

## Coordinate My Care and the Integrated Care Exchange: Overview

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### What is Coordinate My Care?

Coordinate My Care (CMC) is an NHS initiative, hosted by The Royal Marsden NHS Foundation Trust and in place since August 2010, permitting the key information about an individual and their preferences for care (an Urgent Care Plan) to be recorded and accessed by a range of NHS and non-NHS service providers. CMC is currently commissioned for use across the 32 London CCG areas.

The CMC service is enabled by a dedicated IT system (provided, hosted and managed since November 2015 by Intersystems), whose user interface is available via a web browser over the N3 network. The interface is rendered intelligently across desktop, tablet and smartphone platforms, with no requirement to install any software or browser plugin on the client PC. Access is also available from non-N3 clients via the Royal Marsden's two-factor authentication solution, Authen2cate (<http://www.authen2cate.com/>).

Clinicians can also provide their patients with online access to CMC through the MyCMC service.

Patients consent explicitly to the sharing of their Urgent Care Plan with care providers. A joint Data Controller Information Sharing Agreement, backed by a tried and tested CMC IG Pathway, is in place across all CMC user organisations, and has over 1,000 signatories. CMC is used across both NHS and non-NHS organisations.

Non-urgent care providers (typically GP practices, hospices, acute Trusts, and community teams) collaborate to establish, maintain, and use the Urgent Care Plans of their patients. Urgent care providers (Ambulance, 111, Out of Hours GPs, A&E, and Urgent Care Centres) are notified automatically by CMC of the existence of Urgent Care Plans for patients in the relevant areas, permitting them to maintain relevant 'flags' on their own systems. This allows them to identify the existence of an Urgent Care Plan for the patient at the time of call-out, to access it, and thus to provide appropriate care.

The content of CMC's Urgent Care Plan has involved extensive discussion between many clinicians. The Urgent Care Plan covers the SCCI1580 End of Life Care data standard, but considerably extends it. NHS England's Healthy London Partnership (<https://www.myhealth.london.nhs.uk/healthy-london-partnership>) are building new standards for End of Life Care data and for urgent care service interoperability via a generalised 'Crisis Care Extract'. CMC is closely involved in this work. In addition to End of Life Care patients, the CMC service coordinates care for many patients with a wide range of long term conditions.

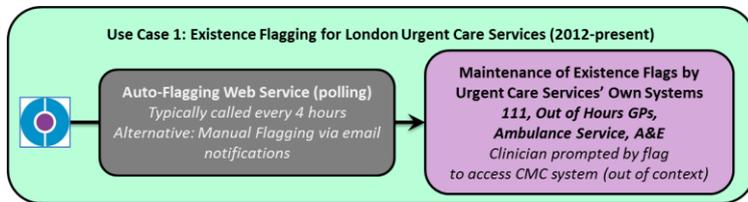
To speed up Urgent Care Plan creation and drive accuracy CMC makes extensive use of the NHS Spine Personal Demographics Service (PDS); the NHS number is mandatory on each Urgent Care Plan.

For the convenience of commissioners and other stakeholders, CMC offers a wide range of management information reports. These are available, usually in PDF format, either on an ad hoc basis or as scheduled monthly/quarterly deliveries.

CMC's 2016-2017 development roadmap will allow patients to give carers access to their CMC Urgent Care Plans, and also includes initiation of the urgent care planning process by the patient.

## CMC Interoperability

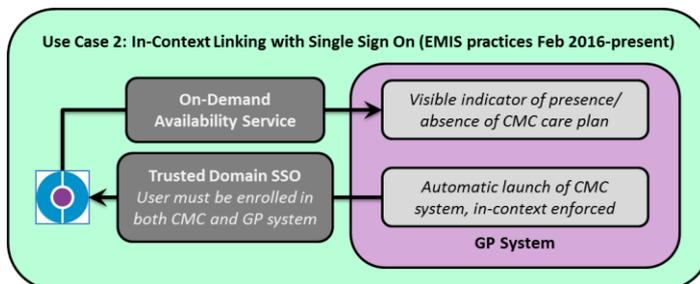
CMC has an extensive interoperability roadmap; six example use cases are described in overview below.



CMC currently provides polled ('auto-flagging') and on-demand ('availability service') Urgent Care Plan existence web services, plus in-context launching of CMC Care Plans.

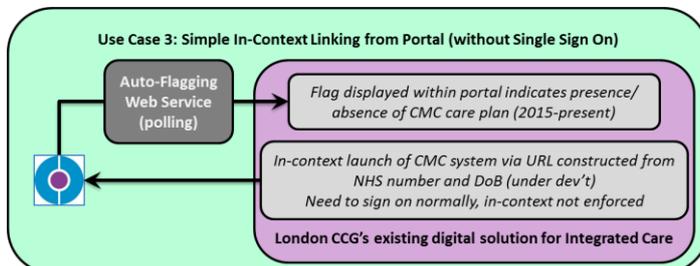
CMC's Auto-Flagging service polls for new or modified CMC Care Plans. Typically it is used to store and maintain existence flags, although it can potentially drive additional client system functionality. Please note that for IG reasons it can be used only to flag the organisation's local (i.e. commissioned) patients.

The Availability service, meanwhile, is invoked at the individual patient level and is intended for on-demand, real-time use.

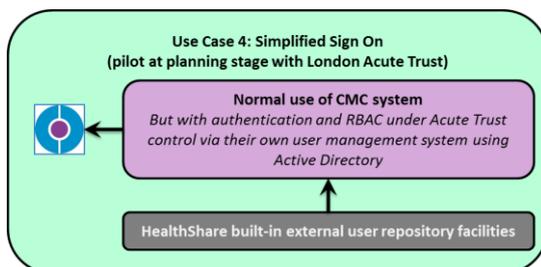


Single sign on is under discussion with a range of organisations and software providers and is already in place for GP practices across London which use EMIS Web. (CMC also supports NHS smartcard based single sign on.)

Even where single sign on is not available, in-context access to a patient's CMC care plan can readily be made available by constructing a URL from the NHS number and date of birth.

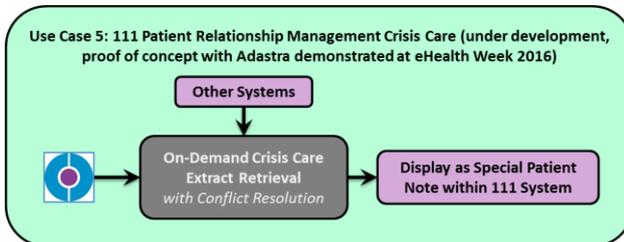


'Enforced' in-context access to the CMC system, with or without single sign on, prevents the user from navigating away from the linked patient.



Depending on the local environment, it may be possible to authenticate CMC users, and to control their levels of access, via a local directory, avoiding the overhead of enrolling them in CMC's own user repository, and avoiding the need for them to remember a dedicated CMC user id and password.

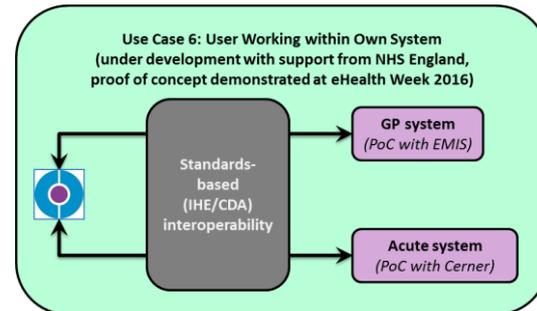
CMC provides care professionals with an effective and easily accessed user interface, but most users would prefer to maintain CMC care plans within their own day-to-day systems and to avoid dual keying.



The proof of concept involved CMC, EMIS Web, Cerner Millennium, and Advanced Health and Care's Adastra, and was demonstrated live at eHealth Week in April 2016.

An option is currently under design to expose elements of a Care Plan as FHIR resources.

Two-way information exchange in compliance with the Healthy London Partnership's proposed standards-based architecture for London has already been the subject of a proof of concept, sharing the Care Plan as a CDA document via the IHE XDS.b mechanism.



### CMC's Integrated Care Exchange

The Coordinate My Care service, as described above, is delivered via a number of clearly defined mechanisms for clinical pathway design, implementation, and cultural change, and via a set of fully managed technology components that is compliant with the Healthy London Partnership's standards-based architecture for London. The Integrated Care Exchange (ICE) offering allows service providers outside CMC to take advantage of these.

The ICE is clinically led, deploying a standardised architecture of technology components in a clinically safe and effective way, and ensuring that all solutions are developed on the basis of meeting a clinical and/or patient need.

There are two key components to the ICE offering: a clinical service, and a set of technology components.

### ICE Clinical Service

Any proposed ICE solution has to be driven by a clinical understanding of the need and of the pathway the solution is aiming to support.

ICE governance will ensure that:

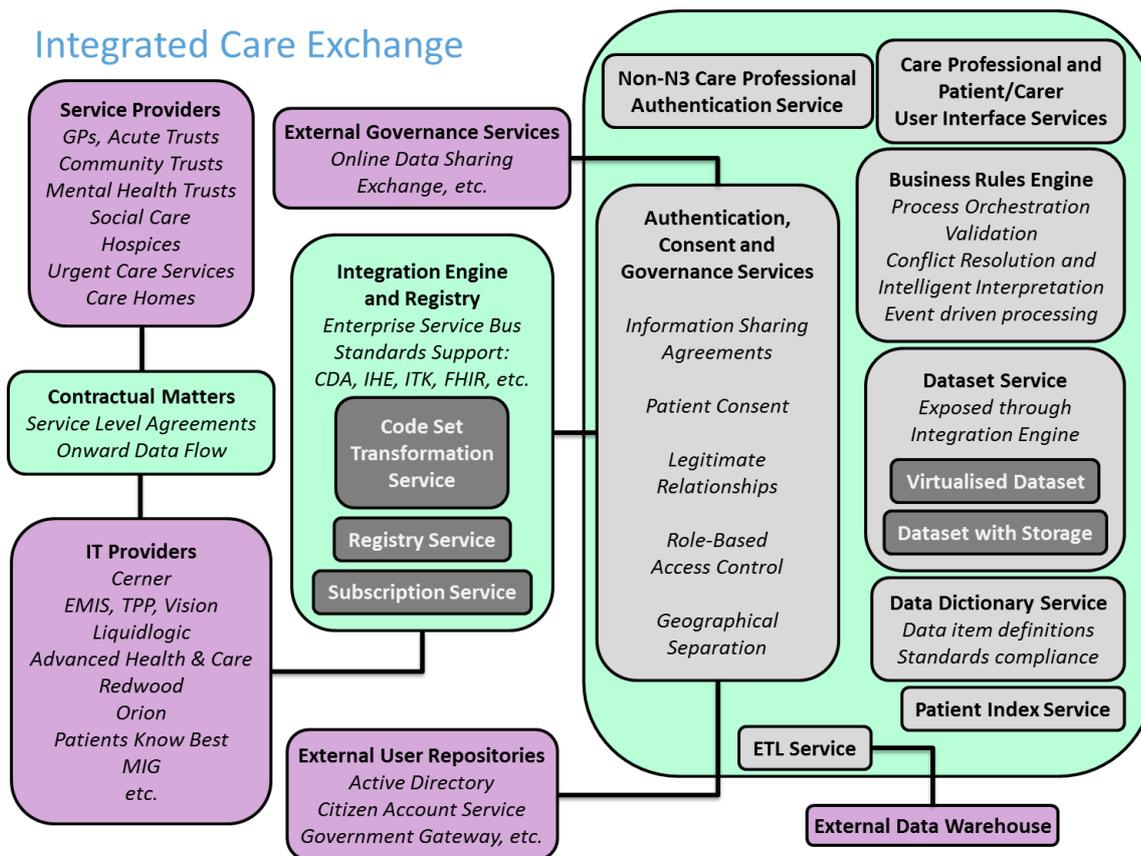
- the design of any solution proposed and delivered via the ICE components is led by a senior clinician with expertise in the appropriate field;
- the local delivery of the service that the solution is designed to support has the necessary clinical and information governance frameworks in place to ensure it is a clinically safe service and to drive associated cultural change.

### ICE Technology Components

ICE's components come into the following categories:

- Data set/data dictionary services; authentication, consent and governance services (controlling information sharing at the point of access); business rules engine; Patient Index service.
- Extract, Transform, Load (ETL) service to populate external data stores, typically for business intelligence purposes.
- Role-based care professional user interface/workflow service, with non-N3 capability; role-based patient/carer user interface/workflow service ('Patient Portal').
- Data set level interoperability connectors; code set transformations; technical interoperability partnerships with IT providers; contractual (business-level) interoperability partnerships with service providers; subscription service; registry service.

### Integrated Care Exchange



The green boxes represent components within ICE, while the purple indicate external elements.

#### Data Set/Data Dictionary Services and Business Rules Engine

The ICE customer organisation would work with CMC and InterSystems to define the required data set and its associated business rules, in compliance with appropriate standards. Via the Data Dictionary Service, this could re-use existing data item definitions and/or define new data items. Data could be structured or unstructured (e.g. letter as PDF, or scanned image). It could either be physically stored by CMC or, via an interoperability partnership as below, pulled from another provider on demand (data federation).

#### ETL Service

Any data set managed by CMC as above would have access to ETL and other appropriate management tools permitting high integrity population of the customer's Data Warehouse or other relevant data store on a flexible schedule.

#### *Authentication, Consent and Governance Services*

Any data sets managed by ICE as above would have a five-point consent and governance 'wrapper' capability available as required:

- Flexible *Consent Model* (patient level).
- *Information Sharing Agreements* (organisation level).
- *Legitimate Relationships* (combination of clinician and organisation level).
- underlying *Role Based Access Control* (login level).
- *Commissioning-driven* separation.

The local care professional and patient/carer user repositories used by CMC would be supplemented by the ability to interface to external user repositories; governance mechanisms would potentially make use of external functionality.

#### *Care Professional User Interfaces and Workflow*

Any data set managed through the ICE data set service as above could have associated care professional user interface(s) defined for it, with intelligent rendering on fixed and mobile devices, and incorporating appropriate workflow (process control) defined through the Business Rules Engine. CMC already provides the two-factor authentication capability necessary to permit non-N3 access to its system. This will be accessible to customers of the care professional user interface service.

#### *Patient Portal*

Once patient portal capability becomes available for CMC's core service, customers using the ICE data set service as above would be able to take advantage of the portal's infrastructure, connectivity and resilience to provide suitable patient/carer user interface(s) and workflow through it.

#### *Code Set Transformations*

If a code set in use by a Data Set Service customer is not already supported, it can be incorporated into the ICE code set transformation mechanism, assuming that a clearly understood and clinically validated mapping exists, or can be defined, between this code set and (for example) SNOMED CT.

#### *Interoperability: Internal and External Connectors, IT-Level Partnerships, and Business-Level Partnerships; Registry Service*

Each data set would be exposed to the Integration Engine as an *internal connector*. Corresponding external data sets would be supported via *external connectors*, whether standards-based or specific to the relevant IT provider. The relationship with each IT provider (*IT-level partnership*) would be managed by InterSystems, as would data flow specific relationships with service providers (*business-level partnership*), where the aim is that the ICE customer need be involved only in requirements collection and contract finalisation. Exposed capabilities would be published via the ICE Registry Service.

#### *Subscription Service*

There will be subscription capabilities permitting a target system to opt to receive notifications of source system events, deliverable, as above, either by email or via DTS.

#### *Patient Index Service*

This service would provide the ICE customer with a Master Patient Index data store, protected by their chosen consent and governance model and supporting appropriate standards-based interoperability. It allows for multiple sources of patient identity, supported by probabilistic matching tools.