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# Electronic patient records: bridging the gap between primary and secondary care

This Future Hospital Programme case study from Drs John Stoves and John Connolly outlines how the Bradford Teaching Hospitals NHS Foundation Trust uses electronic patient record sharing between primary and secondary care to support renal pathways to improve patient care.

**Authors:** *Dr John Stoves, renal clinical lead and consultant nephrologist, Bradford Teaching Hospitals NHS Foundation, and Dr John Connolly, primary care physician*

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# Integrated care

## Key recommendations

- Secondary care team access to electronic health records can improve the efficiency and safety of patient care.
- The e-consultation service is a way of obtaining specific management advice or requesting virtual review of patients with a borderline indication for making a hospital nephrology clinic referral. Such patients no longer need to wait several weeks for a hospital appointment and their care often remains in the hands of the primary care team. Specialist time can then be dedicated to patients with more complex needs.
- It has subsequently been possible to set up a Renal Unit Hub within our primary care EHR to give permanent access to the SystmOne records of our patients with more advanced kidney disease. This facilitates two-way sharing of information with primary care teams, thereby reducing duplication of tests and supporting medicines reconciliation and care pathways that are shared with general practitioners (GPs) (such as medicines reconciliation, anaemia management, hepatitis B vaccination, dialysis and transplant updates and a single shared conservative care pathway).

## The challenge

The numbers of adults with recognised chronic kidney disease (CKD) is rising. In 2004 the Department of Health published The National Service Framework for Renal Services. It was recognised that primary care teams needed to:

- assume greater responsibility for the management of CKD
- identify the condition at an early stage
- intervene to slow disease progression and reduce cardiovascular morbidity and mortality.

The report also recommended that the referral of patients with progressive CKD from primary care to specialist services should occur at 'an appropriate stage' to optimise treatment outcomes. This can only be achieved by establishing clear management guidance for general practitioners (GPs) and consistently high-quality communication between primary and secondary care.

This increase in prevalence inspired a multi-disciplinary review of local renal service provision, which in turn led to the initiation of a programme of work with GPs. Primary care electronic health records (EHRs) are often inaccessible to secondary care staff and more traditional means of communication between community and hospital teams are generally inefficient for health services.

## Local context

Bradford and Airedale is a mixed rural and urban district in the north of England. A population of around 600,000 people is served by three clinical commissioning groups (CCGs). It is estimated that over 8% of adults have CKD stages 3-5, that is an estimated glomerular filtration rate (eGFR) of less than 60 mL/min/1.73m<sup>2</sup>.

## Integrated care

### Our solution

Primary care practices in Bradford use a single centralised IT system (SystmOne) that allows the sharing of detailed electronic health records by groups of healthcare professionals in various care settings. Patients are now able to view aspects of their own SystmOne health record. We identified opportunities to harness the power of record sharing to improve the quality of care of patients with both acute and chronic kidney disease. We decided to create a CKD e-consultation service in SystmOne to allow sharing of patient EHRs across primary and secondary care teams (following patient consent).

The e-consultation service is presented to GPs as a way of either obtaining specific management advice or requesting virtual review of patients with a borderline indication for making a hospital nephrology clinic referral (for example eGFR >30 mL/min/1.73m<sup>2</sup> with evidence of progression, or <30 mL/min/1.73m<sup>2</sup> with more stable renal function), as well as patients who are unable or unwilling to attend clinic. Such patients no longer need to wait several weeks for a hospital appointment and their care often remains in the hands of the primary care team.

*'The mean interval between the GP sending an e-consultation request for advice and the renal specialist submitting an electronic response was 7 days.'*

Dr John Stoves, Bradford Teaching Hospitals NHS Foundation

The first step in requesting an e-consultation is for the primary care team to obtain and recording the patient's verbal consent for sharing their health record with a renal specialist. The specialist can view important clinical details such as patient comorbidities, medication history, lifestyle factors, previous communications from other specialists, reports of previous imaging and a chronological display of selected numerical data (blood pressure, urinalysis and trends in eGFR and other blood results). A decision can then be made as to whether a patient needs to be referred to clinic or undergo further tests or interventions in the primary care setting. Responses are saved in the patient's electronic health record and a task is sent to alert the referring primary care team.

A single practice pilot of e-consultation supported the notion that a renal e-consultation service is able to support and improve kidney care in the community. We therefore decided to formally evaluate an e-consultation service to 17 volunteer implementation practices in July 2007, following a series of education events and the development of electronic guidance. A second nephrologist supported practices in the Airedale region.

### Outcomes

A formal evaluation of the service established that e-consultation strengthens working relationships between GPs and hospital specialists, increases GP confidence in managing CKD in the community, and reduces transport and other environmental costs. Patients were generally very willing to consent to the viewing of their EHR by a renal specialist. The mean interval between the GP sending an e-consultation request for advice and the renal specialist submitting an electronic response was 7 days. The mean time taken to perform an e-consultation was 15 minutes. E-consultations provided the renal specialist with access to much more clinical information than is available in referral letters. Renal function was shown to remain stable in patients who continued to be managed in primary care.

The success of the e-consultation service has increased the level of SystmOne usage in our Trust such that in-house SystmOne training for hospital staff has been made available (other uses of SystmOne include our diabetes and virtual ward services)

### *Extending the benefits of record sharing*

The Bradford Renal Unit Hub - supporting pathways that cross the interface between primary and secondary care

## Integrated care

Following the experience of e-consultation, we decided to set up a Renal Unit Hub within our primary care EHR with a permanent access to the SystmOne records of our patients with more advanced kidney disease. This facilitates two-way sharing of information with primary care teams, thereby reducing duplication of tests and supporting medicines reconciliation and care pathways that are shared with GPs (such as medicines reconciliation, anaemia management, hepatitis B vaccination, dialysis and transplant updates and a single shared conservative care pathway). This reduces administration time for the renal MDT and improves patient safety through more effective communication.

Renal Association guidance stated that patients who are likely to require dialysis treatment should be immunised against hepatitis B virus (HBV) infection. This can be difficult to achieve in practice. A renal unit hepatitis B database was created, with prompts to ensure that necessary actions are taken at appropriate intervals. A key action is to request initiation of HBV vaccination in primary care using template letters that are forwarded electronically to primary care teams via the Renal Unit Hub.

The hepatitis B vaccination (HBV) course completion rates in our dialysis population were compared before and after the introduction of a HBV database supported by the SystmOne Bradford Renal Unit Hub. Completion of vaccination schedules was confirmed using timeline information contained within primary care electronic patient records. The percentage of prevalent haemodialysis patients attending our main unit who had completed a full course of HBV vaccinations increased from 43% to 83% over a 4 year period. It was also noted that annual booster doses of HBV vaccine were reliably administered by primary care teams when they received prompts via the SystmOne Renal Unit Hub.

### Potential barriers

We needed to overcome a number of barriers when setting up the service. The SystmOne footprint in our Trust was very light when we were looking to introduce the e-consultation service and then create the Renal Unit Hub and similar entities for other specialties. We received support from our service commissioners to set up an in-house training facility and this has since been maintained.

There were no licensing issues when we introduced the new service. We were able to utilise new functionality in SystmOne and therefore establish an additional clinical value to sharing electronic health records in the hospital setting.

The e-consultation service started as an exciting 'spare time' collaboration project with primary care colleagues. It was subsequently possible to persuade management colleagues of the need to include e-consultation activity in formal job plans, which will help to sustain the service.

There was no charge for the new e-consultation service in the set-up phase. Once we had established the value of e-consultation in enhancing the quality and safety of renal care in the community, it was possible to negotiate the introduction of a 'non-face-to-face' tariff for each consultation. The expansion of the service to include other specialties will prompt regular review of the tariff.

### What's next?

The renal e-consultation service has now been extended to serve all practices in our region. The Renal Unit Hub which supports the management of patients with more advanced renal disease continues to expand and has been replicated for other chronic disease specialties.

Neighbouring Trusts have shown an interest in developing similar models of service. A more timely recognition of incipient AKI in the community and the acute admission areas of our hospital is likely to have a significant impact on AKI incidence and severity, with an associated reduction in hospital admission rates, patient morbidity and patient mortality. We have developed an automated 'Sick Day Alert' within the SystmOne EHR for patients with coded risk factors for AKI, including advanced age, patients with chronic conditions such as diabetes, chronic kidney disease, congestive cardiac failure and chronic liver disease, and

## Integrated care

those who are established on medications that may need to be suspended at the time of acute illness. The 'Sick Day Alert' is a simple reminder for healthcare staff in primary and secondary care to review medication and consider reversible elements such as dehydration and sepsis. The alert appears at the time of accessing a patient's EHR in all healthcare settings including home, GP surgeries, out-of-hours facilities and the hospital front door.

### Further reading

- Stoves J, Connolly J, Cheung CK, Grange A, Rhodes P, O'Donoghue D, Wright J. Electronic consultation as an alternative to hospital referral for patients with chronic kidney disease: a novel application for networked electronic health records to improve the accessibility and efficiency of healthcare. *Qual Saf Health Care* 2010;19(5):e54
- Stoves J, Wong A, Orlando A, Hipkiss V, Middleton J, Lampinen E, Coman T, Carlisle G, Green W, Connolly J. Electronic patient record sharing between primary and secondary care to support renal pathways. *British Journal of Renal Medicine* 2014;19:12-14
- NHS Evidence QIPP collection
- Achieving Excellence in Kidney Care

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### Future Hospital Programme

Royal College of Physicians  
11 St Andrews Place  
Regent's Park  
London NW1 4LE  
Tel: +44 (0)20 3075 1585  
Email: [futurehospital@rcplondon.ac.uk](mailto:futurehospital@rcplondon.ac.uk)  
[www.rcplondon.ac.uk](http://www.rcplondon.ac.uk)



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