

Clinical Usability

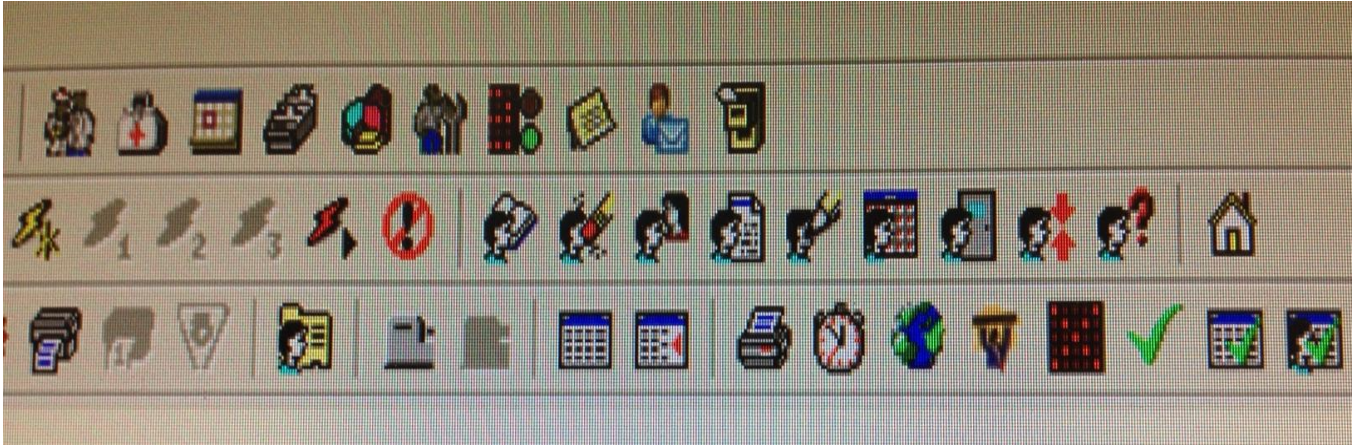
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20th September 2016

Section 1

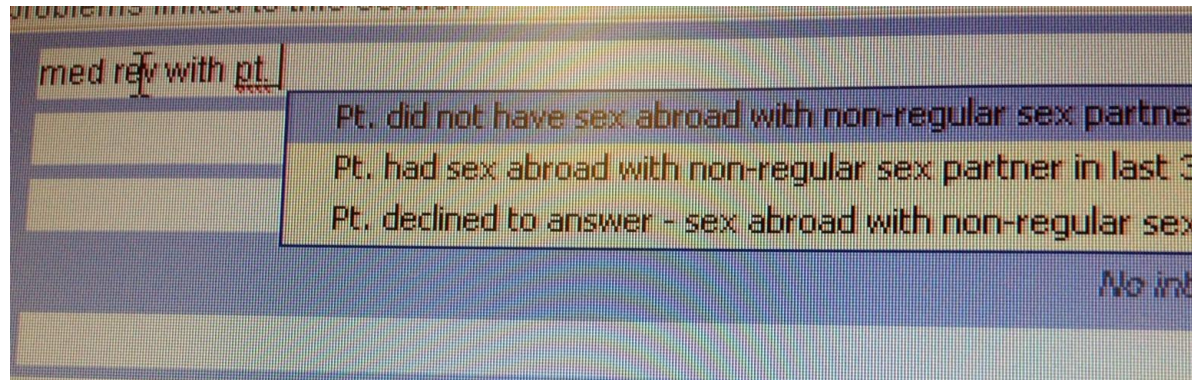
What it's like to use a system that isn't very Usable?

*what you are about to see is from *real* NHS systems.
Names have been changed to protect the guilty.



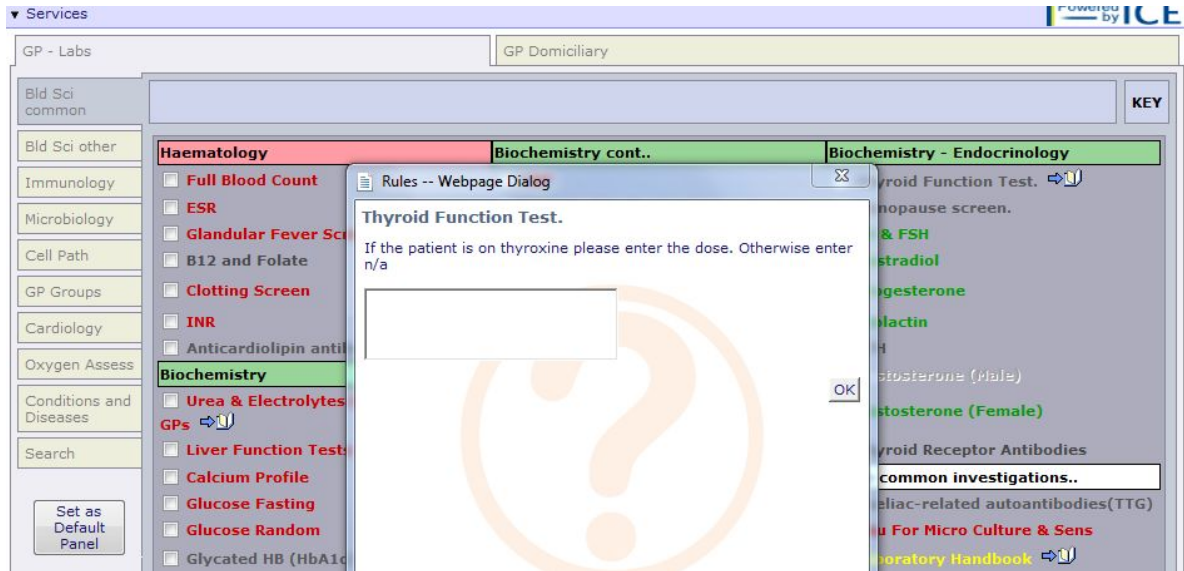
It takes longer to learn to use.

Some clinicians *never* achieve proficiency



H: list of medication: Ramipril 1.25mg
allopurinol 100mg one tablet **Daily variation in respiratory disorder (YA291)**furosemide 20mg tablet od mane
warfrin bisoprolol 2.5mg
digoxin 62.5mg
next appointment for INR is 24th 4. 14. have booked to nurse clinic.

Data quality is adversely affected, making nonsense out of the patients' record, and of local and national data reuse for any purpose



User interactions take longer.

Imagine the effect this has on each patient's waiting time in A&E.

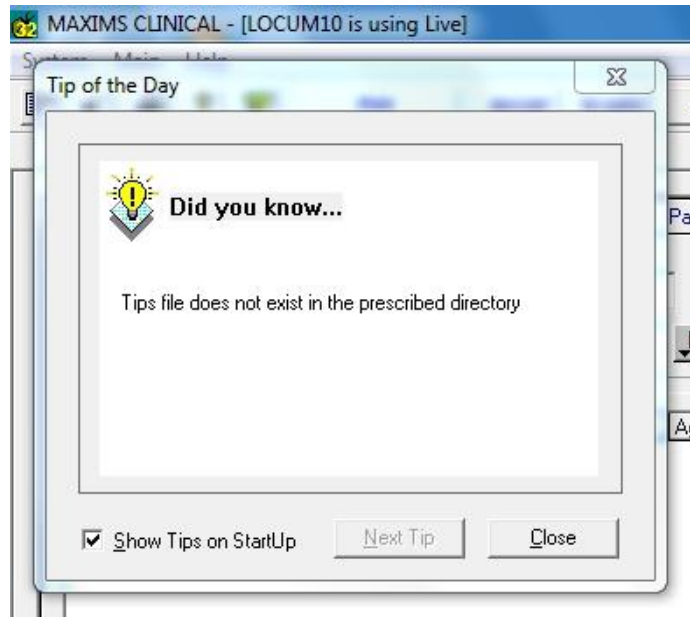


Users make mistakes, with potentially disastrous results

Diagnosis

Had a chat to patient (8CB..)

People find workarounds



Sometimes it's just annoying

The Importance of being Usable

- **“If it’s easier to do the right thing than the wrong thing, people will do the right thing”** — Usability improves compliance with clinical coding, creates better and more reusable records, and increases safety.
- **Clinician time is too expensive to waste** — It is one of the most expensive resources the NHS purchases. Using it wisely is the only way to match clinical demand with supply.
- **The recent Wachter review** of NHS IT recommended User Centred Design (usability) be a key factor in the development of the NHS IT.
- **Empirically to drive adoption** — digital devices only became commonplace since the advent of highly usable operating systems, features and form factors.

Section 2

The problem of measuring Usability

- Usability is an **abstract concept**, meaning different things to different people
- Inherently usability is also quite **subjective**
- Objective measures are available, but they're **not perfect**
- **Total usability is a compound measure, affected by lots of things:**
 - **hardware** speed and platform
 - availability and quality of **support**
 - **network** speed and latency
 - **multiple systems** need for many different logins
 - **interoperability** and integration

System Usability Score

Score the following 10 items from **Strongly Agree** to **Strongly disagree**:

1. **I think that I would like to use this system frequently.**
2. I found the system unnecessarily complex.
3. **I thought the system was easy to use.**
4. I think that I would need the support of a technical person to be able to use this system.
5. **I found the various functions in this system were well integrated.**
6. I thought there was too much inconsistency in this system.
7. **I would imagine that most people would learn to use this system very quickly.**
8. I found the system very cumbersome to use.
9. **I felt very confident using the system.**
10. I needed to learn a lot of things before I could get going with this system.

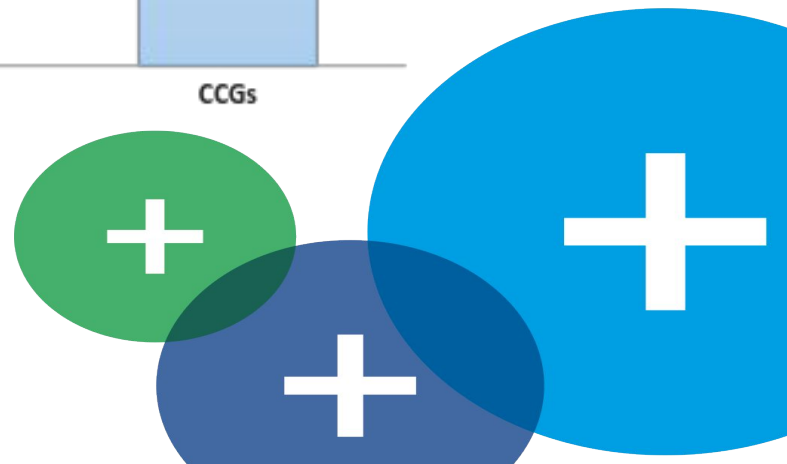
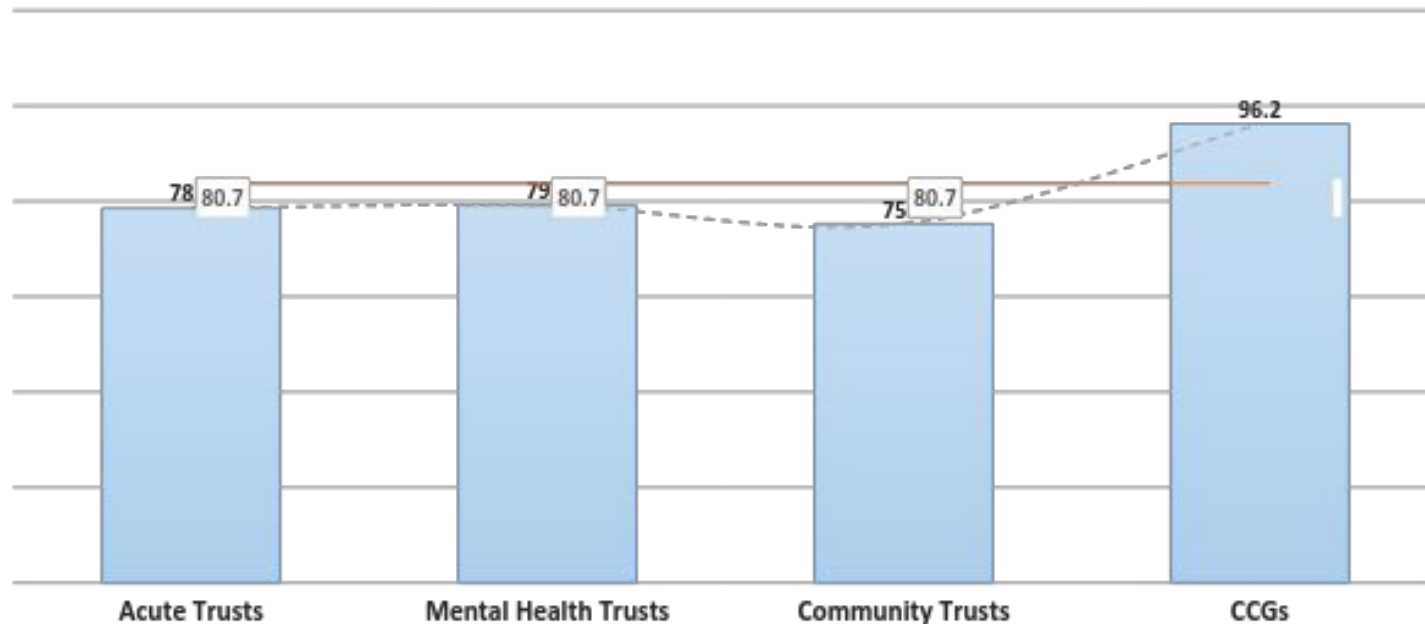
cSUS Questions

- 1. In my opinion, the software reduces the risk of clinical error.**
2. Effective support for this software is hard to access in a clinically-appropriate timescale.
- 3. In my opinion, the software improves the quality of clinical care I can provide.**
4. The quality of the interaction/consultation with the patient is adversely affected by the use of this software.
- 5. Using the software gives me the key information I need on patient's history, diagnosed conditions and current care and treatment plan.**

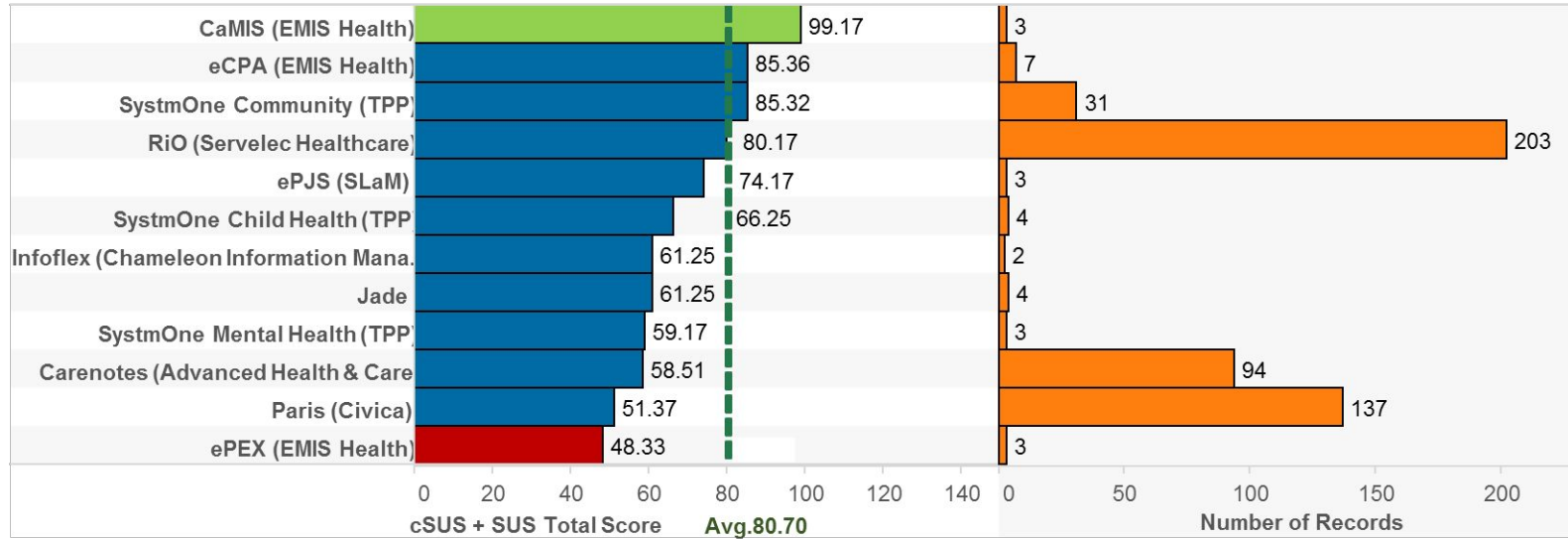
Section 3

Results of the 2015-2016 Usability Survey

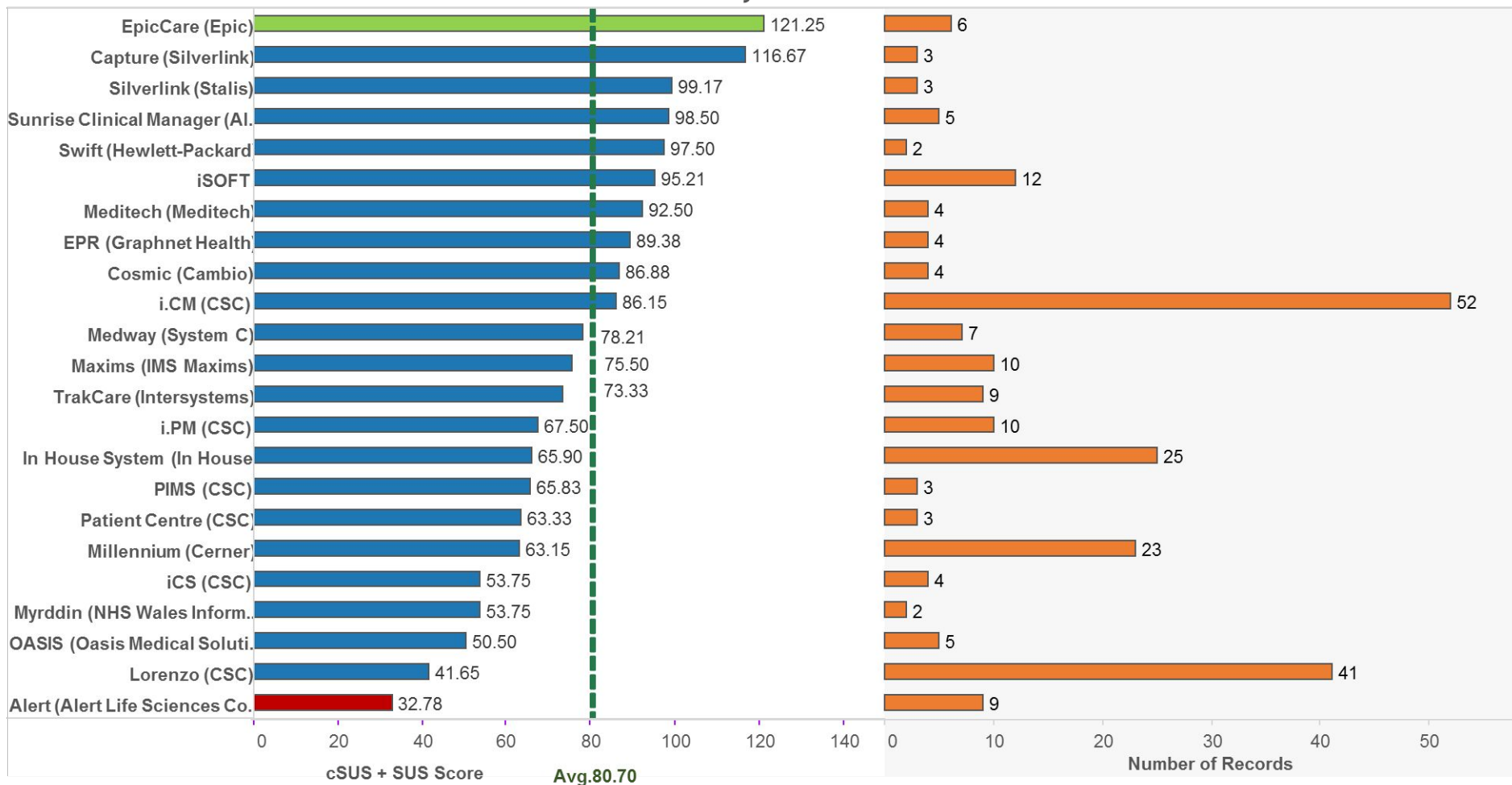
cSUS + SUS Combined Scores by Trust Type Compared to the National cSUS + SUS Average (=80.7)



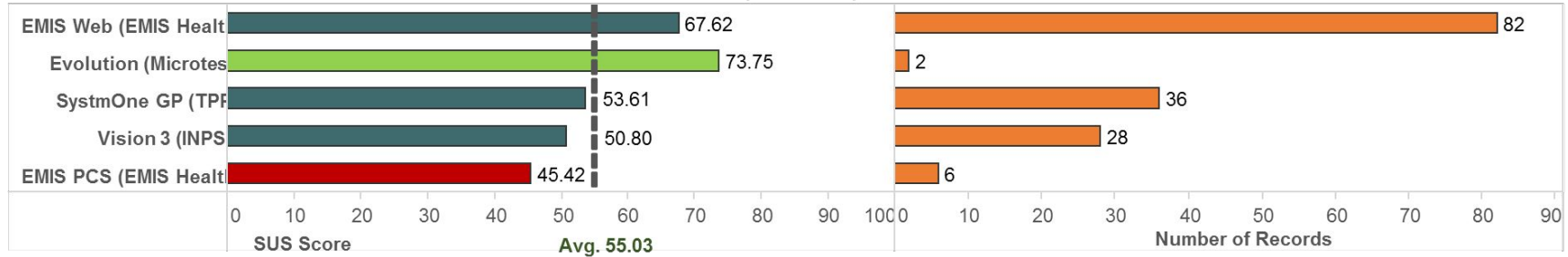
Mental Health and Community Systems cSUS + SUS Score



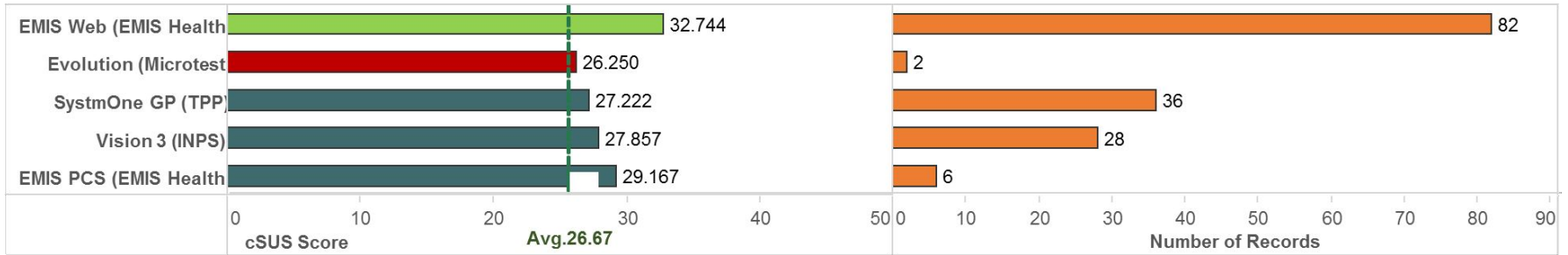
Acute Sector Systems Total Scores



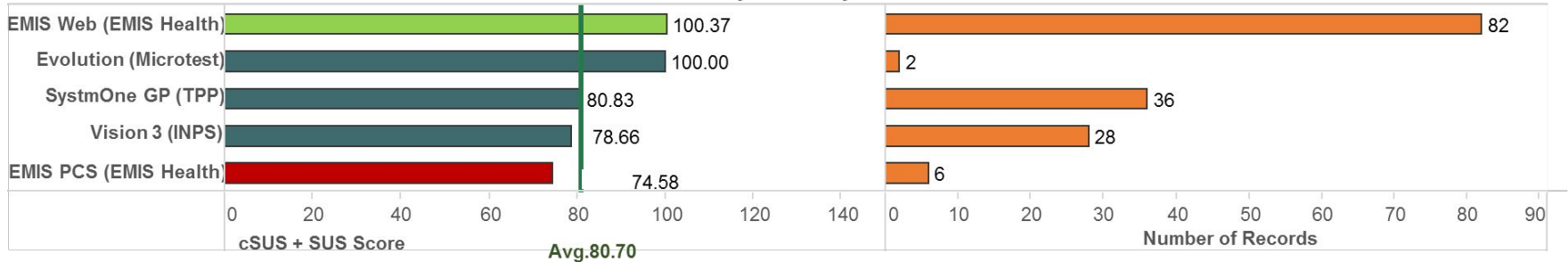
Primary Care Systems SUS Scores



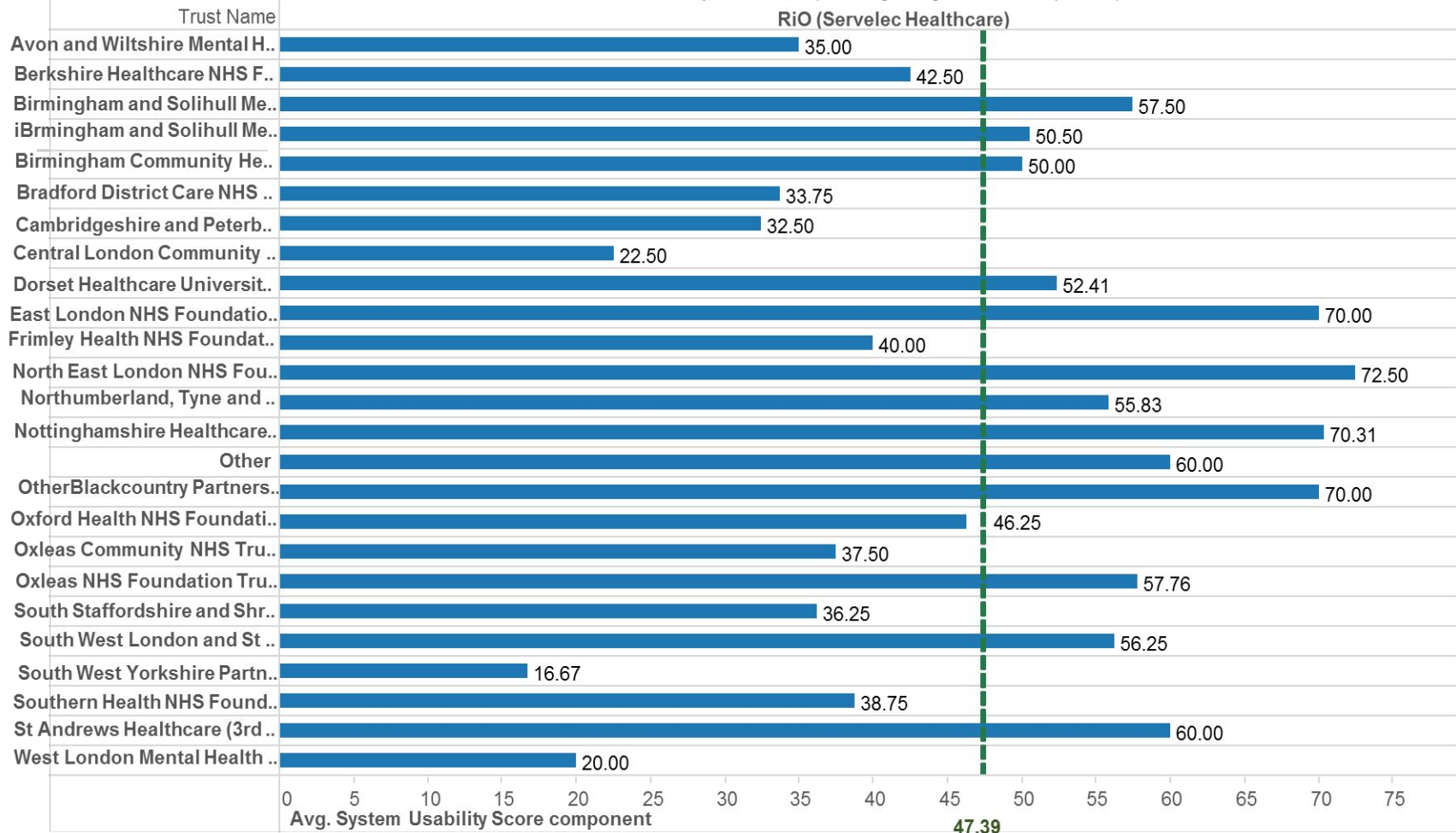
Primary Care Systems cSUS Scores



Primary Care Systems Total Scores



System Name (including merged 'Other' responses)



Take-home messages of the study

- **Comparative usability studies can work in NHS**
- **There is statistically significant variation in usability scores** — wide variations between different systems, and trusts using same systems — *we need to get more data in order to draw actionable insights though*
- **Compare The Software!** — Respondents drew insightful comparisons with other systems, without necessarily being prompted.
- **People want to rate their systems** and communicate both frustrations and things they'd like to see added.
- **Clinical governance and safety** — IT systems are now inseparable from how healthcare is delivered. Clinicians need the ability to flag up software errors in a '[responsible disclosure](#)' fashion.

Limitations

- **This was a pilot** – we urge people to treat data with caution
- **1500 responses were spread across ~80 systems.** We need to achieve *multiples* of this response rate to enable statistically significant comparisons.
- Some have very low levels of response – suppressed <2
- This means that the results don't enable easy comparisons between trusts
- ***What system?* 'The blue one'**. Users sometimes struggled to know what system they used – particularly where multiple releases of a system or older legacy products.

Proposal for a Usability Platform

- Rich functional Web application - allowing much greater flexibility than a survey, with user customisation and better user experience.
- Users will sign up and leave reviews of systems - can review **multiple** systems, same system **over time**, add **comments** to previous reviews
- It will support **SUS**, **cSUS**, **star rating**, **free text**, and maybe other usability rating systems?
- NHS CCIOs and CIOs can carry out usability studies in their organisations and enable national benchmarking
- **Supplier notification** about reviews and **right of reply**
- Link to **user groups** of each system - **create engaged, activated users**

Section 5

How NHS Digital can support
improvements in usability

Benefits to NHS England and NHS Digital

- Usability is key to adoption, safety and use of clinical systems.
- **Start with Exemplar sites** (Oxford has already used cSUS internally).
- Better visibility of usability will provide **new** levers and incentives that the centre can use to drive improvements from suppliers.
- A rapid route to **independence and credibility** on usability.
- cSUS is a tool designed by CCIO and Health CIO Networks, **born of a grass-roots movement**, and *uniquely relevant to UK NHS healthcare*.
- Wachter says poor usability of clinical software linked to clinician burnout.
- Better data on usability of systems can lead to better procurement decisions centrally and locally.
- NHS gets to be a world leader in the **real-time** measurement of usability, user-driven design, and user feedback in systems.

Proposed timescale and delivery

- **Jan 2017** — Digital Health Intelligence begin to gear up national service
- **April 2017** — Dev and testing of new usability platform - launch
- **July 2017** — Announce first national ratings @ CCIO/CIO Summer School
- **Jan-Dec** — Run quarterly analytics workshops -
- Launch version of platform that will allow CCIOs and CIOs to undertake usability studies - Nov 2017
- Y1 focus on the global exemplar sites

National investment will also enable

- All results to be openly published (reviewers de-identified)
- cSUS questions and ratings platform to be published under OS licence

Support needed from the centre

- Three year resourcing.
- National backing for the development and launch of an at-scale **continuous** review platform service
- Very clear support and use of NHS brand and mailing lists
- Support on high-level launch and partnerships with Royal Colleges and BCS Health
- Annual usability statistics published openly.

Link to cSUS platform POC
csus-testing.herokuapp.com