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Electronic patient record sharing between primary and secondary care to support renal pathways

The care of patients with chronic kidney disease (CKD) is often initiated in general practice. Specialist renal services need to work in partnership with primary care teams, not only to optimise the community-based management of patients with less advanced CKD but also to enhance the quality of care for patients who require specialist support. A number of national initiatives have promoted better integration of primary and secondary care services.¹⁻⁵

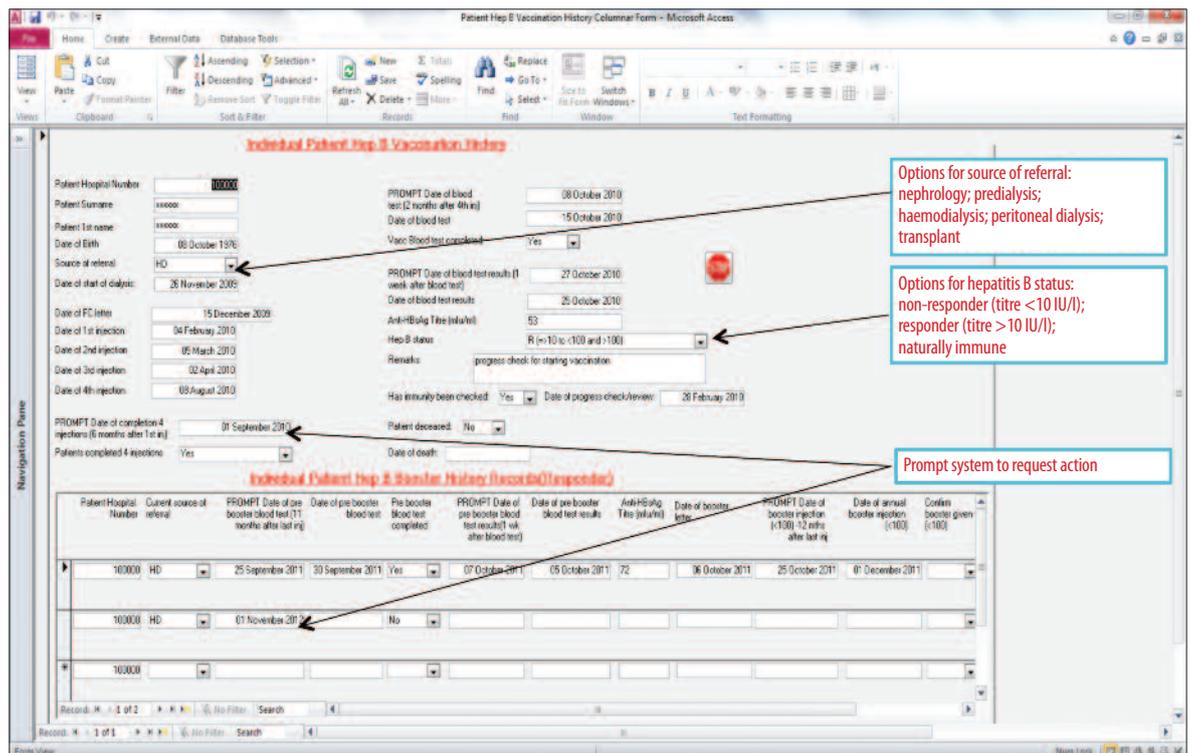
Following publication of part two of the the National Framework for Renal Services, in 2005, we commenced a rolling programme of engagement with colleagues in primary care. In addition to the introduction of estimated glomerular filtration rate (eGFR) reporting and the development of local e-guidance for CKD screening, community management, and referral to secondary care services, we explored the functionality of a primary care electronic patient record system, SystemOne® (S1), that is currently used by most practices in the Bradford and Airedale region.

The cornerstone of our approach has been to promote the sharing of electronic patient records between GPs and specialists, allowing effective virtual review of patients with mild-to-moderate CKD in the community (e-consultation). Record sharing has now been extended to include our prevalent population of patients; the Bradford Renal Services Hub within S1 is essentially a repository for the primary care electronic medical records of patients with advanced CKD, who are dependent on renal services and have consented to record sharing with the renal team.

The hub supports an expanding range of activities that require effective two-way communication between primary care and renal services, such as anaemia management, hepatitis B vaccination, medicines reconciliation and palliative care.

Our early experience of e-consultation for patients with early CKD and its contribution to supporting care closer to home is reported elsewhere.⁶ This article describes the contribution of the S1 Bradford Renal Unit Hub to improving the quality

■ Figure 1. A renal unit vaccination database



and safety of care of patients with advanced CKD, focusing on the development of a more effective renal unit hepatitis B vaccination programme.

Intervention

Renal Association guidance states that dialysis patients should be immunised against hepatitis B virus (HBV) infection.⁷ In practice, this can be difficult to achieve. The primary care electronic medical records of low clearance, dialysis and transplant patients are available to renal staff via the S1 Bradford Renal Unit Hub. It is possible to view clinical data recorded by primary care teams, including a timeline for previous administrations of HBV vaccine, which can be transferred to a renal unit vaccination database, as shown in Figure 1. The database contains a system of prompts recommending actions at appropriate intervals. Requests to administer a full course or booster dose of the HBV vaccine are made using template letters that are forwarded electronically to primary care teams via the renal hub. Measurement of hepatitis B surface antibody (HBsAb) titres and administration of booster doses of the HBV vaccine are prompted by a simple decision support tool.

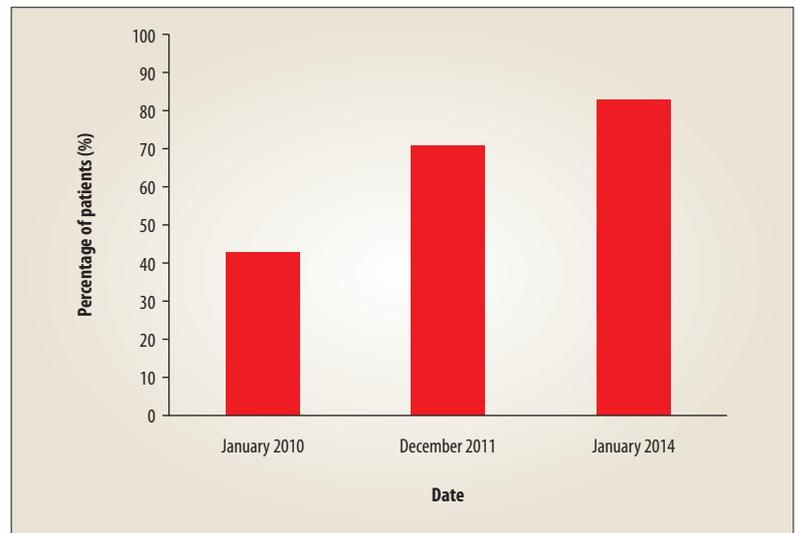
We compared the HBV vaccination course completion rates in our dialysis population before and after the introduction of a HBV vaccination database, supported by two-way direct communication with primary care teams via the S1 Bradford Renal Unit Hub. Completion of vaccination schedules was confirmed using timeline information contained within primary care electronic patient records.

Impact

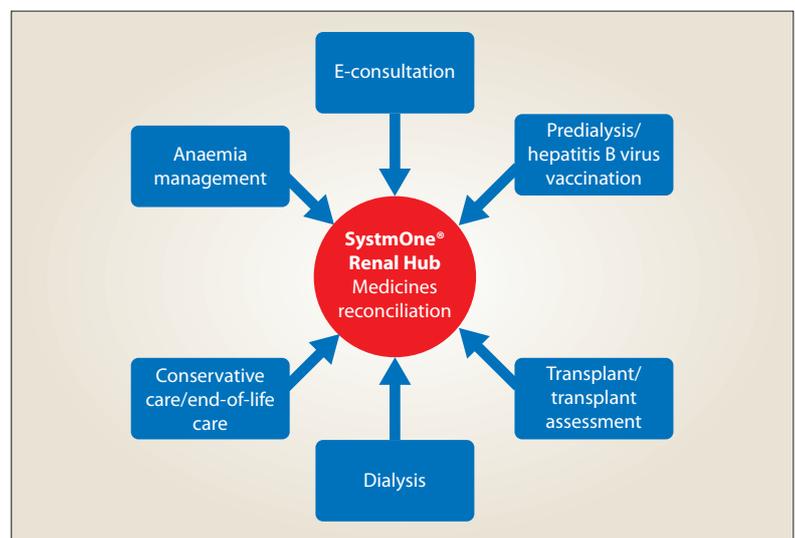
Seven hundred and sixty-one patients were registered on the vaccination database between January 2010 and January 2014. During this period, the percentage of prevalent haemodialysis patients attending our main unit who had completed a full course of HBV vaccinations (or did not require vaccination because of natural immunity) increased to 83% from a baseline of 42.8% in January 2010 ($p < 0.01$) (see Figure 2). There was a non-significant increase in the same outcome measure for satellite haemodialysis (91%) and peritoneal dialysis (84%) patients. One hundred and sixty-nine booster injections were administered in 48 months, prompted by database outputs recommending measurement of HBsAb titres with linkage of results to the decision support tool.

Discussion

HBV vaccination rates have improved following the introduction of an electronic system that



■ **Figure 2.** Percentage of prevalent haemodialysis patients attending the main renal unit who had completed a full course of hepatitis B vaccinations (or did not need vaccination because of natural immunity)



■ **Figure 3.** The Bradford Renal Unit Hub within the primary care electronic record system SystemOne®

generates prompts to recommend and confirm completion of appropriate actions in both primary and secondary care. The required actions in primary care can be requested and tracked using the S1 Bradford Renal Unit Hub, a window of communication with primary care through which the renal team is able to send and receive relevant clinical information. The hub can be used to support all renal pathways that involve primary care teams, including medicines reconciliation, anaemia management and conservative care, in addition to the ad hoc sharing of clinical information to support the management of low-clearance, dialysis and transplant patients (see Figure 3).

Many of our renal unit staff have completed S1 training, which is now supported by a dedicated hospital-based S1 training team. We hope to extend the use of the S1 Bradford Renal Unit Hub to support telephone clinics as part of a hybridised system of follow-up care for both renal transplant recipients and patients with relatively stable CKD. Similar communication hubs are now being set up by other chronic disease specialty teams in

Bradford. This model of record sharing between primary and secondary care has been recognised in both the 2011 Department of Health report, entitled *Innovation, Health and Wealth*⁸ and the 2012 Department of Health report, entitled *The Power of Information*.⁹ The model has also been presented to commissioners and service providers across the UK in various forums, including an e-seminar for NHS Kidney Care¹⁰ ■

Declaration of interest

The authors declare that there is no conflict of interest.

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Key points

- The Bradford Renal Unit Hub within SystmOne® (S1) is essentially a repository for the primary care electronic medical records of patients with advanced chronic kidney disease (CKD), who are dependent on renal services.
- Sharing of electronic medical records between GPs and specialists supports a number of renal pathways that require two-way communication between primary and secondary care, such as anaemia management, hepatitis B vaccination, medicines reconciliation and palliative care.
- Hepatitis B vaccination rates have improved following the introduction of an electronic system that generates prompts to recommend and confirm completion of appropriate actions in both primary and secondary care. The required actions in primary care can be requested and tracked using the S1 Bradford Renal Unit Hub.

British Renal Society

Simon Ball President of the BRS; Consultant Nephrologist, CSL Renal Medicine and Associate Medical Director for Clinical Systems Development, University Hospitals Birmingham

First, congratulations to all those involved in the organisation and delivery of, and participation in, UK Kidney Week. I think this was a highly successful collaboration between the British Renal Society (BRS) and the Renal Association (RA). There were more than 1,100 attendees in Glasgow, who together created a great buzz of shared experience and collaboration. I learned a huge amount, as always, across the multiprofessional field. For me, the highlights were the BRS research showcase and the Raine Award Session, but you will each have your own.

In 2015, the BRS will be meeting in Leeds at the end of June, while the RA meets jointly with the European Dialysis and Transplant Association (EDTA). There will be strong representation from both organisations at each meeting. In 2016, however, we intend to return with Kidney Week.

It seems likely that acute kidney injury (AKI) will continue to be an important focus in these meetings, as it was in Glasgow. It remains in the news and is the focus of an important collaboration between NHS England and the UK Renal Registry. No doubt, we will hear more on this matter in future issues of the journal. In particular, I see at least five manufacturers of laboratory information management systems have said they can integrate the AKI alerting algorithm into their products by this summer (see: www.acb.org.uk). The publication of such alerts is an important development for patient safety that demands a response from all of us in the way we practice, communicate and educate. If you've got the answer, then let me know, but in the meantime, there is a range of meetings on AKI that will interest many of you, the details of which can be accessed via the BRS website.

Until I became President, I had not realised how much the BRS is consulted on a wide range of policies and documents, including guidelines from the National Institute for Health and Care Excellence and other organisations, as well as NHS service specifications. If you have something to feed back, do let us know and we will endeavour to collate and synthesise a response representative of the constituency.

Finally, a word of congratulations to Edwina Brown and Paula Ormandy, who have become the first BRS Vice-Presidents, responsible for education and research, respectively. This recognises work that they are already undertaking as chairs of the respective committees, and identifies how important these roles and the work of committee members are for the part that the BRS has in the future of kidney care ■