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Integrated care: using IT to deliver, enable and measure

In this Future Hospital Programme case study, Dr Mark Pugh describes how the Isle of Wight NHS Trust (IOW NHS) successfully implemented various IT systems to produce an integrated care record through collaboration with Ian Grove and his team at IGCS Limited.

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Key words: integrated care, quality improvement, technology, IT systems

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Key recommendations

- Staff need to be involved early on in an integrated care project and financial implications should be considered up front.

- Create a practical roadmap which illustrates how to deliver, enable and measure an integrated agenda.

- Considerable positive engagement needs to be achieved with all process stakeholders, to overcome organisational inertia.

- Embedding major changes (eg shared IT systems) into healthcare economies presents major challenges.

- Translating government policy into something meaningful, affordable and valuable is crucial.

- Up to roll out and after, expand existing IT team until the system is up and running, this will almost certainly be beyond the scope of the pre-existing IT support team, because of capacity.

- Staff will have varying levels of IT skills and training processes should reflect this. Plan training at a range of difficulty level and do not make all training compulsory – some people will be more than happy to get stuck in and 'learn as they go'.

- Allow additional time around the launch of the software. The initial phases will almost always be bumpy and it can take a few releases of the system for it to be working for you and your trust. Don't be disheartened if you're not seeing the benefits you were hoping for at the beginning.

- This review considers all care settings within a whole system health and social care economy, and it is therefore unique, in that it can be applied to any health and social care model.

The challenge

In the next 20 years the percentage of people over 85 is set to double. With that, more people will have complex health needs with more than one health problem, which will require a combination of social care services (Department of Health, 2013). However, too often these services do not work together well.

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Integrated care has been a well-documented ambition for optimised health and social care systems. A lack of large scale successfully integrated IT systems has been one of the key barriers (Currie and Finnegan, 2009).

Indeed, people too often do not receive disjointed services from health and social care. The lack of integration increases risk to patients and produces inefficiencies which can be detrimental to both health and social care.

> *'Staff will have varying levels of IT skills and training processes should reflect this.'*
> Dr Mark Pugh, Isle of Wight NHS Trust

Local context

With a turnover of around £166 million per annum, the IOW NHS Trust provides hospital, community, mental health and ambulance services.

Each year around 37,000 patients attended A&E, 25,000 patients contact their GP out of hours (OOH) and there are 13,000 emergency calls to the ambulance service.

Historically, the patient was always responded to in the same way:

- ambulance attending an incident, regardless of their need. Paramedics at the scene work in isolation from their health and social care colleagues
- patients often moved to a decision-making setting (eg emergency department)
- patient does not receive seamless access to integrated clinical care
- mental health patients managed in isolation from physical health, even though these patients have significantly worse physical health outcomes.

Our solution

We decided to consider our options for implementing a full integrated IT system at our trust. At the beginning of the procurement process, we realised we had 2 choices:

1. An 'all singing all dancing' platform
2. Integrating best of breed

Option 1 tends to be expensive. There is also a view that a system which aims to do everything probably can't do everything well.

Option 2, the one we chose, was certainly cheaper, but more importantly was framed around our unique needs. By signing an initial 3 year contract with IGCS we committed to a long-term relationship to develop and define the system and make sure it worked best for us.

Integrate and optimise: the ERP system

There remain relatively few global examples of successfully implemented integrated programmes. We created an Enterprise-wide Resource Planning (ERP) System – an IT system which is designed to integrate and optimise disparate processes.

The ERP system exemplifies an innovative process model used to successfully commission and deliver NHS organisation-wide transformation. The program is designed to enable integrated care delivery in a UK health and social care economy.

ERP system elements delivered and embedded eight core software systems integrated and viewable to all clinicians and managers with role based access. Benefits include:

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- urgent care pathways established
- integrated prescribing using JAC software
- single organisation electronic discharge summary
- electronic documents
- operation notes
- GP integration (eg Docman, GP Summaries)
- community integration (eg Civica Paris)
- nursing workflows (eg MedeTrax, ward handover, patient status at a glance boards)
- reporting and business intelligence.

In December 2009, IOW NHS (then called Isle of Wight NHS PCT) went to market, to tender for an organisation which would design, deliver and embed a solution to act as an enabler for integrated working, across the island's health and social care entities – the contract was awarded to a UK healthcare support services company: IGCS Limited. At the design stage, CQC and The Health & Social Care Information Centre were consulted, to ensure regulatory compliance for the IT programme.

Key learning

We cannot emphasise enough the benefits of 24 hour, 7 days a week access to healthcare records for multiple people over multiple sites. While it's important to note that paper notes still exist at our Trust, and we haven't seen a huge amount of money saved, the electronic record and its constituent components have significantly reduce the risk of human handling error. For example, pathology reports cannot get lost, and there is a clear audit trail. Similarly, communication across the health and social care system is now significantly improved because of the ease of access to patient information.

A challenge we faced was that people have different appetites for taking on IT. The advantage of a 'big bang' approach is that there is no other option but for staff to engage with the new system. Likewise, an advantage of a gradual release is that you can more easily take people with you, test IT solutions with the willing and fix bugs before full release, whilst maintaining a paper option if things don't work out.

Outcomes

1. View only system access

Features	**Key performance indicators** Baseline: System delivery of clinicians and managers given access to the system.
All clinical staff are able to access the new ERP system.	70% will log on at least weekly by March 2014
ERP contains information from the following departmental software systems – ambulance, A&E, beacon, radiology, pathology, vision GP record, JAC pharmacy, and patient centre, in a single view patient record.	90% will log on at least weekly by March 2015
Clinicians and managers now log in and out of one system (rather than eight) which is a significant benefit in terms of time saving.	9,500 hours (28 days) per annum will be saved
Additionally, clinicians and managers now have increased access to clinical information (which previously wasn't immediately available) including GP summaries and the emergency department and ambulance services.	Staff time (hours in total) assuming 5 minutes per patient per user

Reliable current patient information from both hospital and primary care is available in one place, so that unnecessary tests are not repeated and pre-existing health conditions and treatments are understood when diagnosing and treating patients.	

The CQUIN payment framework enables commissioners to reward excellence, by linking a proportion of English healthcare provider's income to the achievement of local quality improvement goals).

Goal: Reduce the number of paper pathology request and report forms.
Request and report forms (Baseline: 200,000)

- 50% reduction in report forms sent to GPs by December 2014
- 100% reduction in report forms sent to GPs by March 2015
- reduction in number of administrative staff by 25% by March 2015
- reduction of paper savings/total stationery budget for pathology: 15% by 30 November 2014.

2. Electronic discharge summaries
All discharge summaries will appear in ISIS. They are produced, with the drugs pre-populated and sent electronically via a secure encrypted connection to GPs helping to ensure continuity of care.

Features	**Key performance indicators** Baseline: GP survey to confirm improvement.
Improved recording of comorbidities	80% of discharge summaries to have a co-morbidity recorded as at 31 March 2015.
Reduced outstanding discharge forms	75% confirmed improvement in communication and quality by 31 March 2015
Standardised communication to GPs.	95% of discharge summaries being sent to GPs are electronic

The team also recorded time saving (18.75 hours per week) of:

- information management team member who collected the discharge summaries
- ward clerks in respect of printing and filing discharge summaries.

3. Bed state, ward view and handover
The bed state and electronic patient status at a glance board will be available for clinicians and managers to view. This resulted in:

- standardised processes across wards and directorates
- real-time bed states to enable management of capacity
- infection control compliance
- improved real-time admin processes across the organisation
- real-time bed states to enable management of capacity
- avoiding unnecessary transfers of patients
- identifying quickly predicted and definite discharges and monitor/chase
- clear identification of patients in beds
- reduced time searching, reconciling and updating patient records
- decision-making tool for clinical capacity management
- improved standardised estimation of length of stay (LOS) and expectations set with patients
- automated reporting for delayed discharges
- audit trail available electronically for estimated discharge date changes.

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Methods

Phase one: primary care into hospital operations hub

An island summary care record was enabled by Vision 360 software. A procurement process was undertaken, giving the hospital a view of the GP's electronic patient summary care record. This went live in the Trust OOH Beacon Centre in January 2011. Ambulance CAD (computer aided dispatch) software and electronic patient record (EPR) procurement was completed (providing a live CAD and EPR).

The hospital A&E system ascribe symphony procurement was completed, went live in January 2011, and the hospital OOH system Adastra procurement was completed and went live October 2009. Phase one is an NHS first of type, providing an integrated EPR journey in primary care, ambulance and hospital front door admissions, thus enabling the provision of a new community hub.

Phase two: Emergency care pathway integration - hospital operations hub through to live bed state

Phases one and two are both NHS first of type, providing an EPR journey from primary care, at a summary level, into secondary care.

Phase two required integration of the hospital Patient Administration System (PAS), pharmacy, pathology, diagnostic imaging, emergency department, GP practices, out-of-hours service and ambulance CAD and ambulance electronic patient record form. Patient level costing information and Trust dashboard information were required outputs of the system.

Phase three: Island-wide remote community working enablement, including integration with social care

In order to deliver phases three and four, procurement processes were undertaken for new software systems in child health; community health; mental health and district nursing. Incumbent system supply contracts were extended as required, to facilitate the delivery of the new software systems.

There was a mixed level of historic IM&T (information management and technology) infrastructure and systems at IOW NHS, and as such, the Trust undertook to locally implement and manage the Department of Health requirements for trust locally connected information architectures. Thus ensuring that the Trust continued to make best use of and build on its existing investments in IM&T systems and infrastructure.

This strategy was aligned with and in support of the Government White Paper Equity and Excellence: Liberating the NHS, (Department of Health, 2010) and the QIPP agenda.

The Trust undertook a public procurement strategy to ensure value for money, and the contractual payment mechanisms were structured around milestone payments in order to achieve the key principles of risk sharing and reward.

The stakeholders included an executive lead (medical director), consultant lead (originally two, now one per week) and a working group consisting of nurses, AHPs, IT staff and a patient representative.

A communications programme

A Trust communications programme ran in parallel with the project plan. We oversaw management training to ensure people felt comfortable using the new system. In retrospect this is something we did not invest heavily enough in and we should have considered more how to support staff with different

capabilities. Training options can include online modules, face-to-face guidance or simply 'learning as you go'.

We also took great care considering which kinds of mobile technology would work best in our trust. We recruited a range of volunteers to use different models of devices to see which would best suit our busy departments. Factors such as durability, battery life and transportability were key considerations for us.

One problem we had not considered beforehand is how easy it is to look up the results for friends/relatives. This information had never been logged as it is now which allowed us to see, and have to manage a range of staff who were accessing information they probably should not have. A process had to be developed once we had this information.

What's next?

With a successfully embedded and clinically adopted ERP system, the Trust hopes to:

- rollout clinical notes particularly for inpatients, moving to a full EPR
- adopt eForms/observations for the complete nursing record
- further use the information we have to manage patient flow
- have greater access to the GP record
- move towards electronic documentation (including voice/digital), fully eliminating the need for paper.

The sponsoring chief executives from IOW NHS were Kevin Flynn, and subsequently Karen Baker. Helen Shields was the sponsoring chief officer from Isle of Wight Clinical Commissioning Group.

Supporting materials

If you would like to find out more about the project, please contact the Future Hospital Programme team: futurehospital@rcplondon.ac.uk

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