Digital Technologies in HIV & STI Care

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LUSTRUM
Limiting Undetected Sexually Transmitted Infections to RedUce Morbidity

EmERGE

Disclosures

Claudia Estcourt has received research grants from NIHR, UKCRC, HTA. She is a former Trustee of BASHH and is on / has been on Trial steering committees for several NIHR/NHSE funded trials in sexual health & HIV.

Jenny Whetham has received research funding from Horizon2020. She has shares in and is a director of mHealth Futures Ltd.

Aims

1. What do we mean by digital technologies?
2. Potential for eSexual health & eHIV
3. Potential for unintended consequences / harms
4. What is the evidence for what we are doing now? Examples: evidence and gaps – online self-triage, postal self-sampling, online automated Rx, improving clinic attendance; adherence; clinic pathways
5. What should we do in our services and research?

Digital technologies (in health)

“Variety of digital programmes that will enable us to work smarter and more securely, provide clinicians with the best insight and give patients more convenient, personalised and high-quality care and services.”

NHSE Digital Technology

Where are SHx & HIV care within NHS eHealth?

- eHealth adoption across NHS minimal
- Scattered pockets of enthusiasm & innovation
- Technology leading clinical priorities e.g. NAAT POCT in GUM
- Some robust research happening but lots of unevidenced implementation without in built evaluation
- No national strategy for eSexual & eHIV health
- We have much to offer but are absent from national stage
- *(England.nhs.uk, next steps on the NHS forward view: A&E, Primary care, cancer, mental health)*

Thanks to Dr J Bailey, UCL

Digital sexual health & HIV: what we are delivering?

- ✓ Online triage
- ✓ Postal self-sampling
- ✓ Text results
- ✓ Telephonetics
- ✓ Online Rx
- ✓ Safer SI / condom use
- ✓ Partner notification
- ✓ Clinic appt reminders
- ✓ Adherence support
- ✓ Virtual clinic provision
- ✓ Support for self mgmt in health and well-being - PLWH

SH:24

BOOK ONLINE

BeYou+

eSTI2

care4 today

Rx

Life4Me+ Medical

STEP 1
Order your test kit through our secure website

Potential for eSexual health & HIV

- Primary prevention – information, health promotion, risk reduction
- Secondary prevention - increase access to services: testing, treatment, monitoring, PN, test the untested / high risk / increase frequency of testing, remove barriers
- Tertiary prevention – Rx and increase speed of Rx
- Surveillance
- Clinical care – improving access to own data; empowering individuals; virtual appointments as part of menu; person held record supporting multiple appointments; reducing duplication of samples; reducing drug-drug interactions…….

eSexual Health & eHIV the perfect solution?

- increase testing in high risk
- reduce time to Rx with care to national standards
- manage easy wins with minimal clinician input
- highly acceptable to users
- cost-effective
- free up clinic capacity for more complex individuals
- highly acceptable to HCP – we get to focus on complex
- increased access to individual data

BUT are we being blindsided?

We have a deep rooted tradition of ensuring our terrestrial services are accessible to all and prioritise the vulnerable

Do we really understand their needs? People who respond to surveys are not representative

Digital Health Literacy (Nutbeam 2000)

1. **Functional literacy**: basic reading and writing skills to enable people to use & understand health information

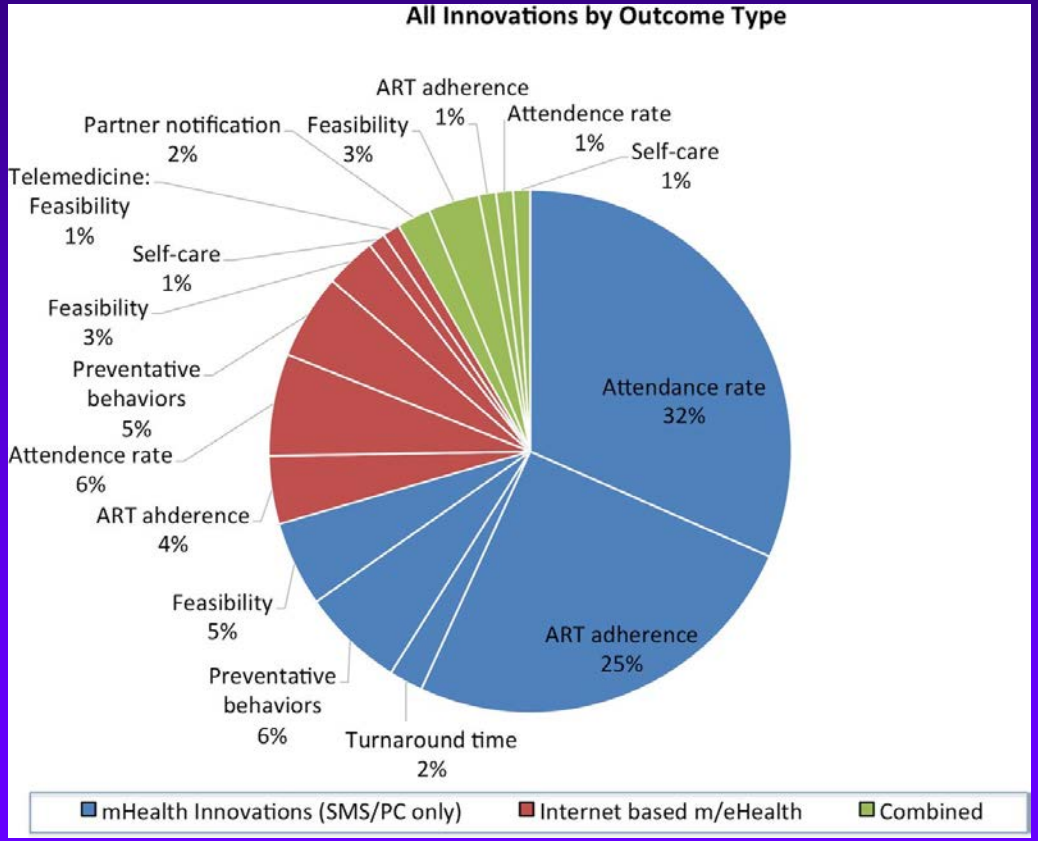
2. **Interactive literacy**: cognitive and literacy skills to interpret and use information and interact with others

3. **Critical literacy**: possession of advanced cognitive skills to analyse and question information critically and to exercise control over health & behaviours

To access digital health need to have degree of health and digital literacy

- we risk creating systems for people who are tech savvy, sorted and health literate
- online may be the only way in to our services - not clear how we signpost vulnerable / complex
- we could be creating barriers for the people who most need care
- our clinics are shrinking
- we are widening health inequalities

What has been evaluated?



Any clinical trials or observational studies which evaluated any digital technology with any reported outcomes, 1996-2017, n=99, 74% were HIV

***Daher J**, Do digital innovations for HIV & STIs work? Results from a systematic review, BMJ Open 2017:7: e017604. Also **Burns K**, BMC Public Hx.2016; 16(1):778*

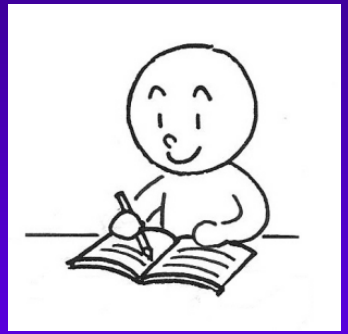
Where are the gaps?

- Co-development; user involvement
- Inclusivity / reach
- Clinical / treatment outcomes
- Cost effectiveness

1.Online self-triage: evidence

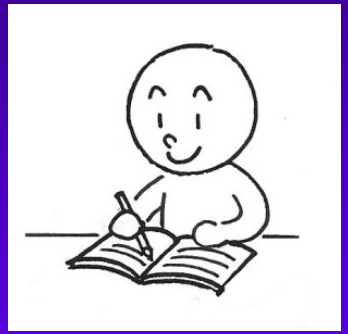
- no published evaluations of impact of online triage / in clinic triage
- ≥30% people misclassify themselves as “asymptomatic”
- there is a science behind how you ask the questions – none of existing examples have been validated
- what a person thinks they need vs what medical assessment says they need (tests/Rx etc.)
- no evidence on acceptability of providing sensitive info online
- no evidence on assessing complexity

My patient wrote,



“I just want a blood test”

My patient wrote,



“I just want a blood test”

He really needed..

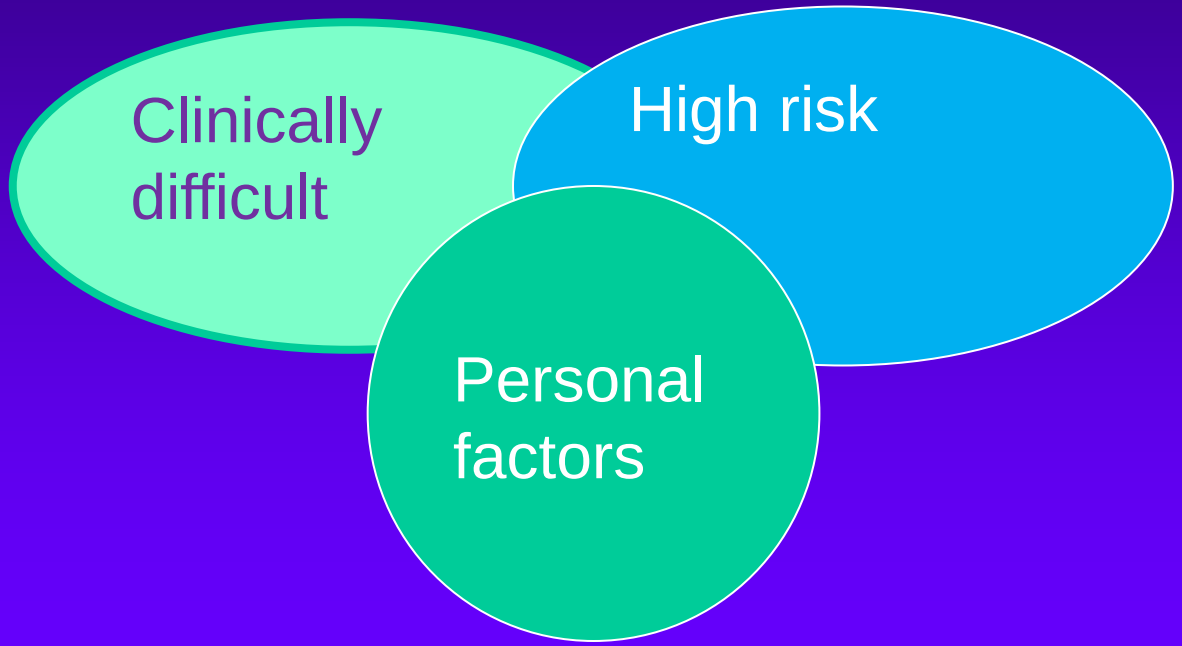
1. Examination
2. HPV & Hep B vax
3. STI screen
4. PrEP advice
5. Vulnerable adult service
6. (and a syphilis blood test)

“Complexity”

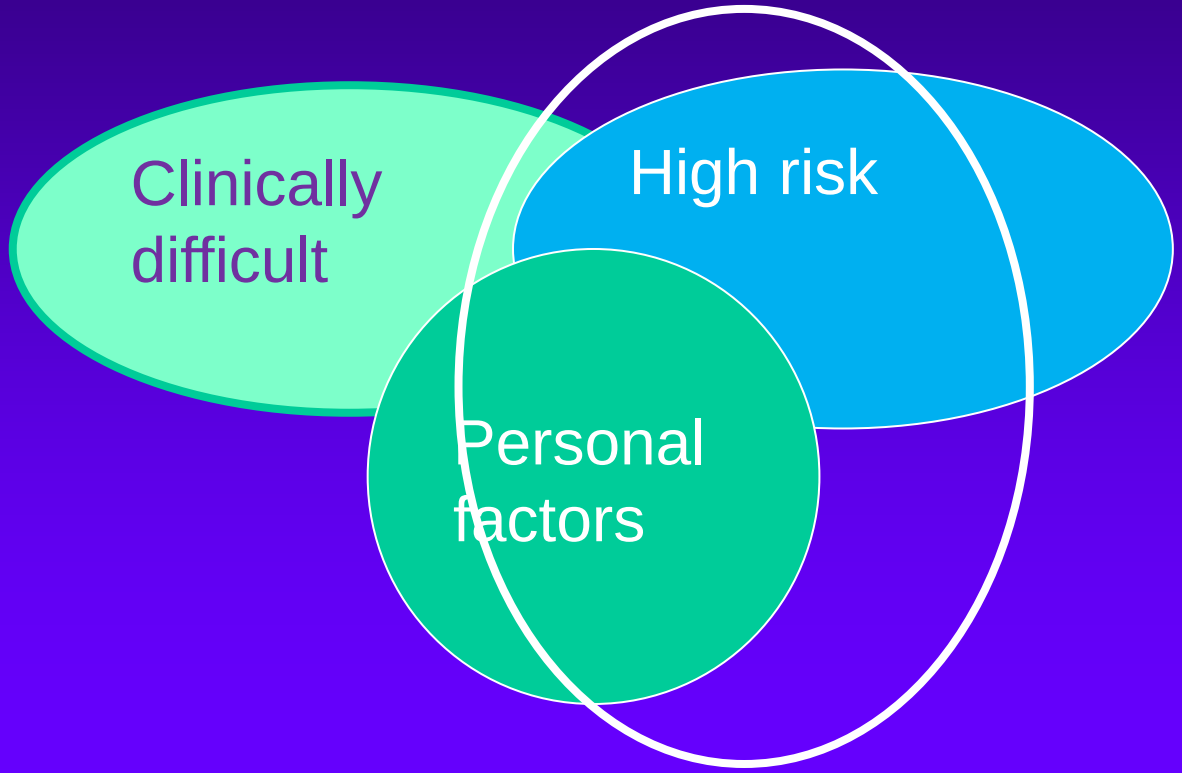
3 independent and overlapping components to complex people / presentations within sexual health:

1. **Clinical:** symptoms, physical findings
2. **Level of riskiness:** likelihood of STI / pregnancy
3. **Personal factors:** <18, vulnerable, CSW, contact of STI / BBV, low digital/health literacy, poor English

Complexity within Sexual Health



How do we identify these people online?



2. Online postal self-sampling: increases access?

- *Gilbert M et al Sex Transm Infect 2018; 0:1-6*

Vancouver: x-sec study, in clinic vs online request & do samples at lab. Online older, routine testers, experienced barriers to clinic, no social gradient

- *Wilson E et al, PLOS Med 2017; 14(12):e1002479*

South London: single blind RCT, 16-30yrs, text + web link for kit vs text + clinic lists. 50% vs 27% self-reported testing. V few STIs, underpowered, couldn't look at Rx rates

- *Bannerjee P et al*. sti.bmj.com/content/93/Suppl_1/A5.3, 2017

asymptomatic, younger (16–24 years), white and female patients, poor overall return rates & Rx rates

2. Online postal self-sampling

- increases access to testing with respect to face to face services - unclear
- is cost effective? No RCTs yet
- delivers high quality care? clinical outcomes - very little data & very difficult to ascertain
- who doesn’t take up online Rx & how to get these people into care (if all is online)
- impact on terrestrial services (SH:24)

3. Online treatment (chlamydia)

- Within integrated system – fully automated
- Within integrated system – online consultation but clinician authorisation of individual scripts: no data

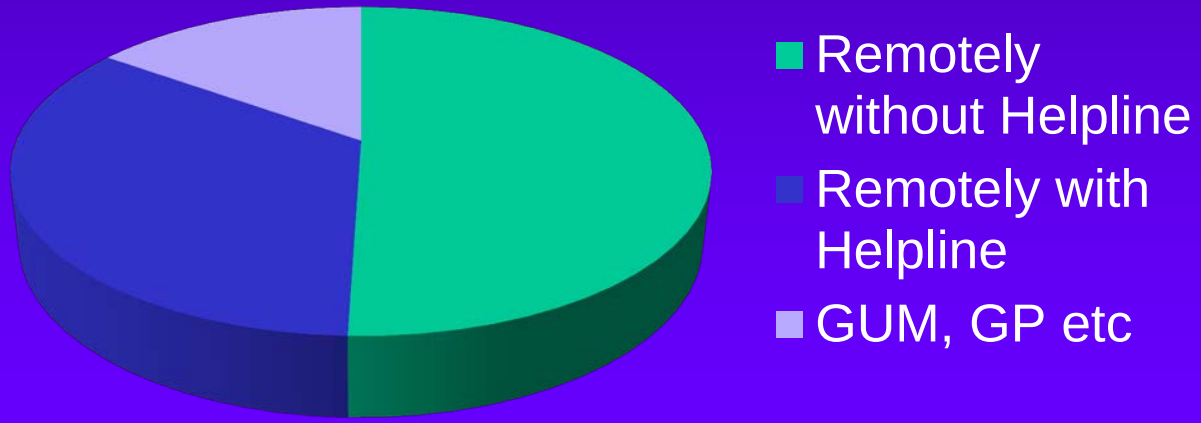
The eSexual Health Clinic system for management, prevention, and control of STIs….*The Lancet Public Health,* e182-e190 2017

- demonstrate proof of concept *(NHS first) &* preliminary evidence of effectiveness of online automated chlamydia pathway within an eSexual Health clinic
- Non-randomised, exploratory studies
- GUM & NCSP postal

1ary Outcome: Proportion index patients treated

	Total (n=221)	GUM (n= 116)	NCSP (n=105)
Index treated	205 (93%)	112 (97%)	93 (89%)

Where treated



eSHC

- **Time to Rx**: 72% treated within 48 hours

- **PN**: 154 patients reported 482 sexual partners in the past 6/12 (median 2, IQR 1-4), 28 sexual partners accessed the online clinical consultation, of these 20/28 got treated online

4. Clinic attendance

- Mostly SMS text messaging – simple
- Open BMJ review clinic attendance - 32% of studies
- National & international settings

- How many clinics use reminders?

Daher et al 2017, Cooper et al 2017

5. ART adherence

- SMS text message reminders – best evaluated
- Most evaluations showed improvement in adherence & VL – specific groups e.g. young people; bipolar
- Frequency of messaging – **weekly** vs. daily
- **Personalised** messages vs. general
- Feasible & acceptable; high levels of satisfaction

Lester et al 2010, van der Kop et al 2012, van Borek et al 2013, Murray et al 2015, Smillie et al 2014, Hailey et al 2013, Sabin et al 2015, Moore et al 2015, Dowshen et al 2012, Mbuagbaw 2013, Mbuagbaw 2012

6. HIV care pathways

- Limited published data; some conference data
- SMS; apps; mobile phone calls

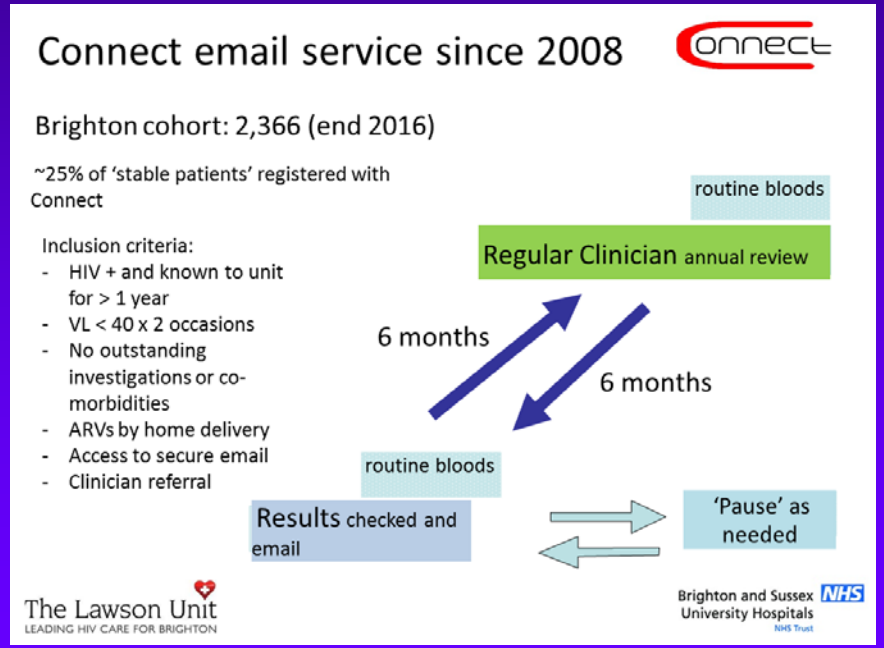
- Health & well being support vs.
  Integrating technology with healthcare pathway

- Access to data; EPR; hospital systems

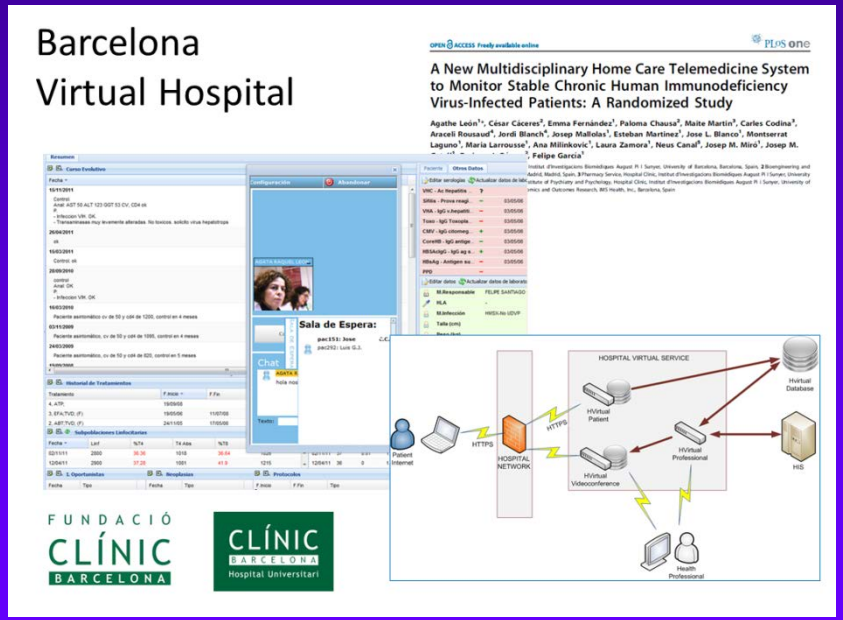
6. HIV care pathways

- Local example – email
- Stable PLWH seen once a year
- ~25% of cohort managed via Connect
- Option in the menu of care
- Individuals like it
- Helps us to manage capacity

- Similar model in other clinics

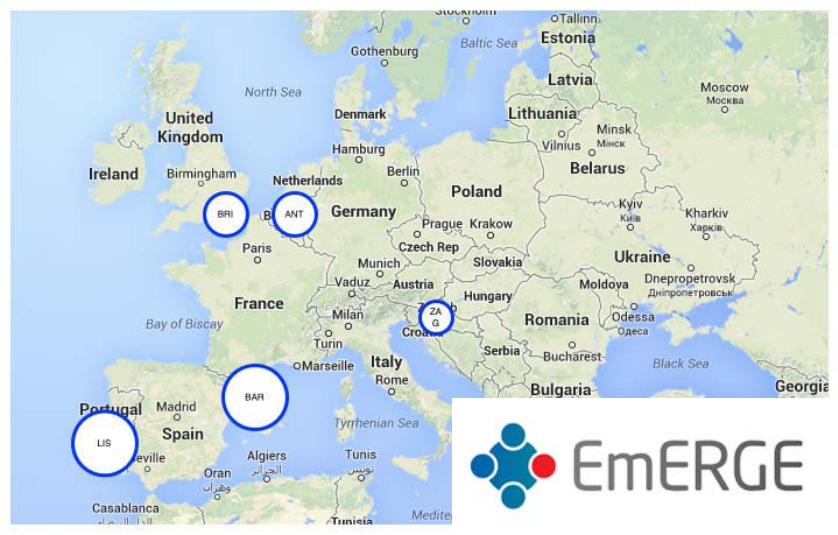


6. HIV care pathways



- Running since 2005 – remote management of stable patients – telemedicine via VPN
- Attend for bloods; all consultations remote
- ~400 patients
- Integral to hospital information system
- Evaluated in an RCT

6. HIV care pathways

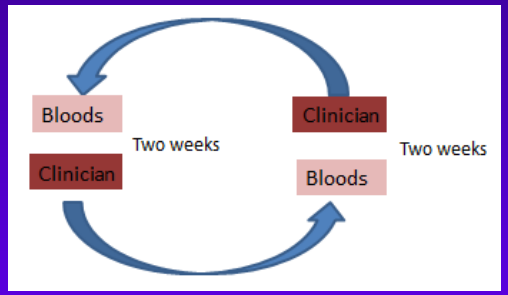


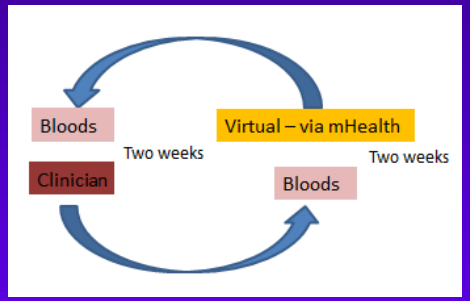
EmERGE project
May 2015 – April 2020

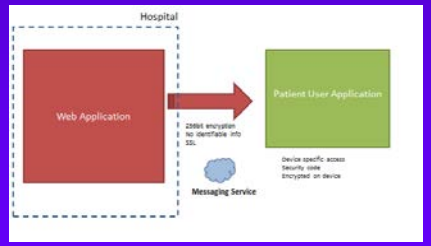
Co-development; integration & evaluation of mHealth platform for individuals with stable HIV

The EmERGE project has received funding from the *European Union's Horizon 2020 research and innovation programme* under grant agreement No 643736

6. HIV care pathways







Individual access to data; reduced visit pathway; managing capacity in clinics….

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Encouraging but still need to know…

- What is the impact on individuals (positives & negatives)
- Is this cost effective?
- Impact on terrestrial services
- How to improve PN outcomes
- Who doesn’t take up online Rx & how to get these people into care (if all is online)
- Who do digital options work (and not work) for?

…and to overcome challenges

- Engaging clinicians – changing pathways & practice
- Ensuring confidence re data security / GDPR
- Addressing information governance aspects
- Integrating tech into hospital IT systems – variable state of systems / competing priorities ‘trust treacle’
- Online tariff; funding – year of care / block
- Improving care vs. reduction in budgets as a driver

Pre-implementation of a digital service development

1. What are we aiming to achieve?
2. How will the technology enable us to do this? (mechanism)
3. What needs to change in existing service to support this (lots)
4. What could unintended consequences of change be?
5. Might this disproportionately disadvantage the vulnerable? What can we put in place to mitigate?
6. What does success look like? Key outcome(s)
7. How and when will we measure these?
8. What about costs / comparisons? Are there any hidden costs?

Practically

1. Retain key principles of timely access to: testing, Rx, PN, identification of other health needs, provision of risk reduction, health promotion & surveillance
2. Health services perspective, a new service is likely to impact on use of other services
3. Optimal provision will include COMBINATION of clinic-based, online (options for care)
4. Safeguard needs of those most vulnerable and at risk
5. EVALUATE

Conclusions

- must address evidence gap for almost all eHealth care & for each new eHx intervention
- eHx will appeal to some people & not others & some people at certain times & not others – context is key
- ensure integrity of terrestrial services
- liking it is not enough – widen access, cost effective
- risk of widening health inequalities is real

Thank you

- i-Sense, iSHOP investigators, Jo Gibbs, Pam Sonnenberg
- eSTI^2 team
- Dr Julia Bailey

“eHealth interventions should be evidence-based in the sense that their effectiveness & efficiency should not be assumed but proven by rigorous scientific evaluation. Much work still has to be done in this area.”

Gunther Eysenbach, 2001 what is eHealth? J Med Internet Res 2001: 3(2): e20