculinity and.
Differences in case detection in African countries between men and women, and I just wondered whether in in your analysis you'd consider differences then in men and women.

 **Pareek, Manish (Prof.)** 49:52
Yeah, that that's a great question.
So this is part of the issue that we have A and a national program which is based on single step ego for migrants.
And then there's NGC.
Three, as you say, the TB.
Nice guidance which is TST, and you can imagine we're almost sort of going back to, as I said, to sort of two different guidance programs.

 **Wolfson M.Room 8** 50:05
Yeah.

 **Pareek, Manish (Prof.)** 50:12
I think it probably doesn't need reviewing again.
If I speak to my patients, the migrants, they most definitely will not be wanting to come back and forth and back and forth.

 **Hafidz Firdaus** left the meeting

 **Wolfson M.Room 8** 50:21
Yeah.

 **Pareek, Manish (Prof.)** 50:22
They're most that health is not important to them.
What they want is a job and they want housing and they want food for their children.
And so for us to make that program as simple for individuals as possible, I think is a real and that's sometimes forgotten.
I think Bertie in terms of the cost effectiveness, you know it's about, you know, if the if the yields are similar, but actually people aren't coming backward to read.

 **Wolfson M.Room 8** 50:37
Yeah.

 **Pareek, Manish (Prof.)** 50:44
I think that's a real problem, so I think it does need reviewing.

 **Wolfson M.Room 8** 50:45
That, yeah.

 **Pareek, Manish (Prof.)** 50:46
Again, the second question about sex that we so in terms of yields, we haven't actually looked at it, but I think it is important and but we are we do see some differences in the patterns of TB as you might be aware that the patterns of TB, particularly men having slightly higher risks of pulmonary cavitary disease, women sometimes and would like to have extra pulmonary TB.

 **Wolfson M.Room 8** 51:07
Yeah.

 **Pareek, Manish (Prof.)** 51:07
I don't know why that is, but it the case ascertainment of course most migrants, as you'll be aware, are men, young men in the initial years, because they come first before their families were able to join them.

 **Wolfson M.Room 8** 51:17
Exactly.

 **Pareek, Manish (Prof.)** 51:20
But that's an important question.
I can certainly go back and look at our data again with that.

 **Wolfson M.Room 8** 51:24
It's right there E. OK. Thanks.

 **Pareek, Manish (Prof.)** 51:24
Hi, thank you.

 **Wolfson M.Room 8** 51:27
Thanks very much.
So Doctor Ibrahim for the for the final question.
Then I'll close because we're running out of time.

 **IBRAHIM, Abdalla (WARRINGTON AND HALTON TEACHING HOSPITALS NHS FOUNDATION TRUST)** 51:34
Prof Manish for Nice presentation actually it is is a problem we face in the Community here.
There is some migrant they are mostly for TV but they hide.
Who is the contact?
Never mind.
The contact on the journey, but when they arrive here they see their families.
There's some of their friends and they hide completely because I think they have problem with them or they departed or and the other type they declined.
Somebody just asking for investigation declined.
The don't come in time and they are really very problem.
You're seeing them in the clinic, so there any, any, anything official you could do or anything we can overcome that?

 **Pareek, Manish (Prof.)** 52:17
So the way I see this is if I was a a migrant to a new country where I don't speak the language and really understand the system, I I'm sometimes taken aback that they've actually individuals have managed, you know they get £5 roughly per day to come they I've that probably wipes is wiped out by the bus trip to come and see me.
So I I what I say to them is I it's about I think this is all about trust, right?
We are seen as physicians as being in power and we are part of the system.
I'm I may not be, you know why British?
But I am still part of the system as much as all of us who are working in the system.
And therefore the trust makes a massive issue.
So building trust with individuals firstly and then secondly, I try and say look, particularly in terms of, umm, the the appointments and the and the scans that sometimes need to be done trying to explain them and also trying to work with their GPS to make sure that they understand when they're supposed to happen.
Some of our we have an asylum seeker practice locally and they have got, I think professionals who will help people through the journey of testing and screening and treatment apart from obviously the TB nurses and I.
But it is a challenge, but it is a challenge that if we forget that individuals are at high risk and that we are not offering them equitable care, and I think that's what that's the most important thing.

 **Wolfson M.Room 8** 53:41
Brilliant.
OK.
Well, thank you very much.
We'll give you another round of applause as well, and that was fantastic talk and and you know, really grateful also to everybody for engaging so much with their questions and answers.

 **Pareek, Manish (Prof.)** 53:49
Thank you.

 **Wolfson M.Room 8** 53:55
So thank you.
So just to say to people on July 20th, so third Thursday of the month is when lived to be occurs next month, we're gonna have doctor Jonathan Campbell, who works at McGill University in Canada, who's an epidemiologist and health economist who's done a lot of work looking at what managed was talking about.
Some of his slides, the cost effectiveness analysis is not not only of screening, but also of of treatments and novel treatment regimens and things like decentralization of TB diagnostics and services.

 **Rachael OkeeffeJones** left the meeting

 **Farrow Stacey (R0A) MFT** left the meeting

 **Anjila Shah** left the meeting

 **Catherine Hay** left the meeting

 **Wolfson M.Room 8** 54:23
So looking forward to that and then we're gonna take off August.
And just have a wee break before we start again in September.
But thanks everyone for coming.
Thanks everyone in the room as well for coming and I know we they probably lots more questions to to be had and lots of food for thought as well and thank you.

 **Ewan Tomeny** left the meeting

 **Wolfson M.Room 8** 54:40
Thanks everybody.
And we'll say goodbye now.

 **Samihah Moazam** left the meeting

 **Wolfson M.Room 8** 54:43
I think you.

 **Barrera Manuela (R0A) Manchester University NHS Foundation Trust** left the meeting

 **Lauren Ahyow** left the meeting

 **Naomi Walker** left the meeting

 **Child Fran(R0A) Manchester University NHS FT** left the meeting

 **Pareek, Manish (Prof.)** left the meeting

 **BARON, Rochelle (MANCHESTER UNIVERSITY NHS FOUNDATION TRUST)** left the meeting

 **Paladugu Madhavi (LTHTR)** left the meeting

 **Wolfson M.Room 8** 54:48
It's my birthday.

 **Baker Katie (R0A) MFT** left the meeting

 **Pasztor Monika (LTHTR)** left the meeting

 **Joy Gilroy** left the meeting

 **Angela Duckworth** left the meeting

 **Merav Kliner** left the meeting

 **Kate Bradfield** left the meeting

 **Anna Trelfa** left the meeting

 **Helen Savage** left the meeting

 **Francine Mahoro** left the meeting

 **HOUGH, Claire (CHESHIRE AND WIRRAL PARTNERSHIP NHS FOUNDATION TRUST)** left the meeting

 **Vibol Iem** left the meeting

 **Wolfson M.Room 8** 54:52
Pieces of home baked cake.

 **Fullerton Duncan (RBT) Mid Cheshire Tr** left the meeting

 **IBRAHIM, Abdalla (WARRINGTON AND HALTON TEACHING HOSPITALS NHS FOUNDATION TRUST)** left the meeting

 **Raghda** left the meeting

 **Wong Waison** left the meeting

 **BLACK, Mairi (NORTH CUMBRIA INTEGRATED CARE NHS FOUNDATION TRUST)** left the meeting

 **Turnbull Louise (R0A) Manchester University NHS FT** left the meeting

 **Tom Fairclough** left the meeting

 **MCCLURE, Jonny (WIRRAL UNIVERSITY TEACHING HOSPITAL NHS FOUNDATION TRUST)** left the meeting

 **O'Keefe Georgina (R0A) MFT** left the meeting

 **Wolfson M.Room 8** left the meeting

 **Crowther2 Nicola (R0A) MFT** left the meeting

 **Jacob Parkes** left the meeting

 **Joy Gilroy** joined the meeting

 **Joy Gilroy** left the meeting