

# Video Observed Treatment

The value of VOT in reaching inclusion health groups

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VOT Lead, Find&Treat



# Plan

## Background

Setting the scene – a little bit about TB, DOT & VOT

## UCLH Find&Treat VOT service

Who we are

How it works

What we do

VOT by numbers - current picture

Patient and Service experiences of VOT

## Patient safety and security

## Conclusions & lessons learned

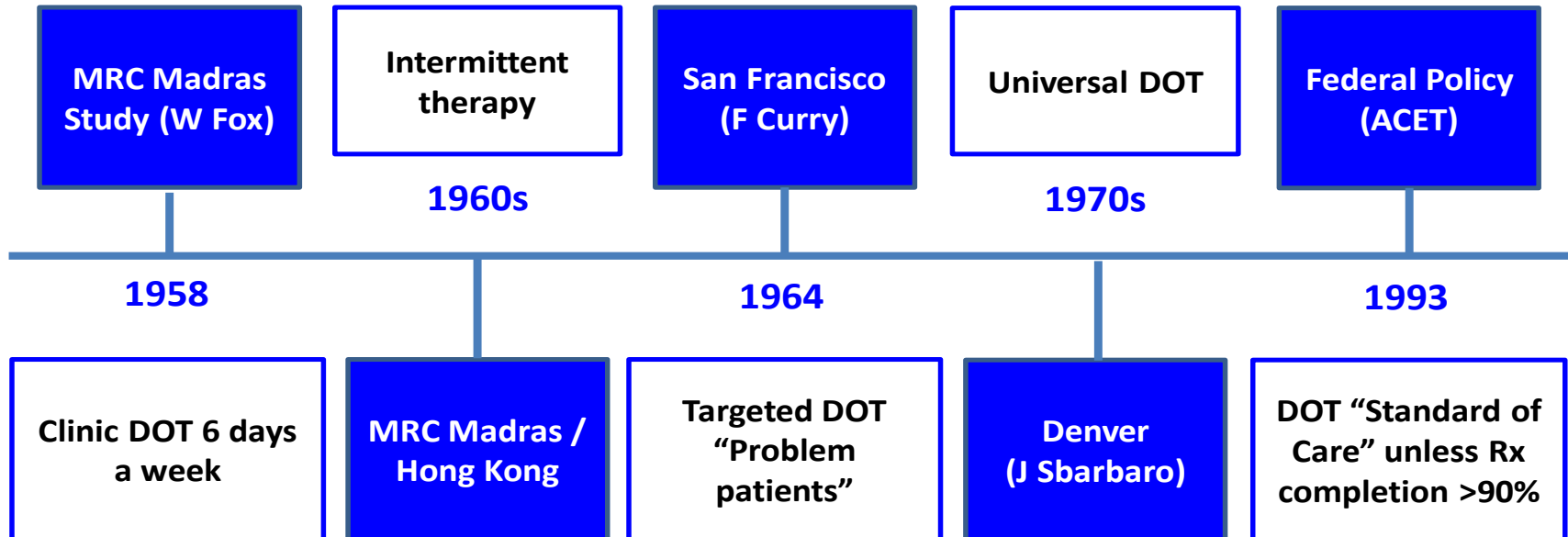
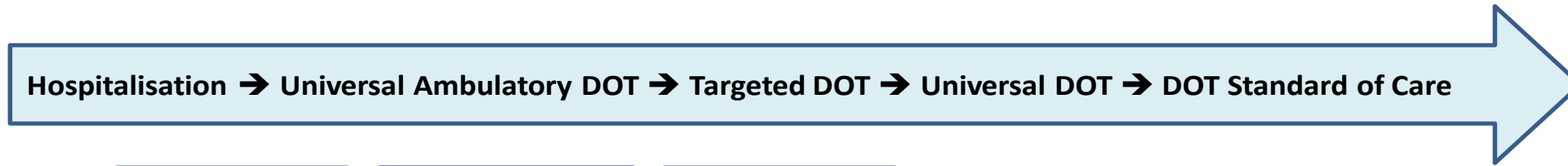
# A little bit about TB

- COVID-19 has had worldwide impact on TB – new diagnosis, delay to treatment; lack of funding
  - Decrease (18% lower than 2019) in new active cases worldwide
  - Worldwide increase in TB related deaths in 2020
- In England, there were 4,125 people diagnosed with active TB in 2020 (a 13% decrease from 2019)
- Worldwide increase in MDR/XDR TB
- 2020 saw the highest percentage of patients (2.4%; 58 cases) with MDR/XDR in England since 2000
- TB rates in most deprived 5 x rates in least deprived
- In 2020, 12.7% of patients had at least 1 SRF in England
- Reduction in people completing Rx (83.6% in 2018; 82% in 2019)
  - Patients with SRF less like to complete Rx and much more likely to become LFU
- Decrease in patients receiving DOT between 2016 & 2020
- Service provision must meet needs of underserved populations

*“Irregularity has been a problem throughout the course of treatments”*

# A little bit about DOT

# Hospitalisation → SAT → DOT → VOT





# In England DOT is recommended as part of Enhanced Case Management \*

**NICE**  
National Institute for  
Health and Care Excellence

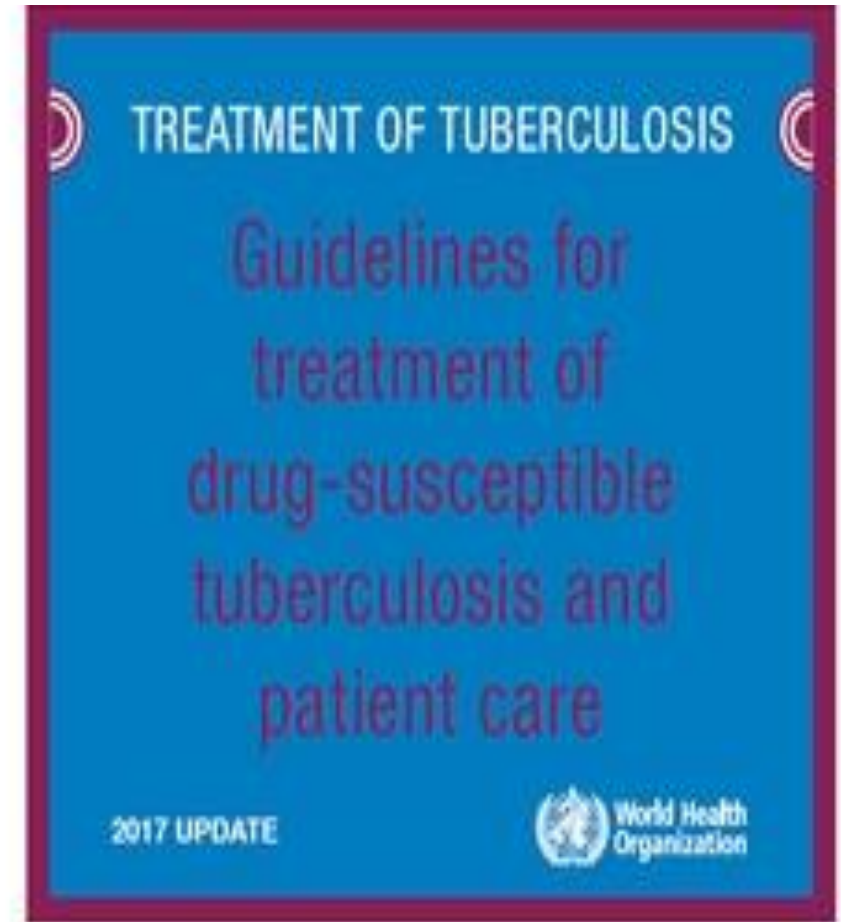
Offer directly observed therapy as part of enhanced case management in people who:

- do not adhere to treatment (or have not in the past)
- have been treated previously for TB
- have a history of homelessness, drug or alcohol misuse
- are currently in prison, or have been in the past 5 years
- have a major psychiatric, memory or cognitive disorder
- are in denial of the TB diagnosis;
- have multidrug-resistant TB
- request directly observed therapy
- are too ill to administer the treatment themselves

\*NICE TB Guideline NG33;  
Case Management & Cohort Review Toolkit;  
Collaborative TB Strategy for England;  
NICE Quality Standards for TB (QS141)

# WHO TB guidance recommends

- **Community or home-based DOT** over health facility-based DOT or unsupervised treatment
- **DOT administered by trained lay providers or health care workers** over DOT administered by family members or unsupervised treatment
- **the use of thrice-weekly dosing is not recommended**...and daily dosing remains the recommended dosing frequency





- DOT is expensive and time consuming
- DOT usually amounts to max 71% of doses observed (5 x week)
  - Only option is once daily dosing
- Evidence of effectiveness is weak
- On the whole, **patients don't like it** (high rate of refusal, high rate of SAT & high drop out rate)
  - DOT maybe associated with perceptions of low autonomy, inadequate confidentiality & stigma\*

\* 1.Sagbakken M , Frich JC , Bjune GA , et al . Ethical aspects of directly observed treatment for tuberculosis: a cross-cultural comparison. BMC Med Ethics 2013;14:25.  
2.Yellappa V, Lefèvre P, Battaglioli T, *et al.* Coping with tuberculosis and directly observed treatment: a qualitative study among patients from South India. BMC Health Serv Res 2016;16:283.  
3.Wynne A, Richter S, Banura L, *et al.* Challenges in tuberculosis care in Western Uganda: health care worker and patient perspectives. International Journal of Africa Nursing Sciences 2014;1:6–10.

# What some patients say about DOT

*“...I'd rather not go every morning to my pharmacy...if I can do it from home...that's better for me.”*

*“...but to the clinic I have to go everyday far away...so to me it's better to be the phone”*

*“At the pharmacy I had to take them [the tablets] in front of everyone...Now I do it in my own personal time...I can do that without no issue”*

# A little bit about VOT

# VOT is recommended by World Health Organization (WHO)

- **VOT can replace DOT when the video communication technology is available** and it can be appropriately organised and operated by health care providers and patients
- The unique nature of the VOT interaction makes it best positioned to support remote management and observation of TB treatment
- VOT is a solution that addresses the challenges posed by DOT to professionals and affected communities
- VOT enhances tailored, people-centred support systems to improve TB treatment outcomes



# World 1<sup>st</sup> – VOT Randomised Controlled Trial

## **Smartphone-enabled video-observed versus directly observed treatment for tuberculosis: a multicentre, analyst-blinded, randomised, controlled superiority trial**

*Alistair Story, Robert W Aldridge, Catherine M Smith, Elizabeth Garber, Joe Hall, Gloria Ferenando, Lucia Possas, Sara Hemming, Fatima Wurie, Serena Luchenski, Ibrahim Abubakar, Timothy D McHugh, Peter J White, John M Watson, Marc Lipman, Richard Garfein, Andrew C Hayward*

# VOT RCT

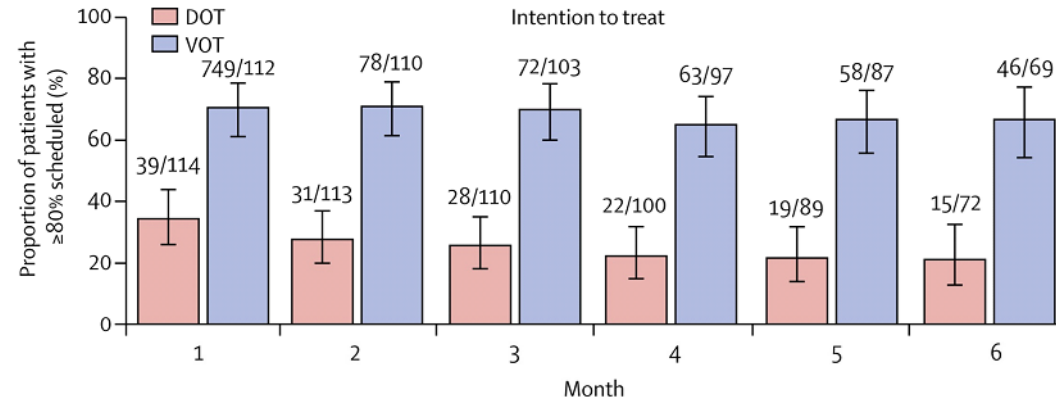
## Hypothesis

- **Primary outcome**
  - VOT increases the proportion of patients who have >80% of doses observed during a 2 month period compared to DOT
- **Secondary outcomes**
  - Adherence over planned treatment course (180 days)
  - Cost effectiveness



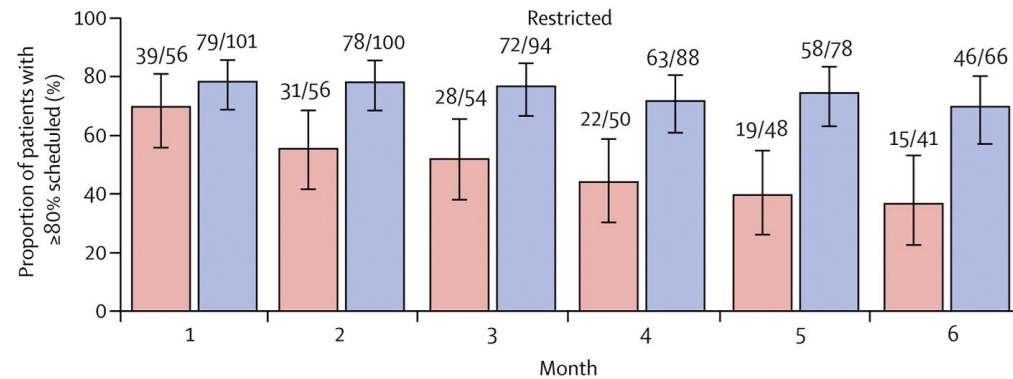
# Primary outcome

VOT is at least **twice** as effective as DOT



**Primary outcome (ITT)**

>80% over 2 months – **aOR 5.48** (95%CI 3.10 - 9.68; P<0.001)



**Restricted - Patients who engaged with the allotted treatment arm over 180 days**

77% of observations were completed in the VOT arm

39% of observations were completed in the DOT arm

# Patients like it

*I've been down with some of my medication...stopping my medication for no reason...this gave me an opportunity to take my medication whenever I had to take it...I felt good” (VOT TB patient)*

*“I enjoy doing my films and managing my medication myself...It's good and really easy to use. I'm happy with it” (VOT TB patient)*

*“I don't think I would've taken the medications regularly...I wasn't going to be compliant” (VOT TB patient)*

*“VOT is great...and really easy to use” (VOT MDR TB patient)*

*“Yeah Joe. Am really doing everything I should be doing right for once am so proud ov myself...”*

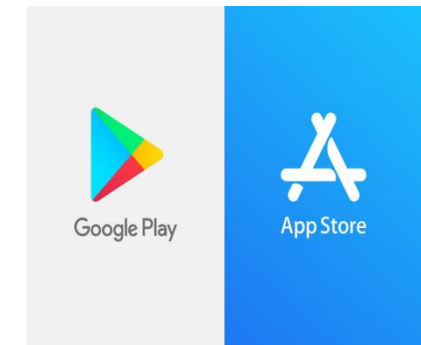
*“...This is my biggest fight ever and I ain't giving up...”*

*“...proud I got my life back on track...Thanks for all your help...”*

Drug-resistant HepC patient on 6/12 course. Previous failed attempts at treatment. Nurse thought worth giving VOT a go. Pt successfully completed treatment this time

# UCLH National VOT Service

- Part of Find&Treat
- Dedicated VOT team
- National
  - Pan-London (annually CCG commissioned)
  - Outside London (tariff-based)
- Uses the Sureadhere (SA) V2 VOT app
  - Available for iOS and Android phones
  - Easy to use
  - Safe & secure & meets all GDPR requirements



# How does it work?



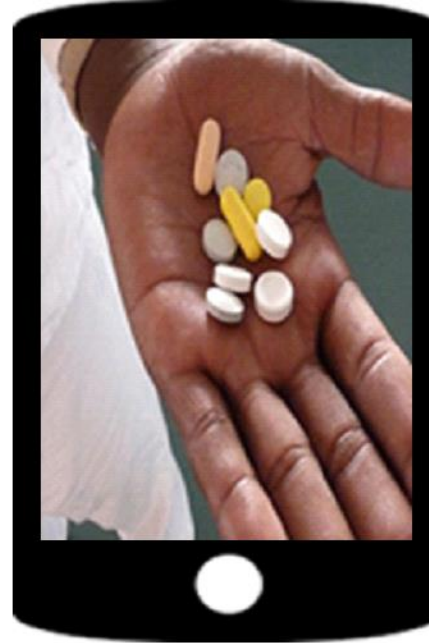
# VOT in 3 easy steps

# 1



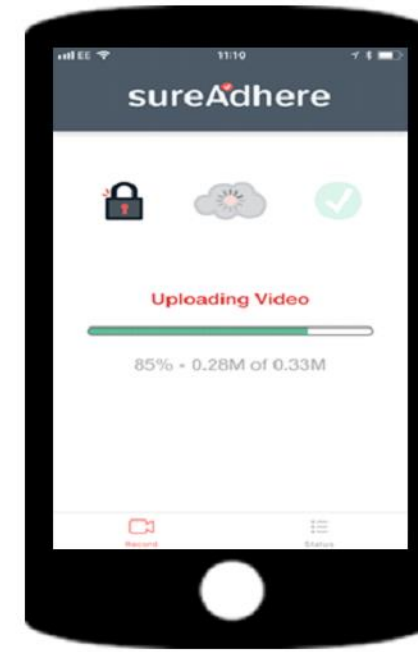
Enter unique  
pin code

# 2



Film tablets  
clearly

# 3



Films uploaded  
automatically







Joetest Patient | Find and Treat

Treatment Start Date: Aug 20, 2020      Exp. End Date: None      MRN: keerg      SA-ID: SA-125

- Overview
- Adherence**
- Regimens
- Profile
- Notifications
- Reports

Doses

September 2021

Sunday	Monday	Tuesday	Wednes...	Thursday	Friday	Saturday
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
						
26	27	28	29	30	1	2
						

Dose Details - Sep. 30, 2021

FS - EMB;Rifinah;PZA

08:00 AM		
Ethambutol	1200 mg	Taken
1200mg expected		
Pyrazinamide	2000 mg	Taken
2000mg expected		
Linezolid	600 mg	Open
600mg expected		

New Unscheduled Drugs

Drug name	0 mg	Taken
0mg expected		

**+ ADD DRUG**

< > - Sep 30, 2021 - 12:42 PM



Linked To:  
 • FS - EMB;Rifinah;PZA: Sep 30, 2021;

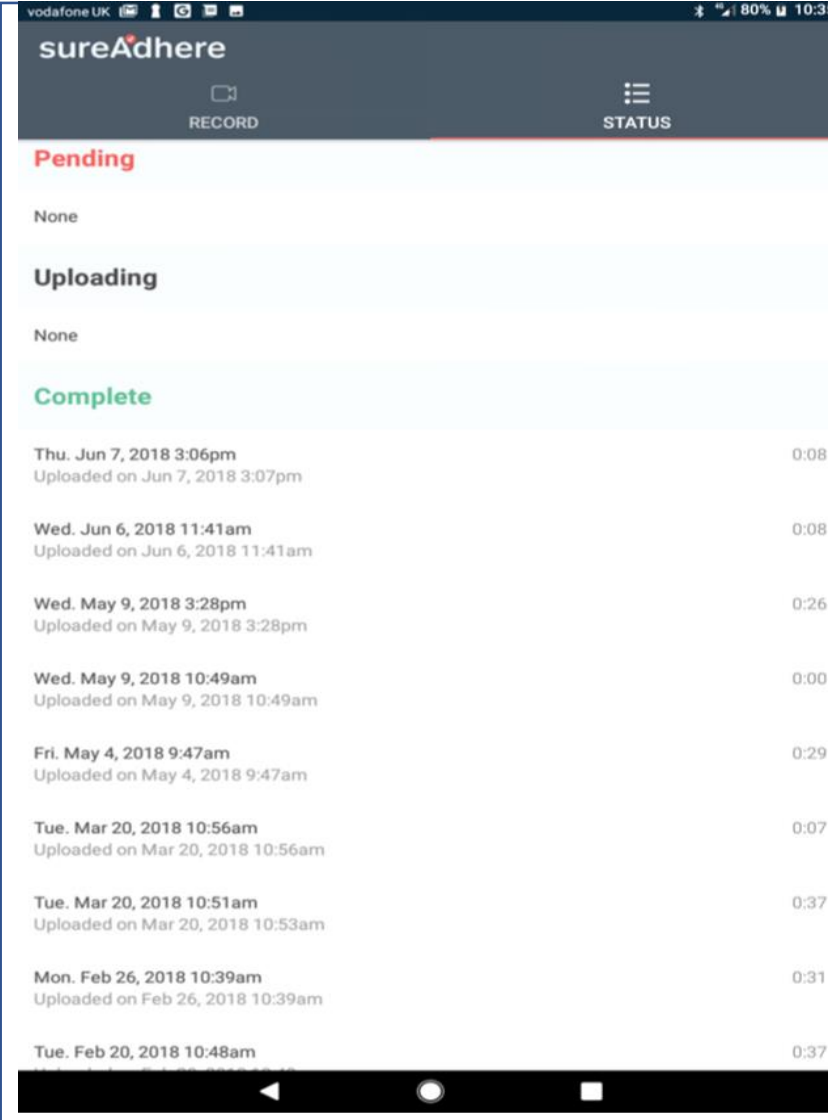
Side Effects

Patient Add Side Effect... +

Is this video valid?  
 Yes  No

Visual Quality ▼      Audio Quality ▼      Content Quality ▼

# Film status



Pending	
None	
Uploading	
None	
Complete	
Thu. Jun 7, 2018 3:06pm Uploaded on Jun 7, 2018 3:07pm	0:08
Wed. Jun 6, 2018 11:41am Uploaded on Jun 6, 2018 11:41am	0:08
Wed. May 9, 2018 3:28pm Uploaded on May 9, 2018 3:28pm	0:26
Wed. May 9, 2018 10:49am Uploaded on May 9, 2018 10:49am	0:00
Fri. May 4, 2018 9:47am Uploaded on May 4, 2018 9:47am	0:29
Tue. Mar 20, 2018 10:56am Uploaded on Mar 20, 2018 10:56am	0:07
Tue. Mar 20, 2018 10:51am Uploaded on Mar 20, 2018 10:53am	0:37
Mon. Feb 26, 2018 10:39am Uploaded on Feb 26, 2018 10:39am	0:31
Tue. Feb 20, 2018 10:48am	0:37

# VOT by Numbers

# The patients

**500** patients referred to VOT Service since 2018 (**65%** London)

**80+** current active patients (of these, **70%** London)

*Increase* in referrals since start of Covid (twice as many in 2020 than 2019)

Yearly referral rate:

2018 – **99** patients (79 London)

2019 – **80** patients (60 London)

2020 – **158** patients (93 London)

2021 – **150** (90 London)

# The Services

**60+** different TB Services (Nationally) referring patients

Top 3 London referrers

SMH (61)

Newham (51)

Mile End & NCL South hub (38)

Top 3 non-London referrers

Birmingham (40)

Kent (30)

Manchester (20)



Aneurin Bevan  
Ashford  
Basildon  
Birmingham  
Brighton  
Bristol  
Cardiff  
Chertsey  
Cheshire  
Coventry  
Dudley  
Gloucester  
East Sussex (Hastings)  
Hertfordshire  
Kent (North, West & community team)  
Manchester  
Milton Keynes  
Reading  
Rochdale  
Sandwell & Dudley  
Somerset  
Stevenage  
Surrey  
Swindon  
Wolverhampton  
Worcestershire



# Drug resistance

VOT becoming standard of care for patients with MDR TB

70% of patients reviewed in last MDR CR referred to VOT Service

Overall, 15% (76) of total referrals are M/XDR

Of the current active VOT patients 25% are M/XDR

Increase in yearly MDR VOT referrals: 2018 = 12

2019 = 15

2020 = 24

2021 = 24

# Other VOT numbers

**100+** films per 24 hours

It is necessary to re-watch (or pause/slow down) **50-60%\*** of films to check for accuracy

Youngest patient = **2 months**

Oldest patient = **75 years**

Longest time on VOT = **3 years**

**Not just TB** – currently piloting VOT for Hep C patients (using charity funding)

**22.5%** of patients provided with VOT phone/data (without a phone these patients would not be able to VOT)

Around **half\*** of patients take their meds outside normal work hours

Around **10%\*** of patients routinely film outside the home - at work; library, café/college refectory, bar, taxi, car, bus, aeroplane, HGV...and a police station

\*Estimates based on daily activities/adhoc data gathering

# Inside, outside, anywhere



# What do services think of VOT?

*Without VOT, our most vulnerable and socially complex patients would have not made it through TB treatment... Without it [the VOT Service], we would require more staff to support with the case management... (Lead TB nurse, NWL)*

*VOT played a major part in her successful treatment ! (TB Nurse, SWL)*

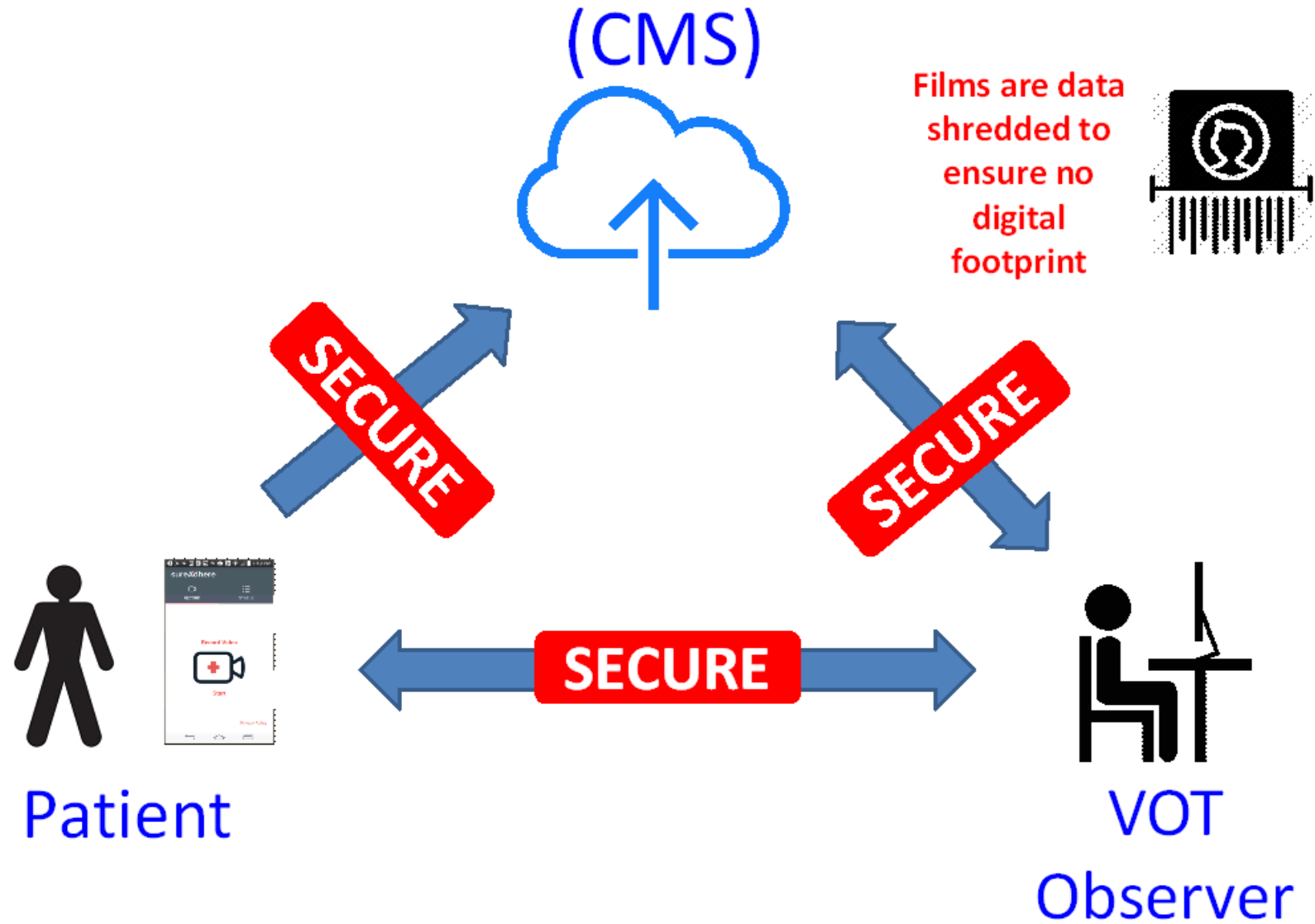
*...I was worried about the difficulties of handling two MDRTB cases during the same episode of care... But, with time and the support... of your VOT team I was able to manage them with little or no difficulties... [It] has made me feel more confident in my practice as a TB Nurse. (TB nurse, SEL)*

*Your service is amazing and I am so glad we got to hear about you (Interim Director of Infection Prevention & Control, Cheshire)*





# Client Management System



## WhatsApp 'hack' is serious rights violation

WhatsApp use in the NHS a 'privacy and clinical safety timebomb'

- Government **suspends terms of the Data Protection Act** during COVID
- **NHS approved messaging app (Hospify) in bid to move away from WhatsApp**
- **WhatsApp is designed to make it as easy as possible for their users to backup and share their media over their phone and with other apps** (this is contrary to how healthcare professionals must handle patient information)
- **No formal arrangement in respect to processing and storing of patient information** (which is a fundamental requirement under GDPR)
- Concerns over WhatsApp use in NHS ongoing



# Lessons learned

- Be available –
  - VOT is 7/7 and many patients report problems/start VOT at weekends
- User friendly, safe and secure
  - Filming process must be secure and easy to do (to minimise likelihood of errors)
- All patients should be able to VOT
  - Provide handsets/data to enable all patients to VOT (WHO recommendation)
- All patients are different
  - tailor response/encouragement/follow-up to patient
- VOT doesn't mean no more DOT
  - Some patients might require face-to-face

# Conclusions

- VOT is more flexible and improves adherence – patients are able to manage their own treatment
- VOT seen as way forward and recommended by WHO
- VOT as standard of care for pts with MDR/XDR TB
- Not just TB – HepC, HIV, other ill-health
- Increase in patients being referred for VOT
- Increase in number of services using UCLH F&T VOT Service
- VOT is cost effective -
  - Current daily tariff - £8.04 / £9.54 (with VOT phone)

# Thank you

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