Background

The purpose of using proactive case-management is to identify those at risk of admission and take a coordinated and holistic approach to reduce the risk by targeting the patient’s individual needs. The virtual ward, using the Combined Predictive Model to identify patients at risk of admission and then pro-actively case manage them to reduce that risk, was introduced in South Devon in late 2010. We are continuing to work to maximise the benefits of integrated working between general practice and the wider community teams, and have introduced the same model to Torbay this year. We developed a primary care Local Enhanced Service (LES) to encourage practices to introduce the virtual wards and by 2011/12, all GP practices in South Devon were fully engaged. The inter-disciplinary community teams have also embraced the virtual ward model, and recruited extra staff solely to focus on the co-ordination of the wards. Their input is invaluable, as they have been able to supplement the predictive modelling reports with social care data, ensuring the case managers have the complete picture when developing pro-active care plans for our patients.

Our performance and information team have developed their own predictive modelling tool, which they have calibrated to match the demography of the Devon population. The Devon Predictive Model (DPM) combines primary care and secondary care data to risk-stratify patients, and is produced monthly. Virtual ward meetings are held in every practice, every month. The virtual ward teams use the predictive tool to objectively identify patients who are then pro-actively and holistically case-managed by a multi-disciplinary team, including primary care, community and rehab teams, palliative care, mental health, social care and the voluntary sector. We undertake robust data analysis which evidences the success of this model in reducing admissions for patients with complex conditions.

When the full data for virtual ward patients for 2011/12 was analysed, South Devon was shown to have the most successful virtual wards in Devon; with the highest virtual bed occupancy, the highest proportion of high-risk patients being case-managed, and with the most significant reduction in admissions for that cohort of patients.

Impact on Improving Care for Patients

The use of the community virtual ward and predictive modelling has improved equity of care by:

- Identifying those at greater need on the basis of multiple information sources (including deprivation) and assessing a huge number of variables
- Preventing parallel care occurring with the patient managed almost separately by primary care and community services with potential for duplication, adverse events and compromised patient care.
- Ensuring the resources of the team, e.g. community matrons, are not utilised in treating demanding but ultimately lower-risk patients to ease burden elsewhere in the system.
- Ring-fencing time and resources to focus on those most at risk and manage them proactively.
• Helping to identify those in rural populations who access services less than would be expected and/or who would benefit from greater input.

We measure success of the virtual wards by looking at the reduction in emergency admissions over a twelve month period. Retrospective analysis over a two year period shows the numbers of emergency admissions fell significantly for this cohort, by 25.75% (we saw a 2% drop in overall emergency admissions over the same period.) Comparison of emergency admission growth, percentage virtual ward occupancy and percentage virtual ward occupancy from the top 5% risky cohort shows there is a correlation between these measures. This suggests an increasing focus on proactive case management of the most risky patients, as identified by the predictive model, results in greater prevention of emergency admissions in this cohort.

Patient outcomes and feedback are also recorded at the virtual ward meetings; with the outcomes trends identified:

• Improved communication with other services resulting in improved, seamless service for the patient
• Improved communication and support for carer, carers have increased understanding about what is happening and access to support
• Increased focus on medication and compliance – patients and carers consulted and made aware of medication. Introduced ways of increasing compliance
• Increased patient/carer communication with one named person they can contact when they need support or have queries.
• Increased number of benefits checks and access of voluntary sector services
• Increased significance of patient’s wishes especially at end of life

Case Study A: Male, age 90 with COPD and spinal stenosis resulting in poor balance and continence issues. Both he and his wife suffer from dementia. Police found the patient in a shop doorway disorientated and unable to get home, his dementia having deteriorated rapidly. On taking him home, the police realised the couple needed help and tried to alert the GP. The patients were unable to give their correct names and dates of birth which made this difficult. The police knew of the virtual wards and were able to contact the virtual ward co-ordinator who was able to identify the patient. The couple were briefly hospitalised and then discharged to residential care. Whilst the couple were not able to return home, this was a positive outcome resulting in them being housed together in a safe environment. An example of the strong communication links between the virtual ward co-ordinator, primary care & the police.

Case Study B: Female aged 93, had suffered a stroke, resulting in limited mobility and risk of falls. Patient was a high user of primary care services, mainly due to frequent UTIs. Multi-disciplinary input though the virtual ward resulted in that the case manager working with the practice to arrange for prescriptions for antibiotics to be held without the need for a GP visit. This resulted in a reduction in the use of primary care services, and improved outcome for the patient who is able to proactively start antibiotics as soon as a UTI is suspected.
Case study C: Mr K P. Has severe COPD, and is new to case management after an admission for an exacerbation of COPD. He had previously been very independent but with the case manager input he had access to a health professional whom he trusted and with whom he was able to develop a relationship. When he next became ill this was picked up by the case manager at an early stage so he was able to immediately start his emergency treatment and was monitored daily. This prevented him being admitted to Torbay hospital.

How does it succeed in breaking down barriers?

Traditionally in the NHS the approach has been to respond to patient care as it presents, i.e. reactively. With the management of complex chronic conditions, we recognise we need to behave in a more proactive and integrated way. Using the services and resources as we have in the past is inefficient in both financial and patient management terms. Care could be disjointed with often ineffective co-ordination of care between different providers, thereby producing a fragmented and variable service to individual patients.

Virtual wards copy the strengths of hospital wards and offer a more focused set-up for caring for the most vulnerable group of patients in the community. By using this format, this effort, focus and resource can be better targeted, managed and controlled. On admission to the virtual ward the patient is able to experience the full multi-disciplinary services, provided by the community services teams, social care, the voluntary sector and primary care working together.

In 2011/12, we invested £1.3million of S256 funds in home-based intermediate care, including more therapists, spot purchasing of short-term care home placements, recruitment of hospital discharge co-ordinators and short-term additional staff to clear social care assessment backlogs. We also recruited community team co-ordinators whose role is to co-ordinate and administrate the virtual wards. All of this entailed ensuring the full co-operation of primary care and our health and social care providers to agree these plans. Our shared aim was to provide better outcomes for patients, to allow them to remain supported in their home environment with less reliance on emergency services or hospital stay, maintaining active communities for as long as possible. The virtual ward model means that patients being pro-actively case-managed on the ward are able to make immediate use of all of these interventions, with seamless care regardless of provider organisation.

As observed by a GP about the virtual ward operating in his practices in Kingskerswell and Ipplepen and the impact on cross-organisational relationships:

“I think this has only worked because my partners kept going at the risk models and we worked very hard relationship building with social services to come to our monthly meeting. Since that happened we have made a difference in emergency admissions this last year. Down 20% over the previous year.”

How does this application break new ground rather than being similar to what many others are doing?

Whilst the concept of the virtual ward and proactive case management is not new, the difference in South Devon and Torbay is that we have continued to develop the model, and
have fully embedded it into our ways of working. Involvement in the virtual wards is integral to the community provider contract, and the primary care LES continues to operate. We recognise that our proactive case management initiative can only be successful with enough investment in robust alternatives to admission. Our commissioning plan states our intention to secure greater investment in upstream interventions – and the virtual ward is at the heart of this. We are building on the virtual wards to encompass even greater multi-disciplinary involvement, including specialist secondary care input, aiming for a robust multi-disciplinary care plan for all of our high-risk complex patients.

Predictive modelling too is not a new concept, but we have further developed the model to match the specific needs of our population (this is produced by a senior analyst in NHS Devon). The nationally-available model calculates risk scores relative to the national population, the Devon model has been calibrated to risk score relative to the Devon population. We also have a data-extraction system which is able to retrieve information direct from hosted GP systems, something that is not available with the traditional model. We produce DPM scores for the local population on a monthly basis and share them with each practice via the secure Commissioning Informatics website.

South Devon and Torbay have been chosen by the King’s Fund as one of five demonstrator sites to study the care-co-ordination of people with complex needs, recognising the pioneering work we have been undertaking with our virtual wards.

**Can this model be generalised or applied elsewhere?**

We know that the rate of admissions for the top 5% high-risk patients is six times higher than that for the average population, so the benefits of targeting this group are clear. The predictive modelling tool developed by NHS Devon was initially made available for other CCGs to purchase, but the procurement of other local data sets proved problematic. However, the data analysts at NHS Devon have set other PCTs up with the CPM algorithm.

The community virtual wards model can easily be implemented, but does need the full engagement of primary care and the community teams. The virtual wards would work without using predictive modelling as the primary case-finding tool, but our data analysis shows it to be most beneficial in enabling the targeting high-risk patients. The predictive tool also eliminates any element of bias when identifying patients for pro-active case management.

Practices or community teams could of course adopt the virtual ward model to discuss their patients in isolation, but we have found the true benefits of pro-active case management can only be fully realised with multi-disciplinary input.