

Safety, Usability and User Interface Standards in the NHS

Tim Chearman and Stephen Corbett

Who are we



Tim Chearman

Tim is the NHS Common User Interface (CUI) Lead and joined the NHS in 2006. Tim has a BSc (Hons) degree in ergonomics and an MSc in Computing.

Stephen Corbett

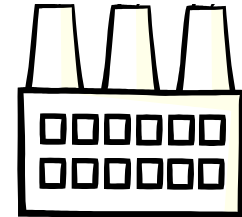
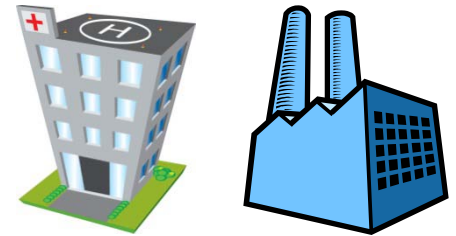
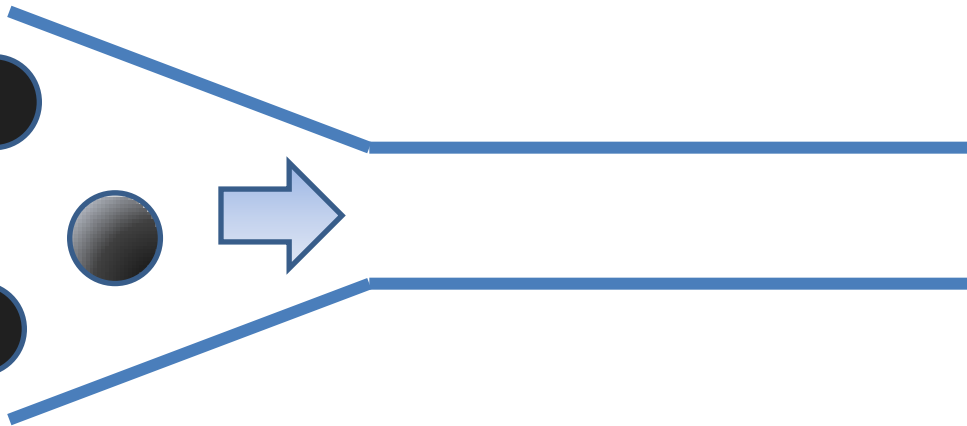
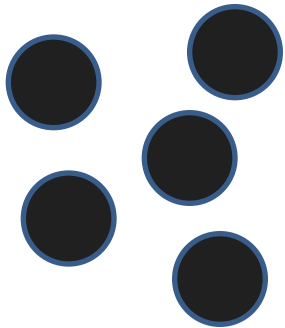
Stephen Corbett is currently Head of User Experience at Connecting for Health (CfH). He joined CfH in 2007. Stephen holds a BSc (Hons) in Ergonomics and is currently finalizing his MBA.

Connecting for Health

- The National Programme for IT in the NHS (NPfIT) consisted of national and local applications
- The use of large implementers (CSC, Accenture, BT Global Services)
- No delivery, no payment contracts
- Object Based Specification
- A Delivery Organisation – Delivery is King

Connecting for health – Core Elements

Software



CfH  **Implementers**  **Host Org.**

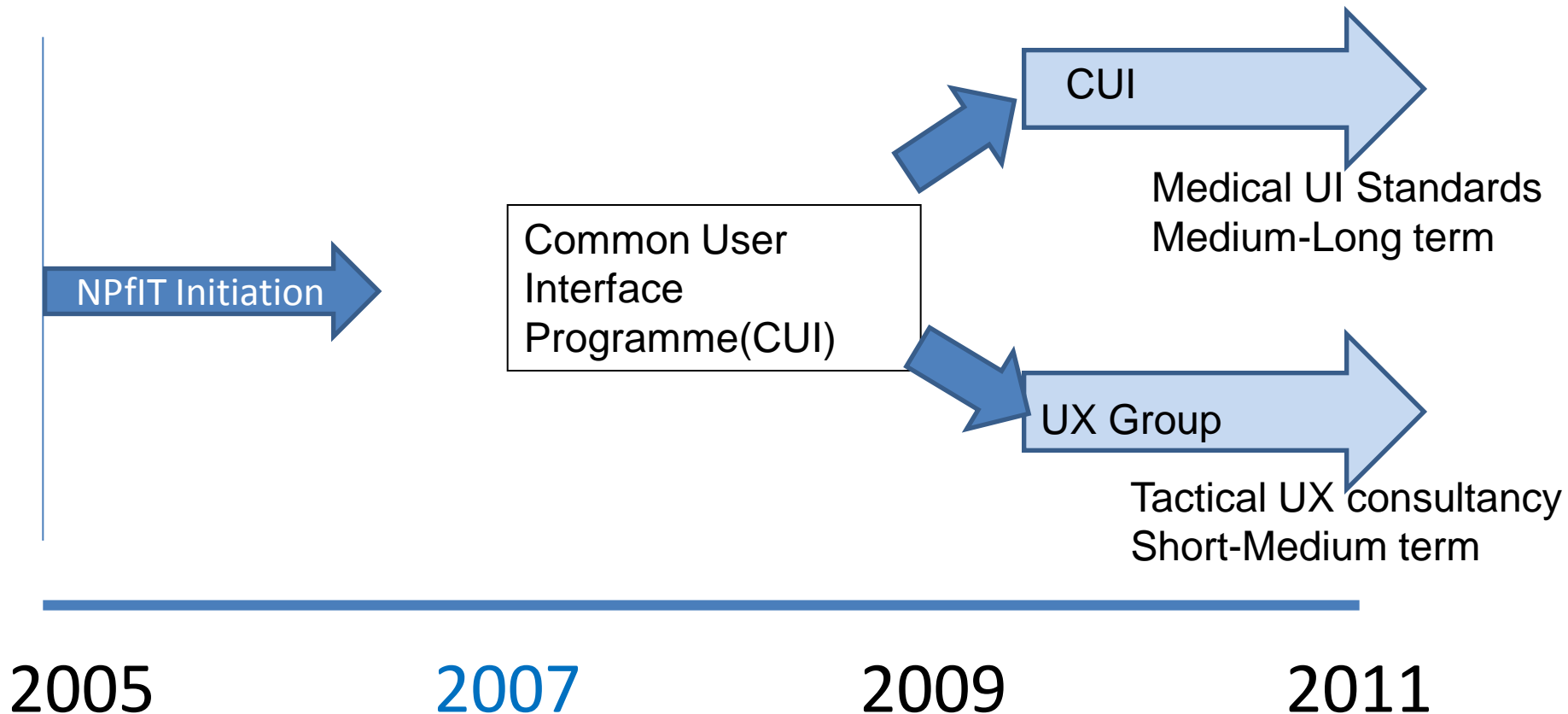
Procurement

Delivery Process

Change Management

- Defining Standards
- Evaluation
- Object Based Specification

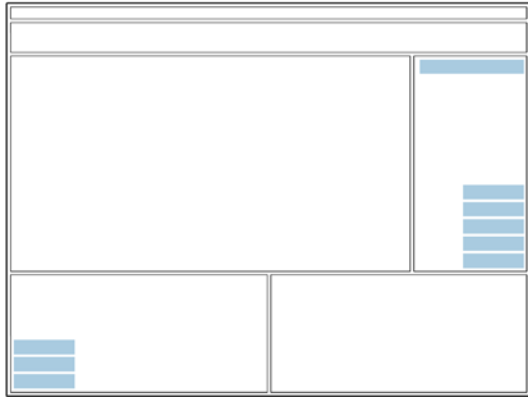
Usability Activities with CfH



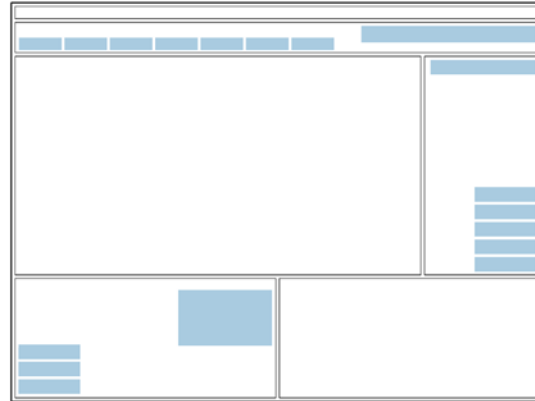


COMMON USER INTERFACE

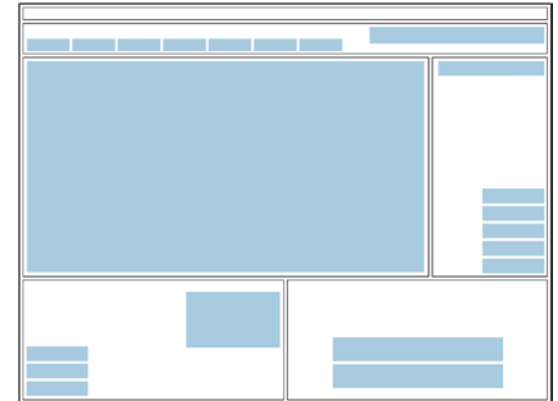
Aims of CUI Guidance



Granular



Component



Views

Prioritised based on:

- Was initiated as a partnership with Microsoft
- Strong safety case e.g. medications
- Alignment with national contracts
- High volume/high impact/core tasks e.g. Prescribing, Patient ID
- Long term standards e.g. SNOMED CT

Patient Identification



2nd stage

Example: Patient Banner *Aug-2007* *

2.6.1 Guidance

ID	Guideline	Status
PAB-0049	Display the patient name elements and the title in the following order: family name, given name, title	Mandatory
PAB-0050	Do not include labels for the patient name elements and the title	Mandatory
PAB-0051	Display a comma after the family name	Mandatory
PAB-0052	Display the title in parentheses	Mandatory
PAB-0053	Display the patient's family name in upper case and the patient's given name and title in title case	Mandatory
PAB-0054	Display the patient's preferred name, if available, immediately below the family name	Mandatory

Table 9: Guidance – Displaying the Patient Name

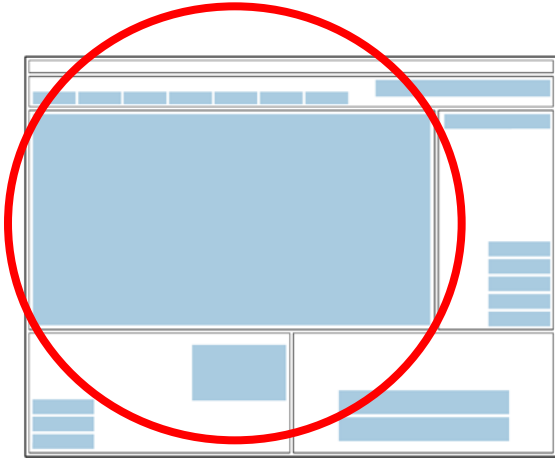
CHANDRASEKHAR, Subramanyan (Mr)		Born 14-Jul-1945 (61y) Gender Male NHS No. 129 728 7652	
Address 340 Gloucester R...	Phone and email 020 8123 4567	Known allergies ▼	

Figure 6: Example of an Emphasised Patient Banner in Default Collapsed State

CHANDRASEKHAR, Subramanyan (Mr)		Born 14-Jul-1945 (61y) Gender Male NHS No. 129 728 7652	
Address 340 Gloucester R...	Phone and email 020 8123 4567	Known Allergies ▲	
Usual address 340 Gloucester Road Walton Tawkesbury GL20 4RT View all addresses	Home 020 8123 4567 Work 0118 4960823 Mobile 07700 900555 Email rama@abc.xyz.com View all contact details	Latex 14-Nov-1961 Peanuts 15-Aug-1997 Penicillin 2-Oct-2003 View all allergies	

Figure 7: Example of an Emphasised Patient Banner With Zone 2 Expanded

Screen views



3rd stage

- Medications list
- Medications administration
- Terminology browsing (SNOMED CT)

Example: Medications administration

DRUG APPROVED NAME	Route	Frequency	Time
CHLORAMPHENICOL	IV inf	BD	0700
Prescribers Signature: D. Sheehan	Date Written: 27/10	Date Cancelled:	1200
Other Directions: Dose = 100 ml N/S + infuse over 30 mins	Pharmacy: Pharmacy		1400
VANCOMYCIN	IV	O-D	0700
Prescribers Signature: D. Sheehan	Date Written: 27/10	Date Cancelled:	1000
Other Directions: Dose: levels	Pharmacy: Pharmacy		1200
IMIPENEM	IV	q8h	0700
Prescribers Signature: M.A.	Date Written: 31/10	Date Cancelled:	1000
Other Directions: Review of antibiotic change to 1000	Pharmacy: Pharmacy		1200



Task Find

EVANS, Owen (Mr) 08-Nov-2009 (28w 5d) Gender Male AHD 129 728 7652

Address: 340 Gloucester Road, Waltham, Berkshire Phone not entered Location: Paediatric Ward B1 Allergies: Known

Medications

1 in progress showing order as of 08:00 (see input 08:00) Group by Type: one-off, as required, regular, infusion

25-May 26-May Today - Thursday 27-May-2010 28-May

Type: One-off

diazepam 5 mg 04:00
 one-off - oral - once infusion
 Dr G.R. Paediatric Consultant
 Start: 26-May-2010 04:00
 Review: 26-May-2010 12:00

Type: Regular

paracetamol 81.6 mg 04:00
 every 4 hours - oral - single
 Dr G.R. Paediatric Consultant
 Start: 26-May-2010 04:00
 Review: 26-May-2010 12:00

cefotaxime 400 mg 04:00
 every 8 hours - intravenous - injection
 Dr G.R. Paediatric Consultant
 Start: 27-May-2010 04:00
 Review: 28-May-2010 12:00

Type: Infusion

sodium chloride 0.9% 04:00
 intravenous - infusion
 Dr G.R. Paediatric Consultant
 Start: 26-May-2010 04:00
 Review: 26-May-2010 12:00

08:00 Thurs 27-May-2010

Published Guidance available

• Key Information

- Telephone Number Display and Input
 - Patient ID Display and Input
 - Sex / Gender Display and Input
 - Address Display and Input
 - Date Display and Input
 - Time Display and Input
 - Patient Name Display and Input
 - Email Display and Input
- ## • Terminology (SNOMED CT)
- Terminology Matching
 - Terminology Elaboration
 - Terminology Display
 - ADR Entry and display

• Patient Administration

- Patient Banner

- Find a Patient

• Medications Management

- Medications Views
- Drug Administration
- Search and Prescribe
- Medications Lines

• Latest release

- Noting with templates
- SNOMED truncation
- Display of SNOMED terms
- Patient lists

• Draft - Abbreviations

- Abbreviations in Free Text
- Abbreviations in Fixed Text

• Draft - Consistent Navigation

- Alert Symbols
- Icons and Symbology

• Draft - Decision Support

- Decision Support Notification
- Decision Support Alerts

* Standards Mandated so far across the NHS by the NHS Information standards board

For Guidance: www.cui.nhs.uk

Key Lessons Learned



- Partner with receptive suppliers as early as possible
- Integration of safety and usability process is essential. Safety + Usability is the strongest message for standards (safety system)
- Start small and build to a bigger picture
- POC implementations vital for larger pieces – CURIO open source

Next steps

- SNOMED CT implementation review
- Define UI expectations for simple tasks e.g. Entering diagnosis, procedure etc
- Focusing on standards for start points from larger guidance documents
- Iterating CUI offering for the new market
- Stronger clinical sponsorship
- Mobile apps/new wave?



USER EXPERIENCE GROUP

UX group

- Internal and external UX consultancy
- Our Mission - “be helpful, be pragmatic”
- UX work – Mainly tactical. Includes:
 - User interface production
 - Evaluations of software products
 - Site visits
 - Online questionnaires - System Usability Scale
 - Communication of findings to senior management/clinicians
 - Promote CUI work

UX - Some Lessons Learned

- The clinicians are typically “the smartest guy in the room”, they are a very influential and powerful stakeholder, but most of them don’t know UI or usability (or Technology for that matter)
- There are some woeful (clunky) products out there. My interpretation - no systematic application of user centred design process and use of UX people by many vendors and the limitation of the OBS approach
- The contract has been signed, you get what you bought
 - Once the contract is signed, there is little incentive for vendors and implementers to improve usability of their COTS product. The host organisation pays with higher training and lower utilization.
- Very difficult to get vendors and Implementers to share their UX work with us

UX Future Key Areas

- Raising UX awareness with senior stakeholders
 - Piloting the potential of a online version of the System Usability Scale (SUS) to give insight to senior stakeholders
 - Promoting UX to senior clinicians/bodies
- Influencing the NHS procurement and tendering process
 - Investigate several approaches to get usability into the mix
 - Use case approach
 - Creating prototypes and deriving the UX requirements that can be part of the tendering evaluation
- Promote UX healthcare professional networks

Thank you

- Stephen.corbett@nhs.net
- Tim.chearman@nhs.net