Quality of UK TB Surveillance and Electronic Reporting Systems

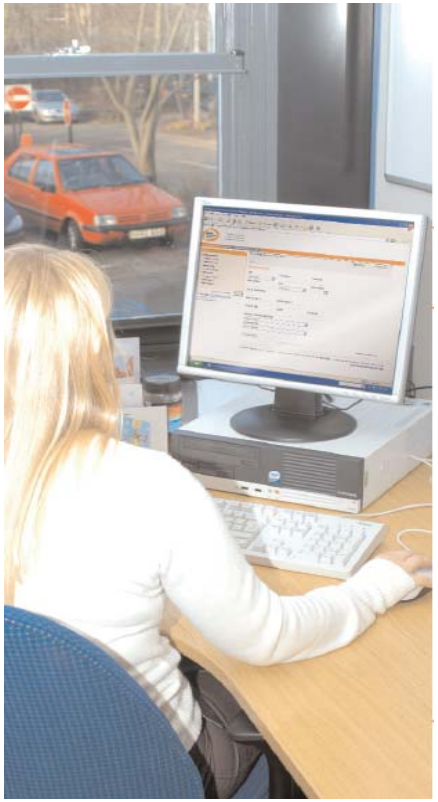
Ibrahim Abubakar, PhD, FFPH

Head, Tuberculosis Section

Health Protection Agency

Outline

- The System
- The Quality Checks
- The Added Value
- The Problems
- The Future



1. System

- The national web based enhanced tuberculosis surveillance system
  - Rationale: To replace distributed Access based local, regional and national databases, improve timeliness, quality and reporting.
  - National expert group and consultation concluded that web based technologies will provide the best solution
  - Characteristics of the system
    - Case based (minimizes duplicate entry – moving to patient based)
    - Includes: treatment outcome, drug susceptibility and strain typing data
    - National coverage
    - Used primarily by clinical and admin staff in hospitals, regional coordinators and national team

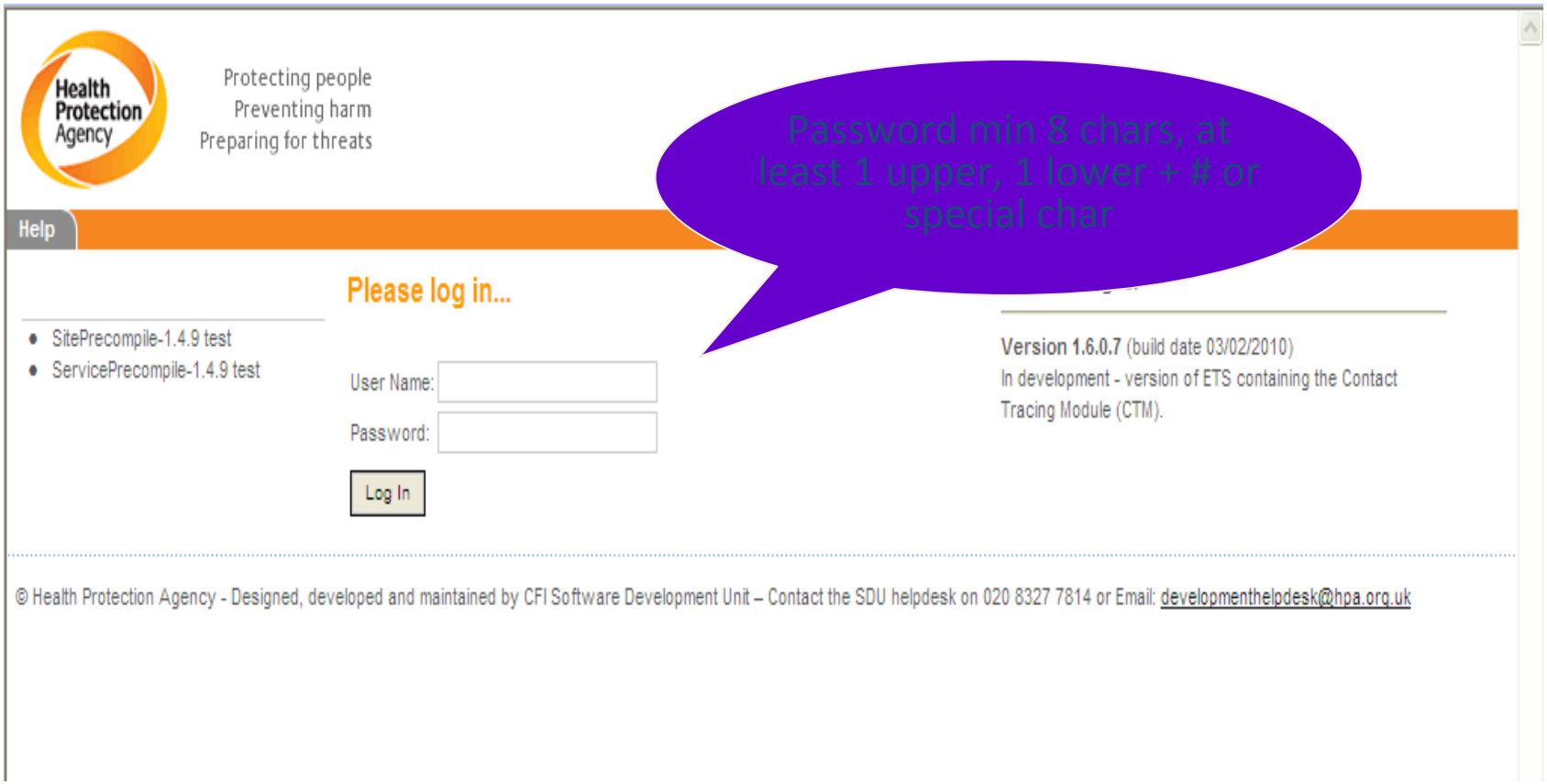
1. System: Development

In house team of developers using a variety of software development tools applied a modified waterfall approach:

- User specification
- Technical specification concurrent with initial development
- Coding
- Testing
- User acceptance testing
- National pilot with further changes as a result of lessons learnt

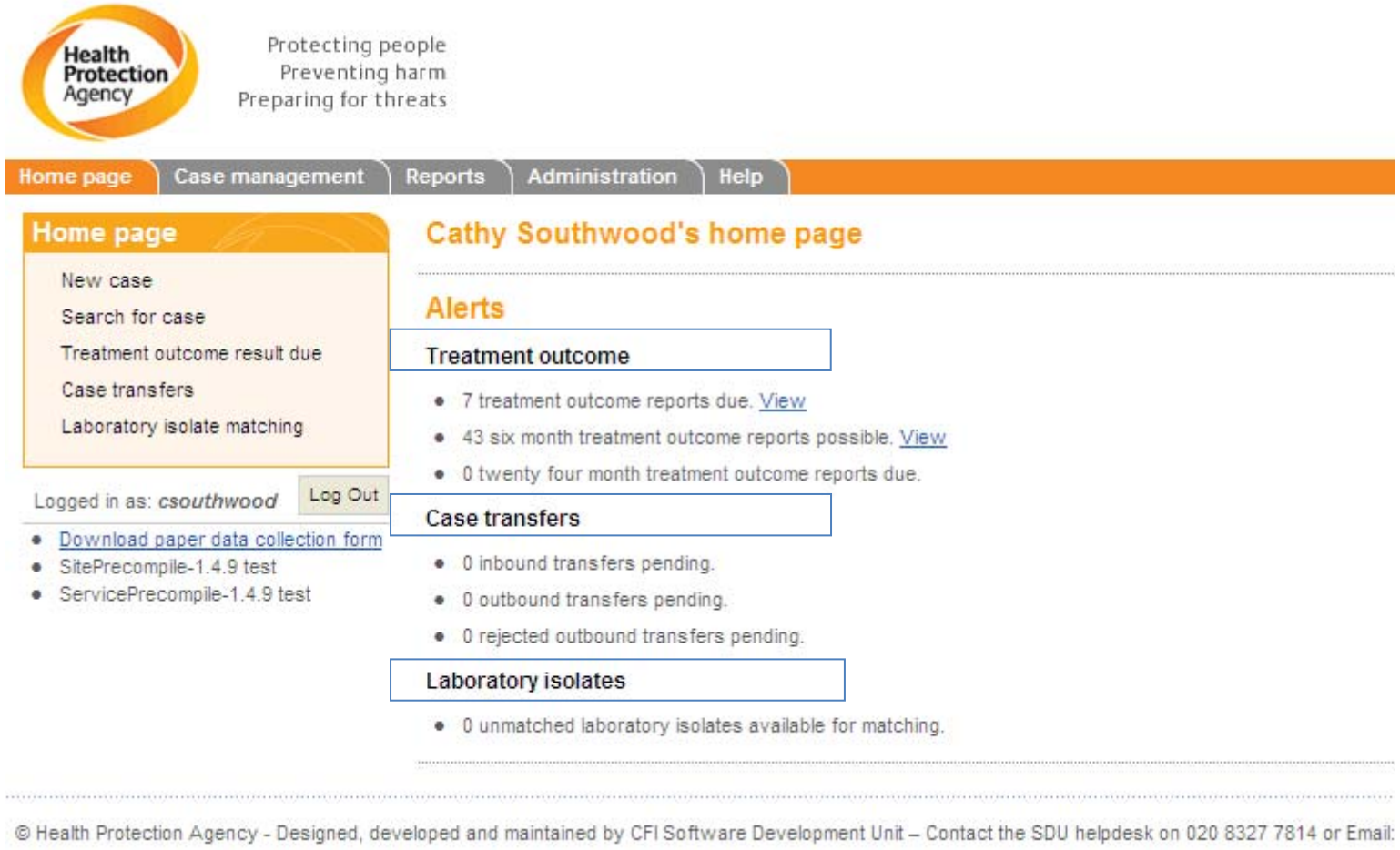
1. System

https://10.190.223.145/ets.site/



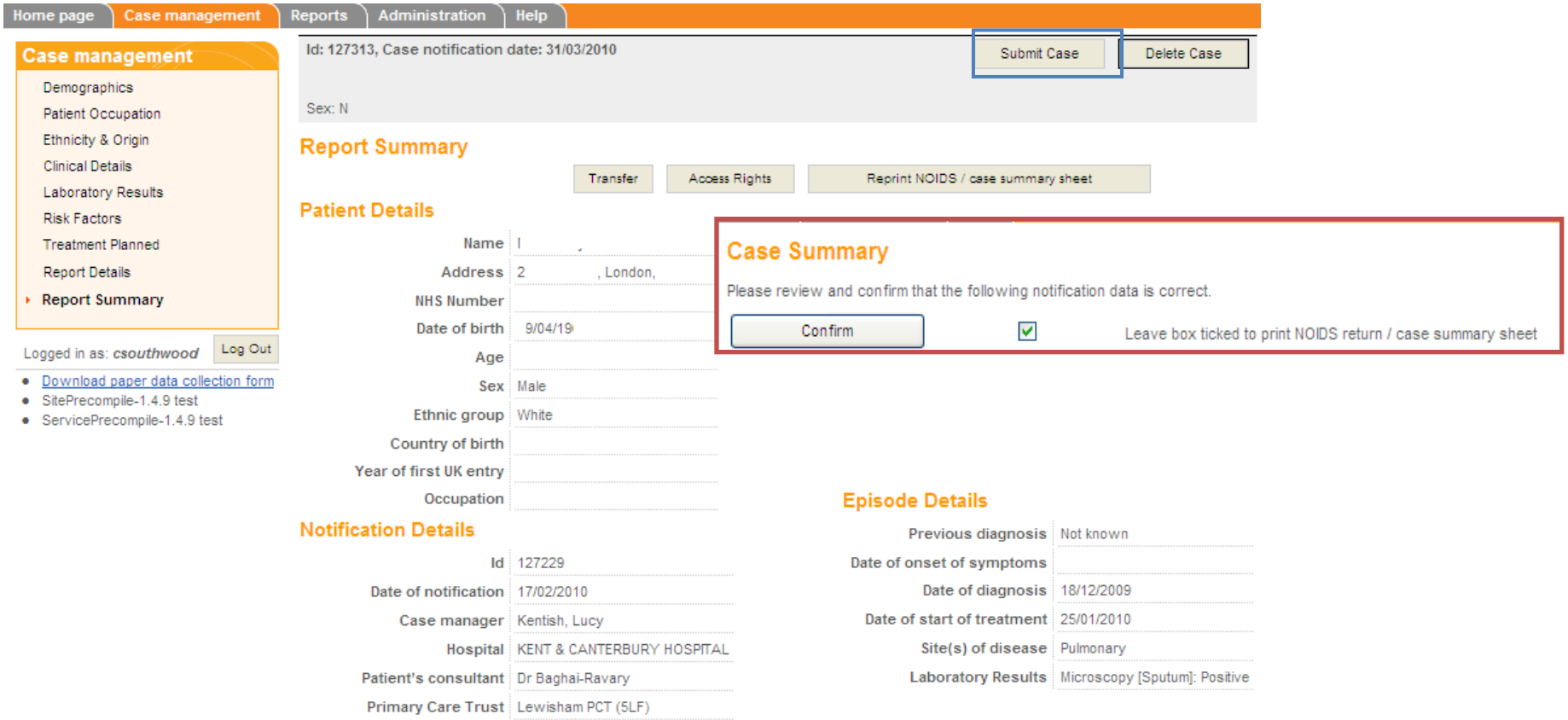
1. System

Home page & Alerts

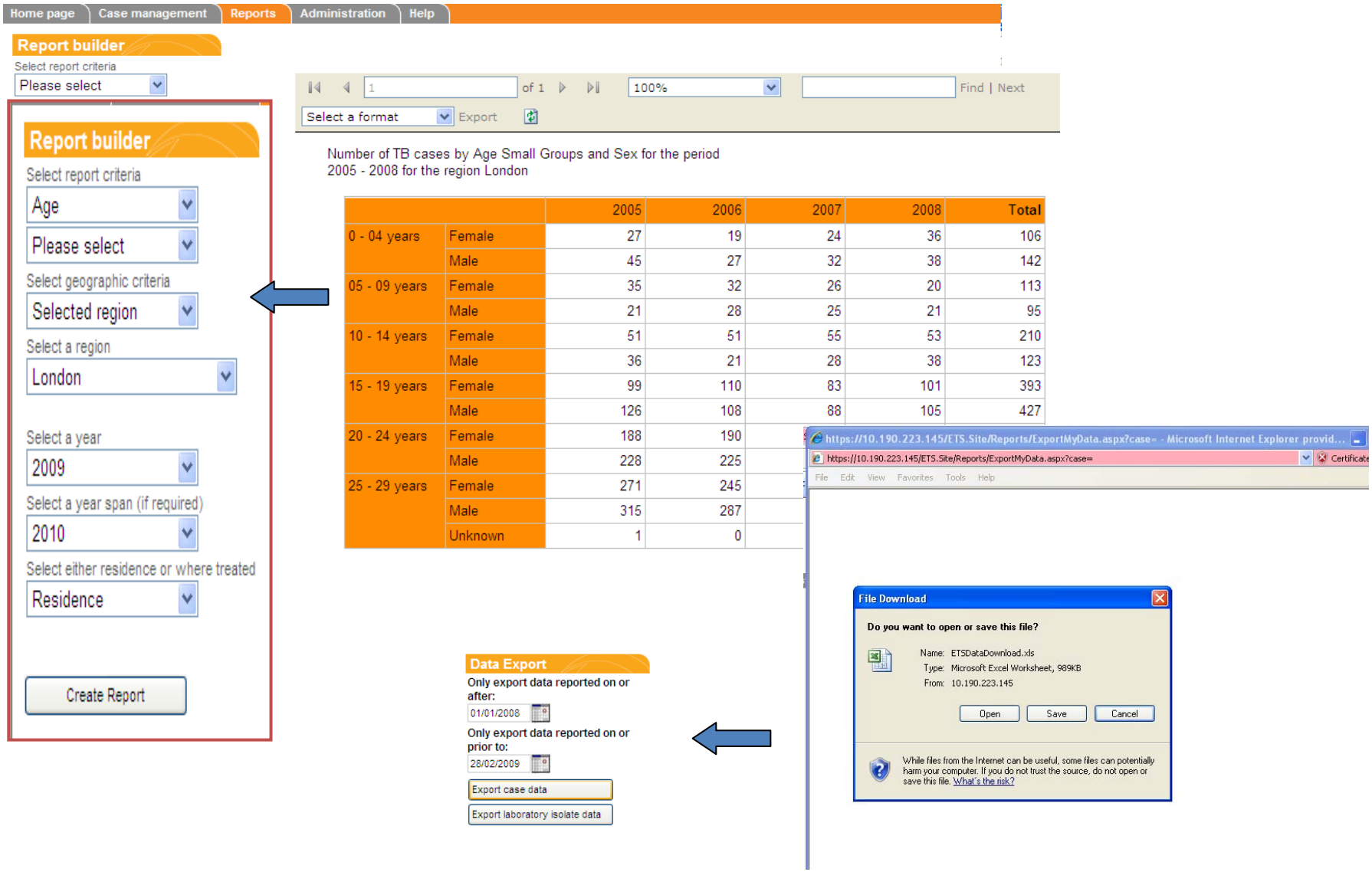


1. System

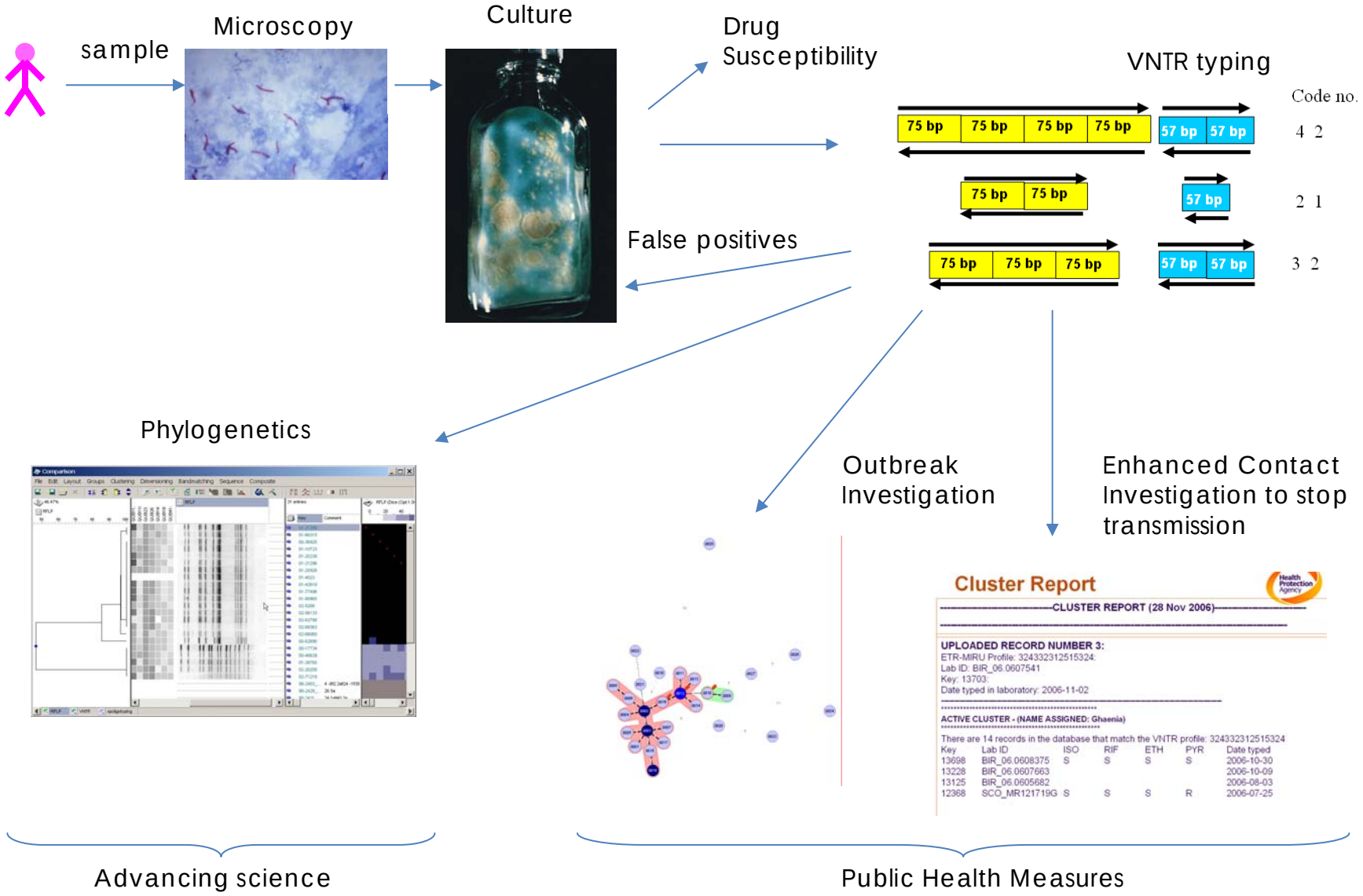
Entering a case: summary & submit



1. System: Reports



1. System: Strain Typing



2. Quality

Part of a centre wide quality assurance mechanisms towards ISO9001 certification = full quality system meeting key principles:

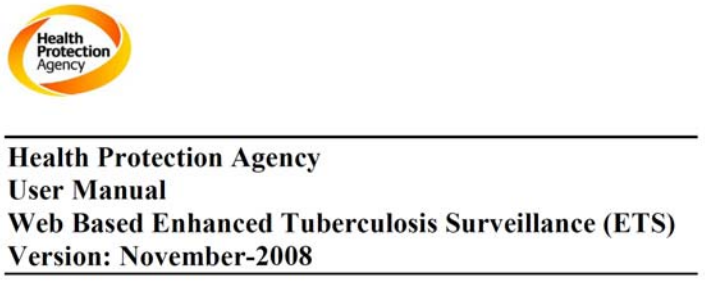
- Commitment of senior management
- Audits and evaluation
- Records allow tracing of problems
- Customer driven with feedback and complaints
- Development process documented with tests for quality and user satisfaction
- Quality improvement process
- System for dealing with poor performance

2. Quality

- Before Data Entry
  - Limiting error by training
  - Providing resources
  - Limiting error by pre-specifying possible entries
- During Data Entry
  - Validity checks (dates and logic)
  - Limiting error by specifying mandatory fields
  - Limiting error by including checks (NHS number)
  - Post code derived geographical fields (local authority etc)
  - Matching / cross checking
- After Data Entry - validation
  - TOM
  - Capture recapture
  - Audits

2. Quality

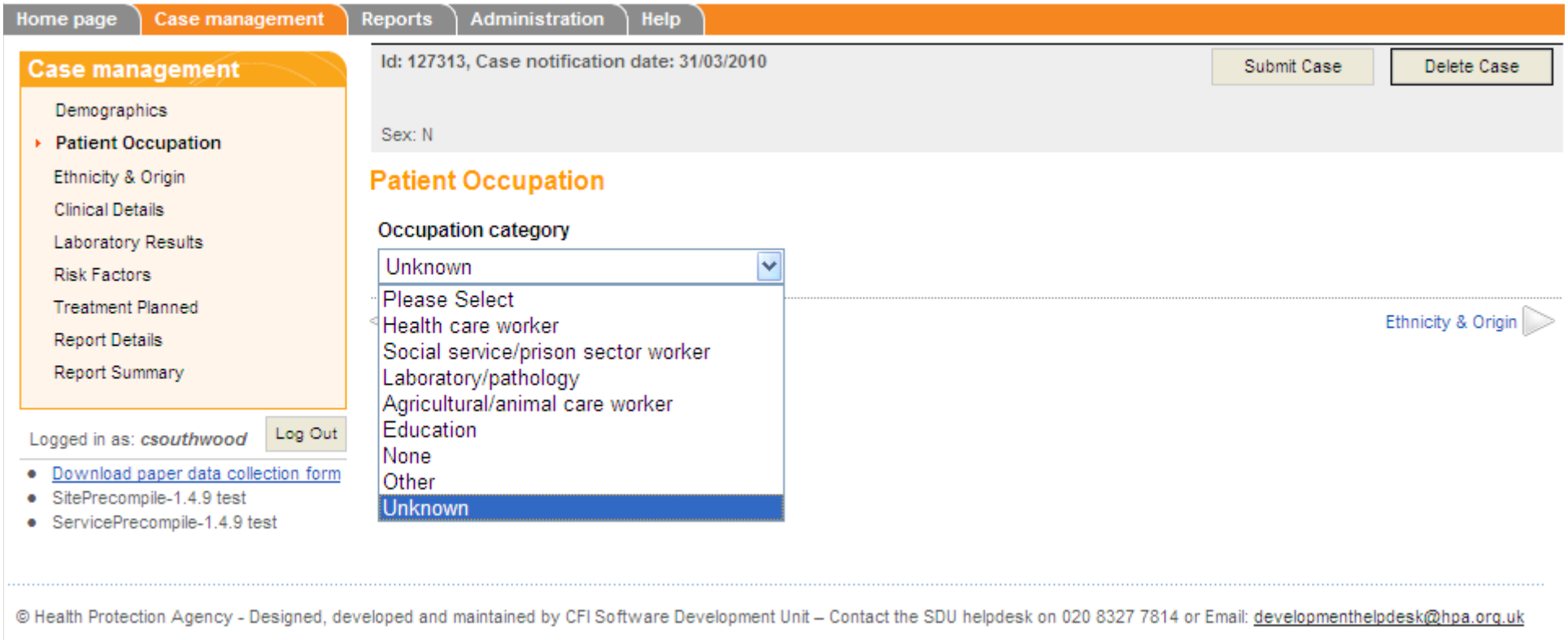
- Before Data Entry
  - Data dictionary
  - Training
  - Webcasts
  - Proving resources



Health Protection Agency
User Manual
Web Based Enhanced Tuberculosis Surveillance (ETS)
Version: November-2008

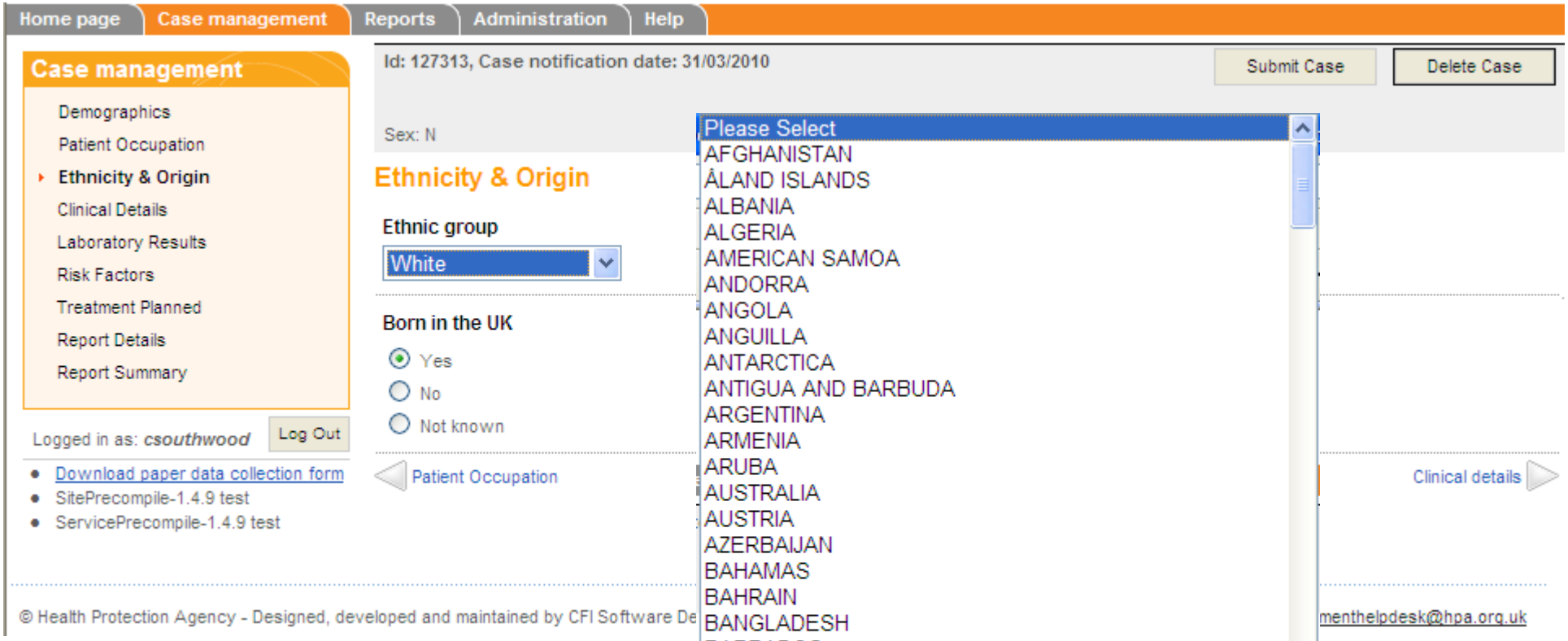
2. Quality

During: Limiting error by pre-specifying possible entries



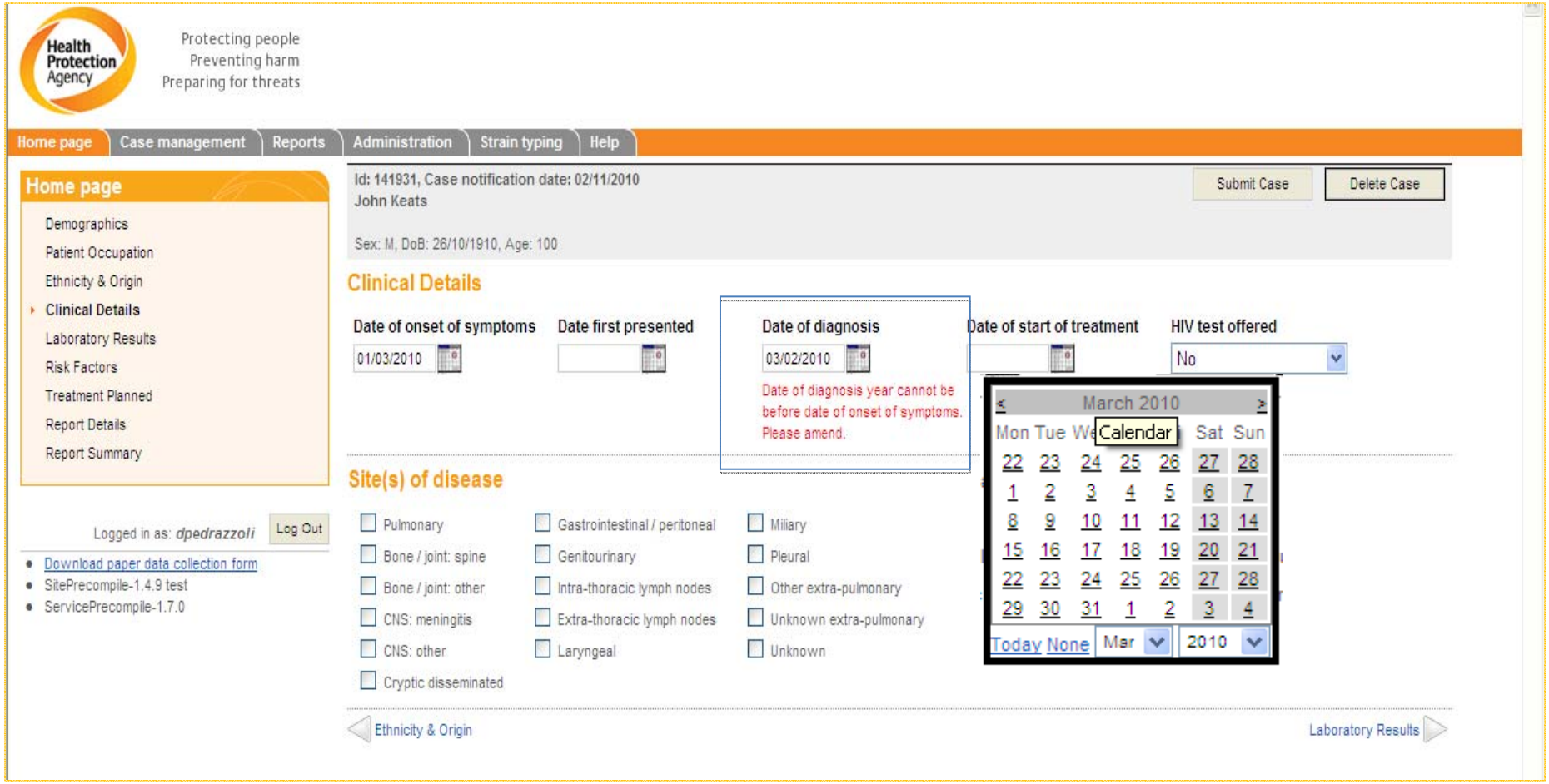
2. Quality

During: Limiting error by pre-specifying possible entries



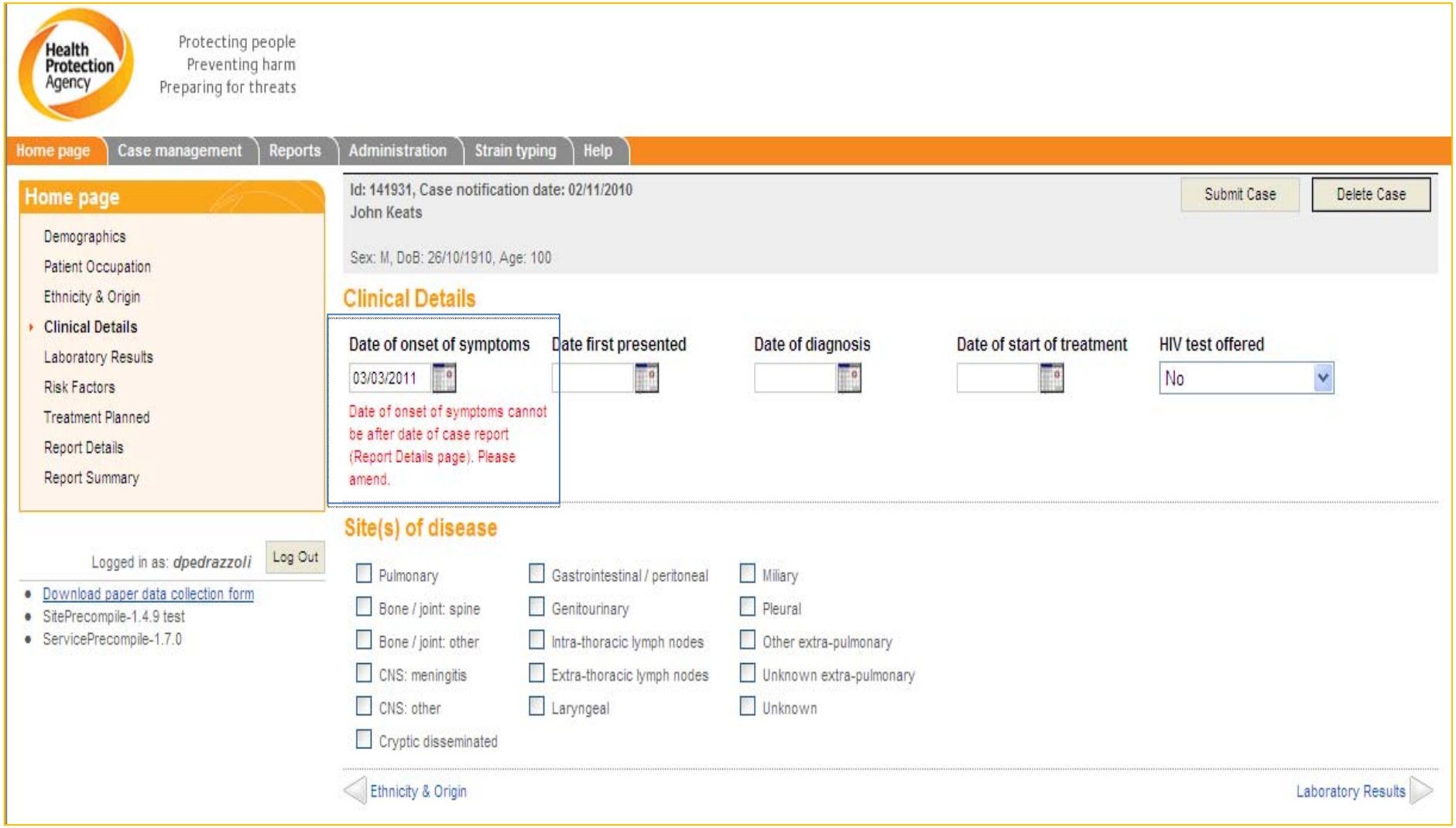
2. Quality

During: Limiting error by validity checks - dates



2. Quality

During: Limiting error by validity checks - dates

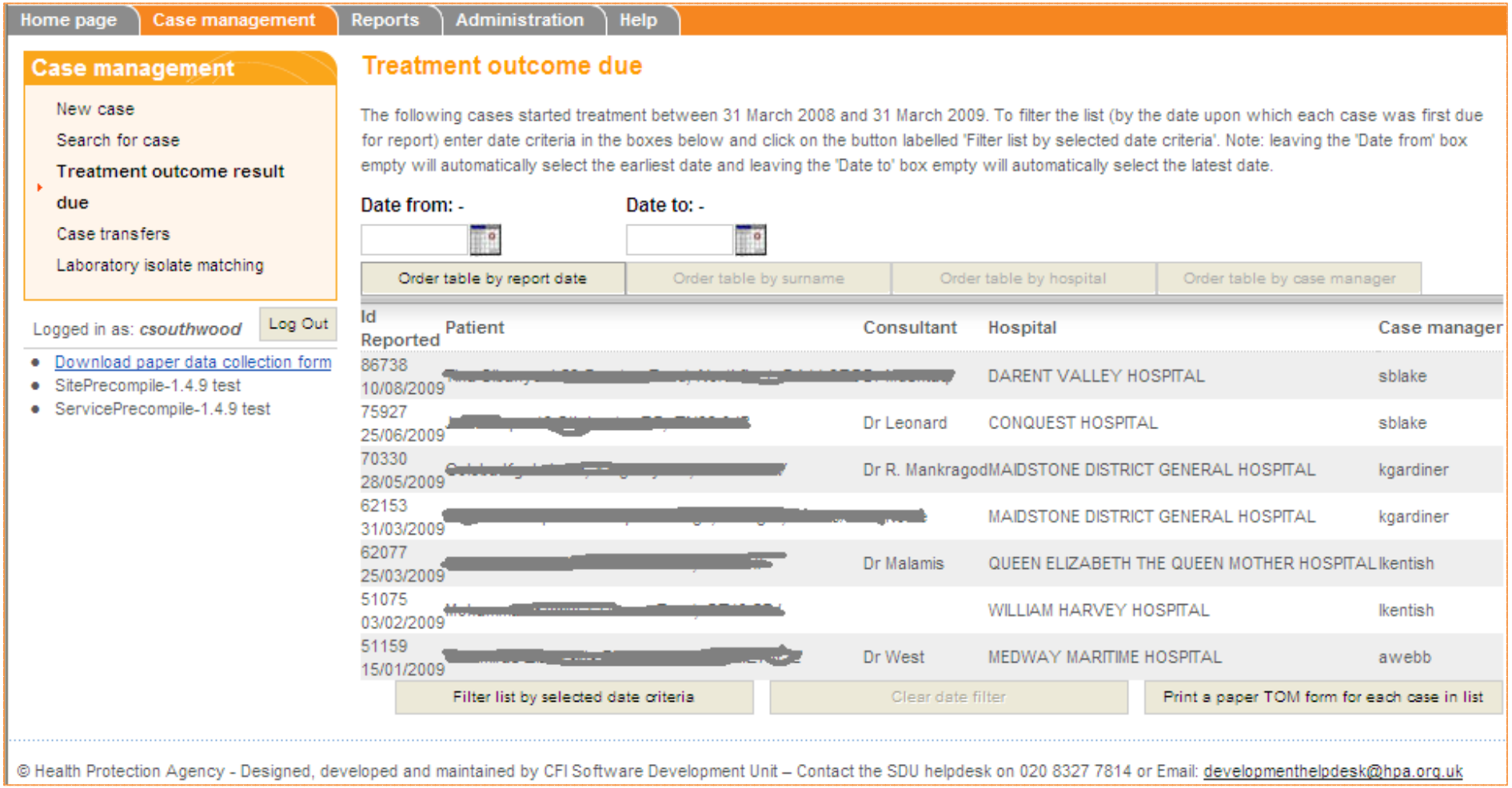


2. Quality

During: Limiting error by validity checks - dates

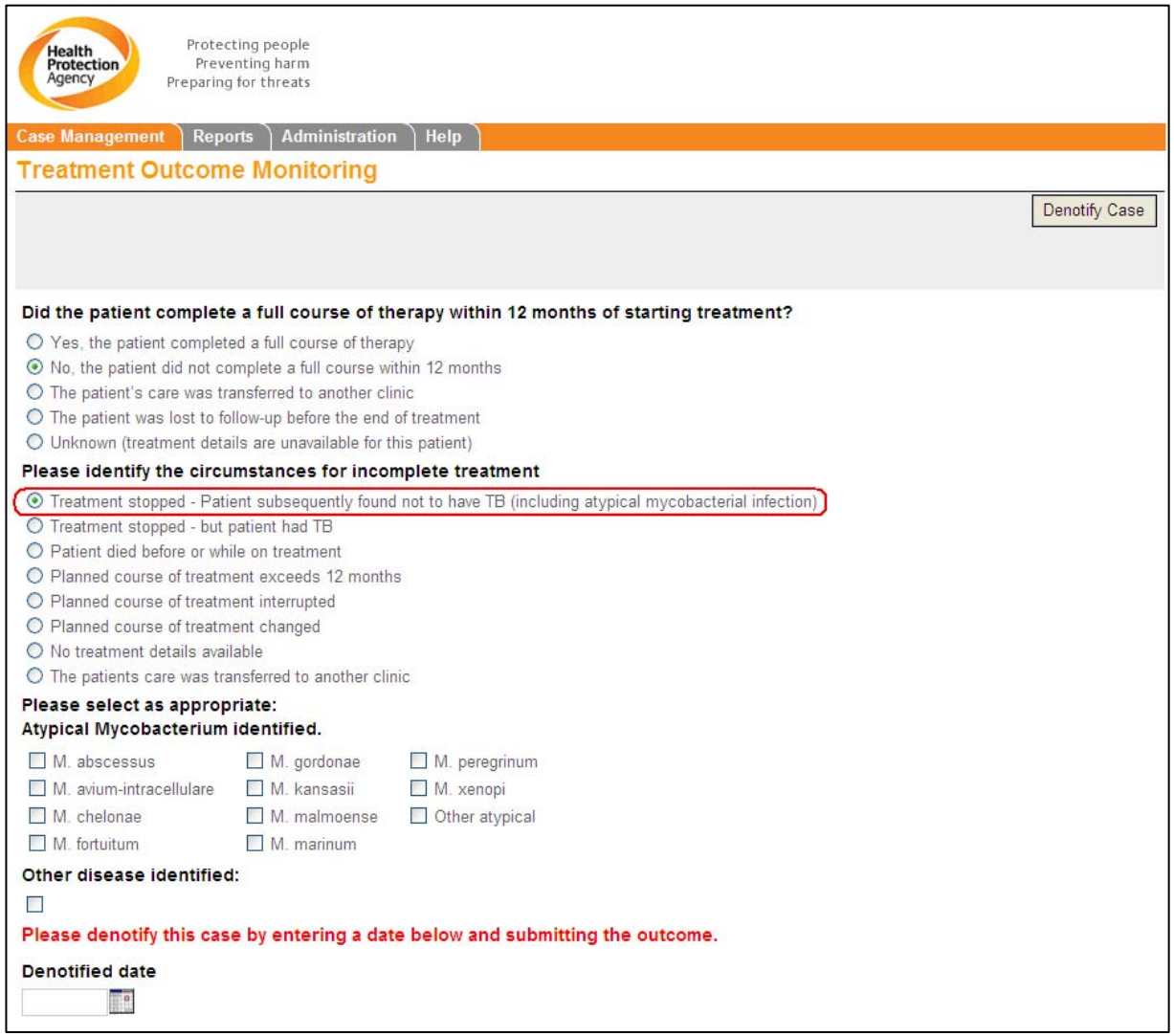
2. Quality

During: Treatment outcome reminders



2. Quality

During: denotification



2. Quality: Assessing completeness

- "Inventory Method": Record linkage
  - Comparison of laboratory and clinical reports
  - TB-HIV matching
  - Bespoke audits: British Paediatric Surv Unit
  - HIV
  - Mortality
  - Hospitalisation
  - Biologics Register

- Capture Recapture
  - Overall data
  - Mortality

2. Quality: Validation

- Audits and surveillance evaluation: completing the loop by going back to clinics

- User Feedback System

Enhanced TB Surveillance System - User Feedback Form

FEEDBACK FORM ID [___]-[___]

ENHANCED TUBERCULOSIS SURVEILLANCE SYSTEM

USER FEEDBACK FORM

1.1 Date DD-MM-YYYY: [__]-[__]-[____]

1.2 Your name *(optional)*[_____]

1.3 Current Position [_____]

1.4 Place of work

Clinic [_____]

PCT [_____]

HPU [_____]

Region [_____]

1.5 Please provide your comments in the space below:

2. Quality: Mandatory Fields

Region/Country	Data Field - Proportion Completed												
	Postcode	Name	Sex	Ethnic group	Date of notification	Date of birth	Born/not born in UK	Previous treatment	Start of treatment	Previous TB diagnosis	Treatment outcome reported	Sputum smear status*	Site of disease[§]
East Midlands	99	100	99	93	100	99	90	80	84	83	86	55	98
East of England	100	100	97	94	100	100	90	83	91	86	93	28	99
London	100	100	100	98	100	100	94	88	93	91	100	75	100
North East	100	100	98	99	100	100	67	82	86	86	96	59	100
North West	100	100	99	99	100	100	92	88	91	90	82	49	99
Northern Ireland	91	100	100	93	100	100	68	84	77	87	92	79	99
Scotland	NA	NA	100	86	100	NA	75	80	NA	82	85	74	100
South East	99	100	99	92	100	100	91	85	92	86	94	44	99
South West	98	100	98	83	100	100	79	75	77	77	84	50	91
Wales	97	100	97	92	100	100	88	76	83	80	95	33	100
West Midlands	98	100	100	97	100	100	93	53	90	75	99	43	99
Yorkshire and The Humber	98	100	99	94	100	100	89	88	87	91	95	45	99
England, Wales and Northern Ireland	99	100	-	-	-	99	-	-	89	-	-	-	-
Whole of UK	-	-	99	95	100	-	91	83	-	87	95	58	99
Target for completeness	95	95	95	95	95	95	95	95	95	-	95	95	95

2. Quality: Timeliness

- Assessing timeliness: annual audit of reporting dates against national standards
- Improving timeliness
  - High priority identified nationally
  - Use of web-based system – however…….
  - Cleaning, validation, record linkage, audits take a lot of time

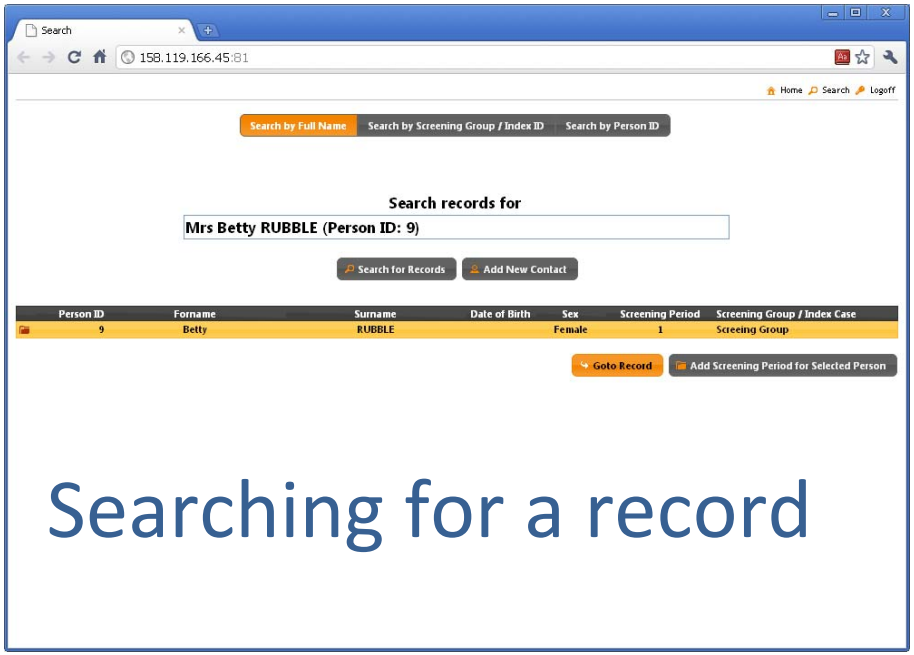
3. The Added Value

- Keeping stakeholders assured
- More confidence in policy
- Makes compliance with ISO9001 easier

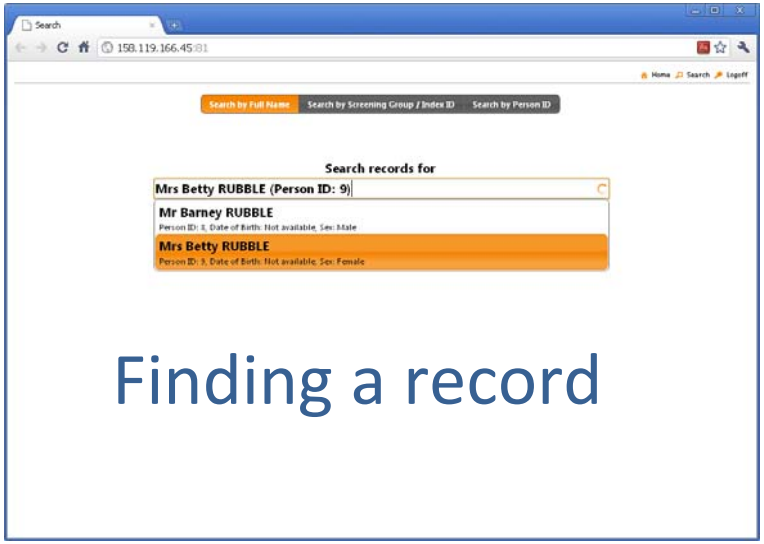
4. The Problems/caveats

- Development process tedious: bugs and dealing with user feedback
- Routine electronic checks often require human follow up of inconsistencies
- Systems are only as good as what you have pre-specified
- It is time and resource intensive to do properly
- Dealing with perception

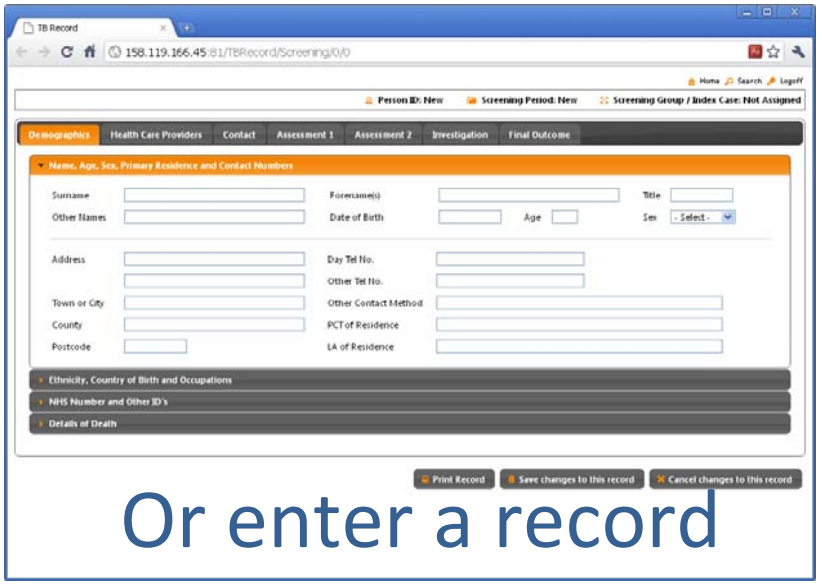
5. The Future: Contact Tracing



Searching for a record

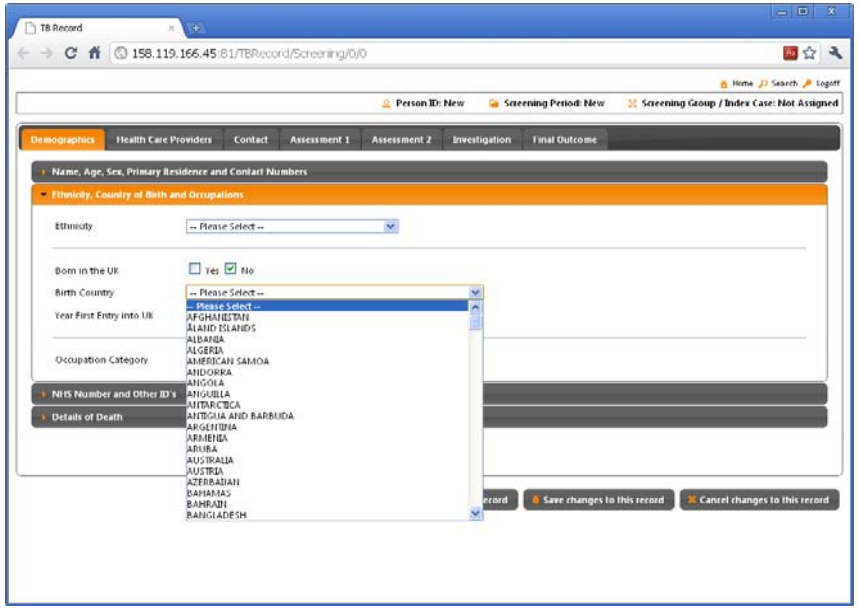


Finding a record

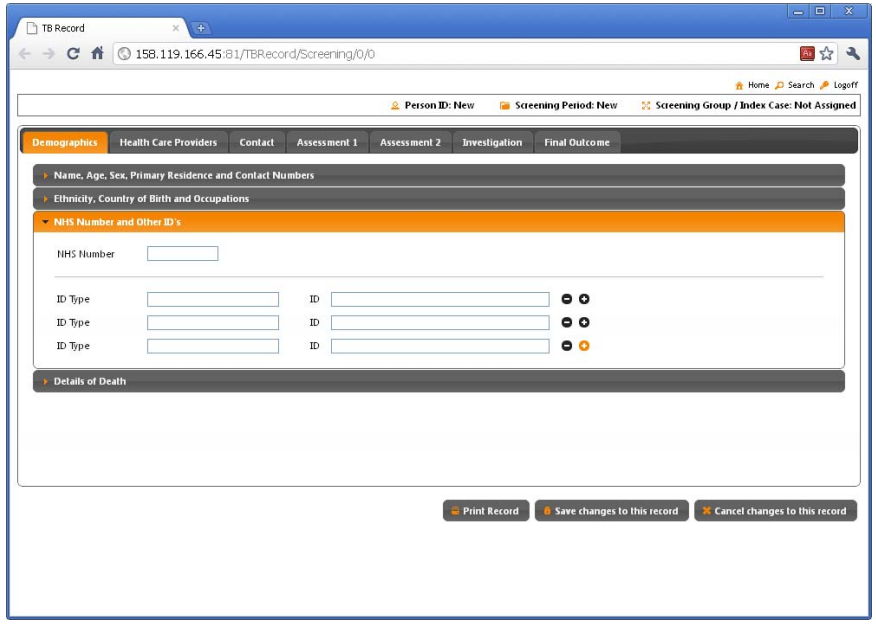


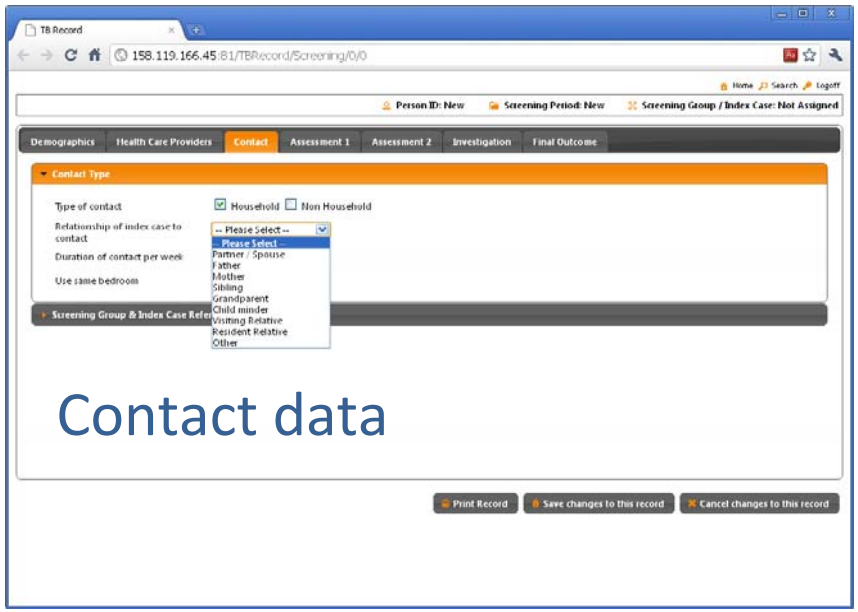
Or enter a record

Enter demographic data

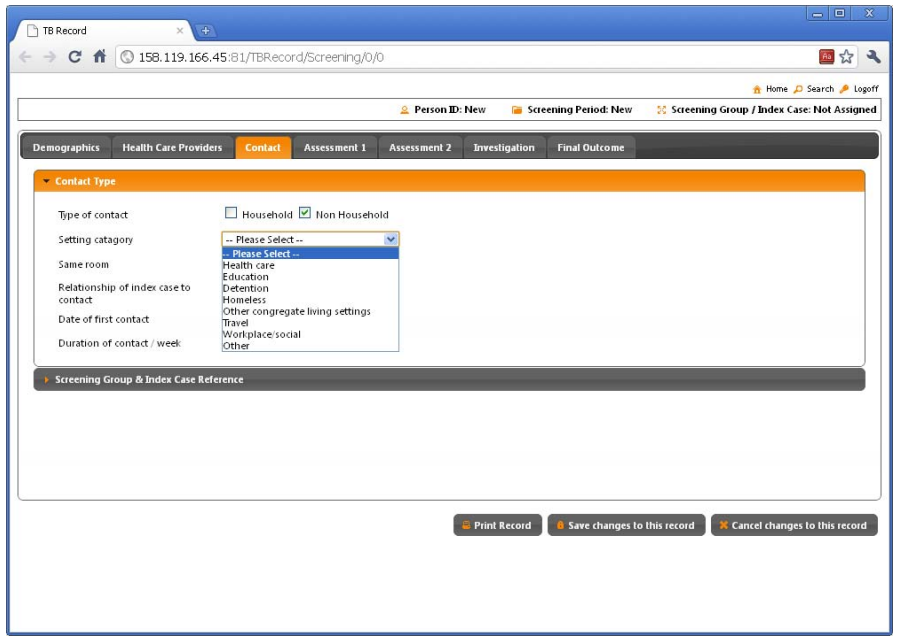


NHS number

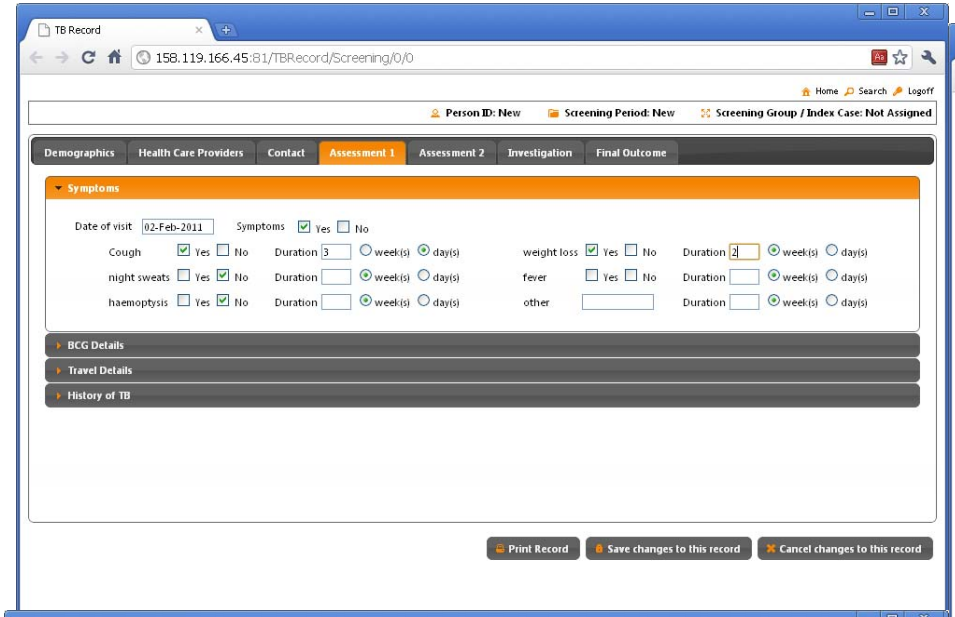


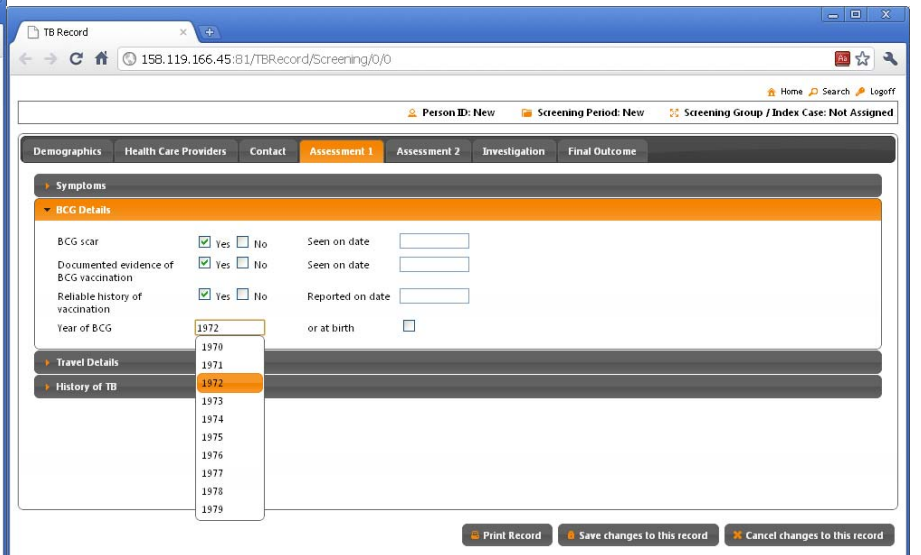


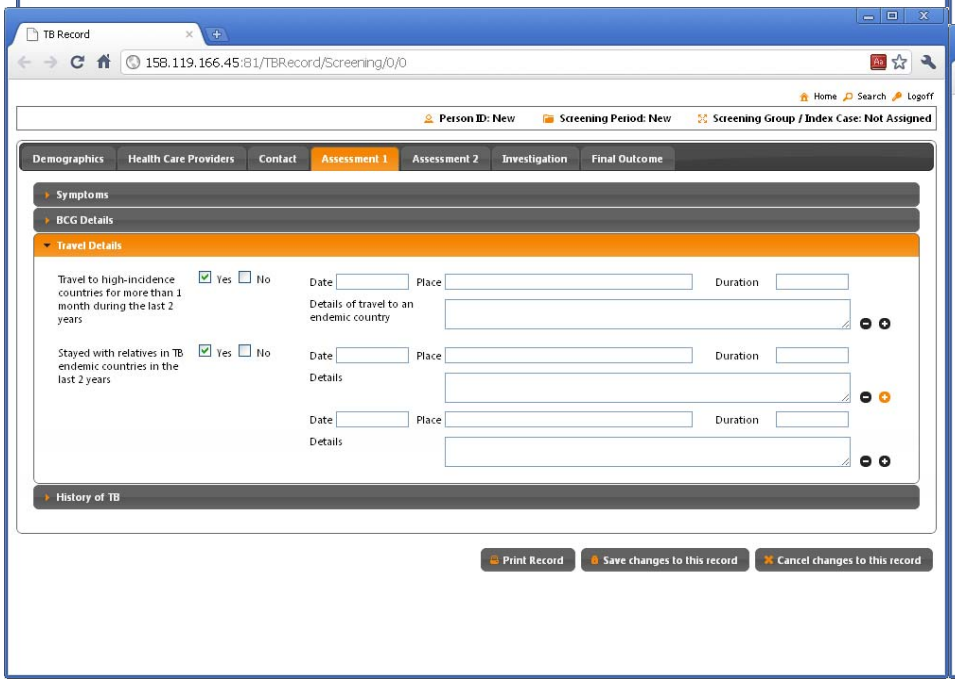
Contact data

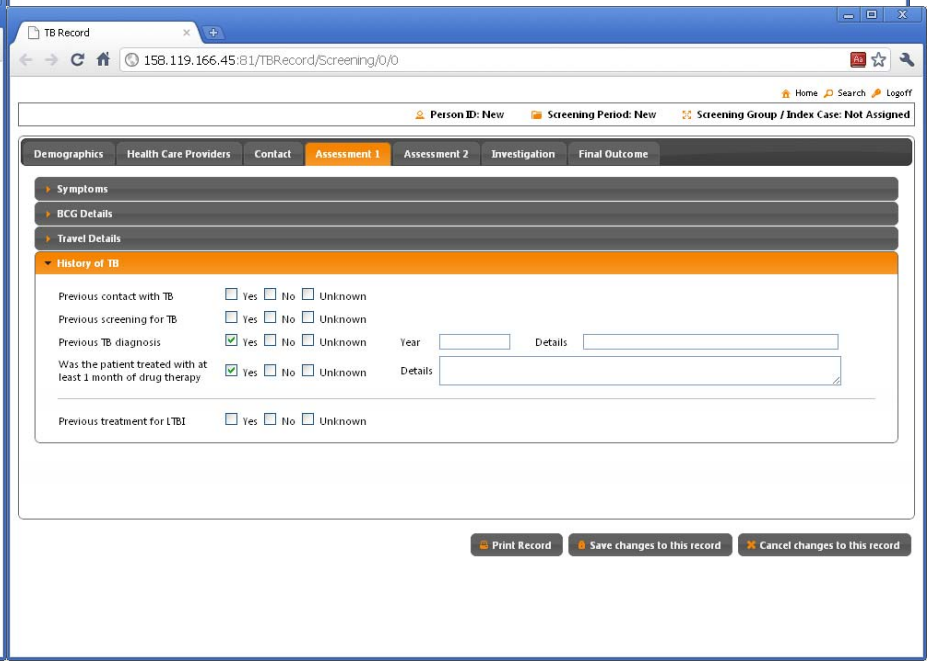


Symptoms, BCG, Travel and TB history

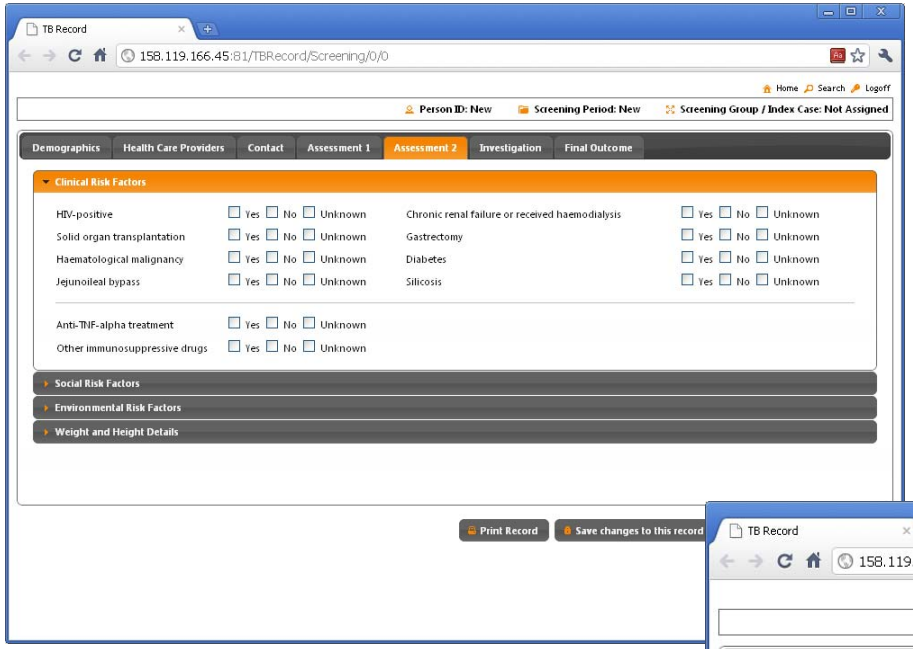




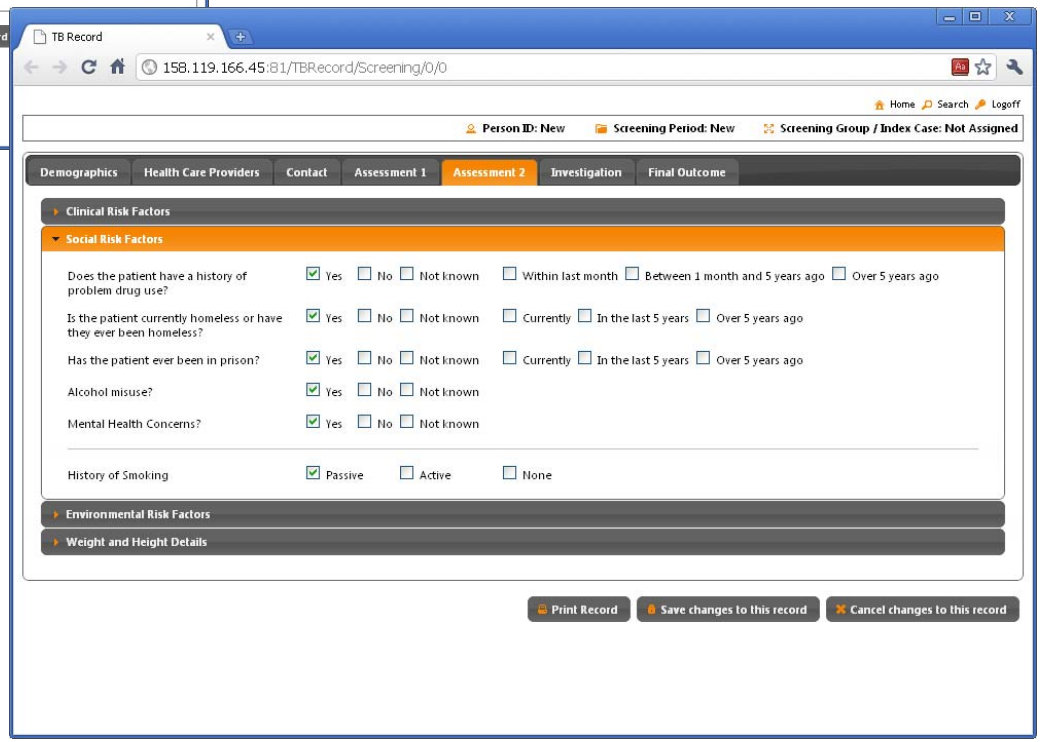




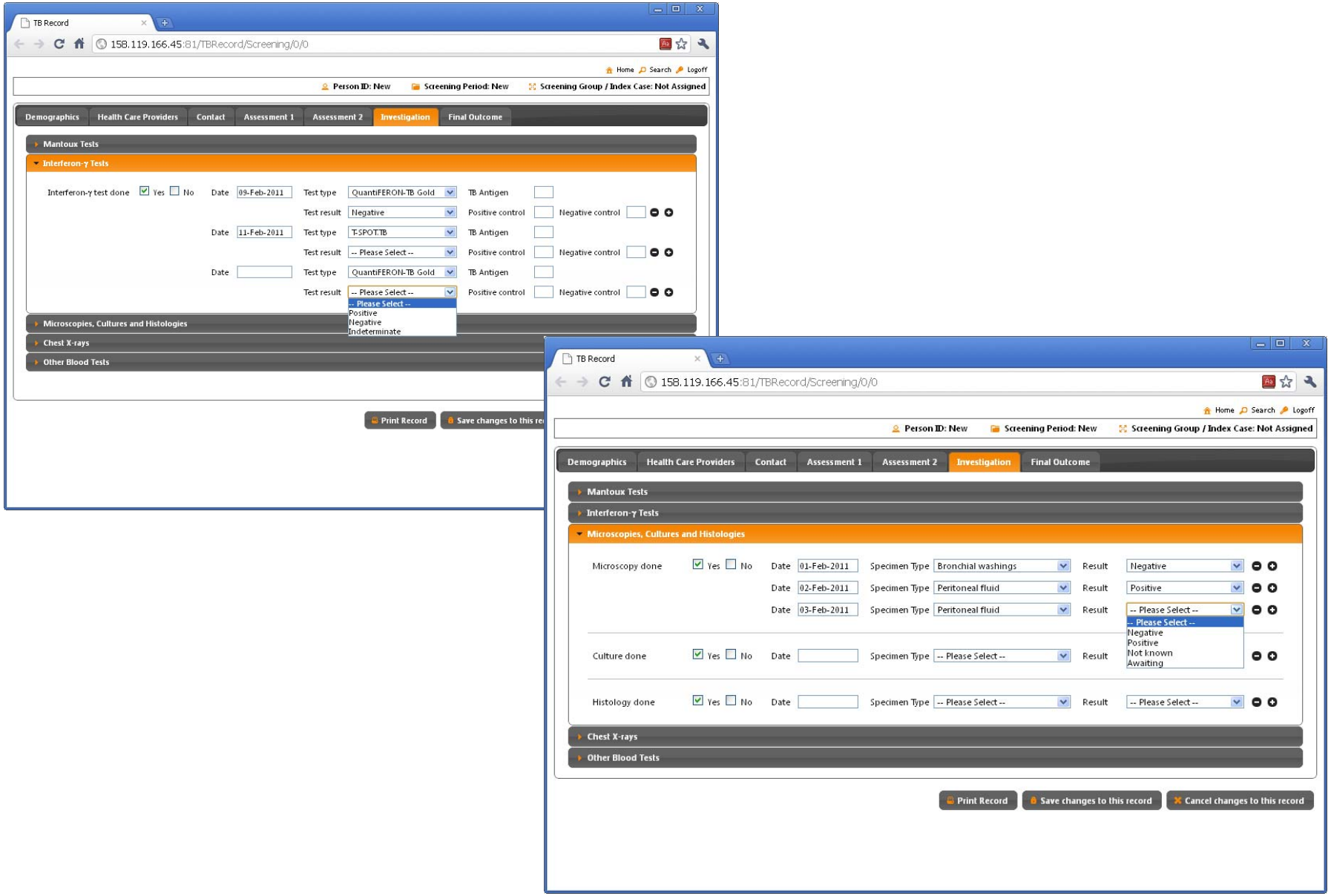
Clinical risk factors



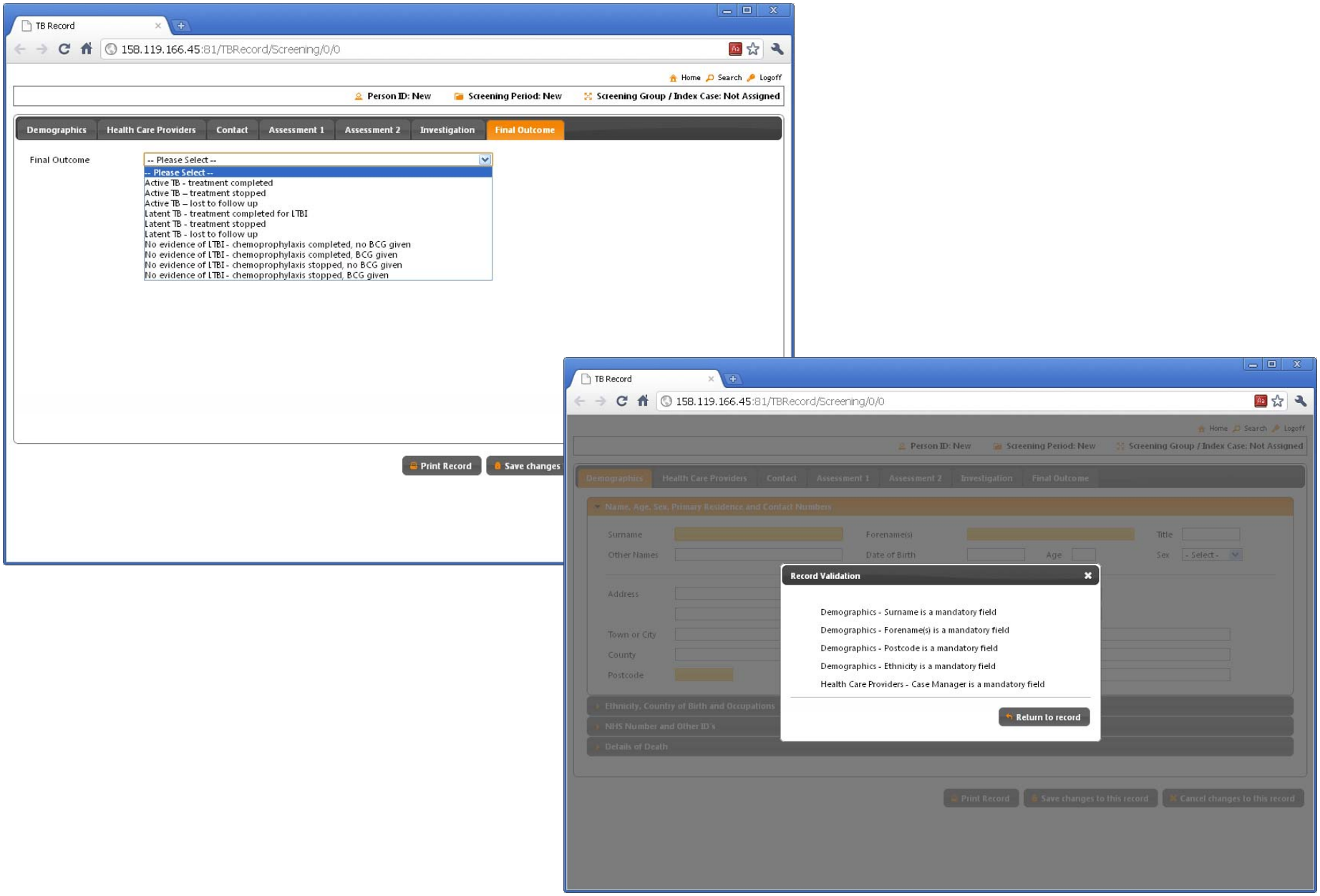
Social risk factors



Investigation



Outcomes and quality checks



5. The Future

- Operating within a more resource constrained set up with raised expectations
- Need to meet the needs of other stakeholders – research
- Adding further functionality and reporting functions