Proposed project

INTEROPen 4

INTEROPen

The Hypotheses

1. The exchange of machine-processable, structured (coded) data between systems and across care settings is essential for improved healthcare

2. A number of use cases require real time request response interactions between systems.

3. For these use cases, the necessary clinical and administrative data can be exchanged reliably and safely using HL7-FHIR profiles adapted for UK use.

4. The same resource profiles can be used for other messaging patterns

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Standards convergence?

Read 2
Read 3
ICD10

Snomed-CT

Hl7 V2
HL7 V3
CDA (L3)

HL7-FHIR

Disputed

Generic Data model

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Up for grabs

APIs	$operations, message headers
APIs	Granular, High level parameterisation, FHIR query
Routing	direct point to point, via hub
Authentication	TLS/MA, Add Oauth 2.0,
Authorisation source	Data sharing agreements, patient consent, User roles
Directory services	National RLS, local RLS

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Testing the hypotheses

1. Profile/ API Proposals from supplier domain specialists curated and put forward for consideration

2. Clinical validation and Data modelling – PRSB

3. Draft Standards candidate -HSCIC

4. Supplier organised Connectathon, based on a cross care setting story, extendable to other care settings

Michael's Story

Use Case for INTEROPen's FHIR demonstrator work

1. Michael's Journey
2. Multiple Care Domains
3. Care Professionals
4. System Tools
5. Domains
6. FHIR Profiles

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Michael's Journey - Summary

- Michael is a 58-year-old living alone.
- He suffers from anxiety attacks, has poorly managed diabetes requiring insulin. He drinks excessively.
- His mental health team intervene when Michael's anxiety is mistaken as aggression.
- The Diabetic specialist, supported by primary and community care and the local pharmacist, implement a plan to improve Michaels medication conformance.
- Without medical support, Michael decides to stop drinking, resulting in a visit to OOHs, where he has a seizure.
- Taken by ambulance to A&E, Michael is admitted to THE Acute Medical Unit. The Ward Sister updates the consultant on the medication Michael has taken, before implementing their alcohol withdrawal protocol.
- Due to severe hallucinations a psychiatric assessment is requested before discharge, with a request to link in with the community mental health team, to ensure Michael receives ongoing care in the community.
- The discharge team are made aware of Michael's history and domestic circumstances to ensure safe discharge and handover back to primary care GP and community nurse to review his foot ulcer.
- LFT's show potential liver damage, Michael is referred to an outpatient liver clinic and agrees to enrol on a liver study.
- A Social Care referral is triggered as there are concerns about Michaels finances and living conditions.
- Patients apps are used to support to Michael in relation to his medication conformance and lifestyle.

Michael’s Journey – Care Domains

Care Domain	Services
Anxiety	Community Mental Health Team GP Practice Accident & Emergency
Diabetes	GP practice Community Nurse Diabetic Outpatient Clinic Community Pharmacy
Alcohol Withdrawal	Out of Hours Ambulance Service Accident & Emergency Inpatient (Medical Assessment Unit) Discharge team Psychiatric Liaison Out Patient & social care
Liver Disease	Outpatients Clinic GP Practice
Family Support & Self-Care	Telehealth Solutions On-line Patient Access

Michael

Michael's Journey – System Users

Michael

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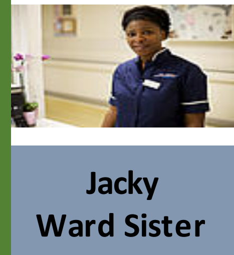
In order to play my part in Michaels care, I need to:-

Mrs Banerjee
MHT

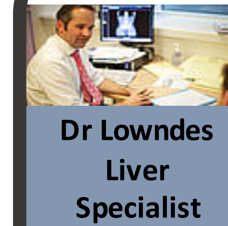
- Access Michael's record
- View Prescribing history
- Push out special alert to all Michael's other health records

Outpatients
Dr Singh

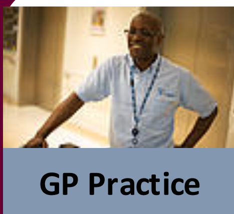
- Access Michael's record from primary care; outpatients & pharmacy.
- View a graphical correlation of data in relation to HBA1C results; medication history; blood sugar, weight and encounters.
- Send electronic referral to community pharmacy
- Enrol Michael on Telehealth scheme


Jacky
Ward Sister

- Access Michael's existing records
- Pull relevant data to create Medical Admissions Unit record
- Create medicines management list for duration of hospital stay and TTO's
- Send task to discharge team & Mental Health liaison to attend the ward
- Send note to all other HCPs to alert them that Michael is on the ward
- Create appointment into Liver specialist clinic and Social Care referral.


Dr Lowndes
Liver
Specialist

- Access Michaels record from in-patients; primary care & Mental Health
- Venlafaxine & Liver Disease - Caution
- Review prescribing history
- Alert MHT of this encounter and decisions regarding prescribing.
- Enrol Michael on Telehealth scheme


GP Practice

- Co-ordinate all the resources and services available to Michael.

To do this I need to receive real time relevant data from all sources.

Michael

- Access patient on-line services to book appointments & order prescriptions
- Access telehealth services to prompt me to eat and medicate. in line with my care plan
- Share daily measurements with my clinicians
- Access patient information and on-line help
- Share information about me with my family and carer.

To achieve this my system must allow me to-

Role	System must allow me to
Mrs. Banerjee (Community Mental Health)	Access record & prescribing history Push out alert to **all** other HCP records
Dr Singh (Diabetic Shared Care)	Pull; Review; Incorporate relevant data from other HCP's View graphical correlation of data Send electronic referral to pharmacy Enroll Michael in Telehealth scheme
Jacky (Ward Sister)	Find "who else is involved in this patient's care?" Pull; Review; Incorporate relevant data from other HCP's Integrate existing meds to begin my prescribing record Alert all teams re inpatient status Send task to Discharge & Psychiatric teams Create appointment for Liver Clinic & Social Care Referral Alert all teams on discharge and point to summary
Dr Lowndes (Liver specialist)	Pull; Review; Incorporate relevant data from other HCP's Alert all teams re encounter & prescribing
Family Support & Self-Care	Access to on-line patient services See & contribute to my record (telehealth)

One To Many Domains

GP Practice

Community Nurse

Community Pharmacy

Out of Hours

Ambulance Service

Psychiatric Liaison

Accident & Emergency

Social care

Out Patient

Discharge team

Community Mental Health

Access record & prescribing history

Push out alert to **all** other HCP records

Diabetic Shared Care

Pull; Review; Incorporate relevant data from other HCP's

View graphical correlation of data

Send electronic referral to pharmacy

Enroll Michael in Telehealth scheme

In Patients

Find "who else is involved in this patient's care?"

Pull; Review; Incorporate relevant data from other HCP's

Integrate existing meds to begin my prescribing record

Alert all teams re inpatient status

Send task to Discharge & Psychiatric teams

Create appointment for Liver Clinic & Social Care Referral

Alert all teams on discharge and point to summary

Out Patients

Pull; Review; Incorporate relevant data from other HCP's

Alert all teams re encounter & prescribing

Family & Patient

Access to on-line patient services

See & contribute to my record (telehealth)

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Michael's Journey – Mobilising the data

Problems/Conditions

Medications

Allergy

Observations/Vital Signs

Procedures

Immunisations

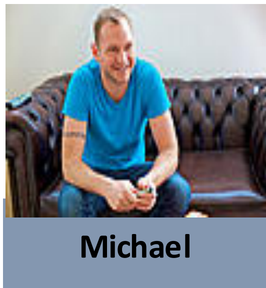
Encounters (Consultations)

Tasks and Notes

Appointments

ERS/Non ERS Referrals

Phase 1 FHIR PROFILES



Michael