Growing pains
Tom Williams, Consultant Paediatrician at Aneurin Bevan University Health Board (ABUHB) in South Wales, tells Document Manager about a recent project to integrate child growth chart data with other digitised systems available through their Clinical Workstation Portal.

Here in Gwent, the Aneurin Bevan University Health Board has always had a reputation for being 'ahead of the game' when it comes to the use of technology - we have had a very active Informatics programme for many years, and we've always prided ourselves on the high levels of clinical engagement in that programme. Our belief is that clinicians and IT people have to work closely together, cognisant of the future requirements of the health service.

We have our own home-grown portal, the Clinical Workstation Portal (CWS) through which staff can access pretty much every type of data held in the system: pathology, radiology, admin, electronically created correspondence, and more. These days it reflects the entire health record - it has always been our strategy that IT should supplant and enhance our activities, not interfere with them. This portal framework is an essential part of the core infrastructure of the Board overall - everyone involved in healthcare in the region uses the same common portal, which equates to some 9,000-plus users.

CHILDREN ON THE FRONT LINE
ABUHB embarked on an exercise in 2013 with CCube Solutions to add to this CWS resource all paper records in digitised format, which we knew would be a major task: Gwent is home to around 650,000 people, and there are over 400,000 active case notes.

The project began with a lot of thinking and planning, with a view to having all this data available on digital systems within 5 to 6 years, via the portal approach, digitising records from each department in turn, but also from the start all new patient records which of course included all newborn babies and many children.

We soon realised that child growth charts were going to present an issue as records became digital. Children were suddenly on the digital front line, and monitoring a child's growth is an essential measure of health and of managing trends. The measures (height, weight and in the first two years of life, head circumference) give us parameters that can drive a lot of our diagnostics.

Hitherto, all growth charts had been done on paper: measures were plotted by hand onto a standardised graph, and as these were updated regularly there was no obvious automated approach that would make sense. If the charts were scanned they'd have to be printed out each time they were updated. We therefore identified the need for an electronic version of the growth chart that could be fed by digital input.

MIMIC THE PAPER PROCESS
Fortunately when we spoke to CCube Solutions, they had faced similar issues in an earlier project at St Helen's & Knowsley NHS Trust, so they understood the challenge. They had already developed a growth chart solution but it wasn't as tightly integrated as we required for use with our CWS portal.

We did also evaluate some 'off-the-shelf' commercial growth chart automation solutions but these came at some cost and again didn't integrate with our existing systems as we would have liked.

Further discussions with CCube led us down the path of a solution based on their established e-Forms offering. It could be absolutely integrated with our portal, designed exactly as we required it, and had the potential for further development without additional problems in the future. They started work on this in May 2013, and it took around a year to get a working solution, including some time spent tweaking the Clinical Workstation system to integrate efficiently.

The e-Forms product from CCube Solutions is effectively a 'graphing tool' for our purposes. Clinical staff can key in measurement data, and the information is displayed overlaid on a 'background' image that is similar in look and feel to the original paper growth chart that we're all used to using. These charts have a standard layout derived from data obtained from the Medical Research Council, with variations for gender and different age groups (0-18 years weight & height, 0-4 years weight and height, and 0-2 years weight, height and head circumference).

Now all data keyed into this part of the system is 'plotted' onto the chart, looking just like the paper version, but the data is fully integrated with the CWS: all users can see any data related to that specific patient record, including a link to the growth chart data, and approved users can enter data. The system automatically defaults to the appropriate chart for the child's age and gender, and from the user's viewpoint it completely 'mimics' the paper process.
POSITIVE THINKING

The new system gives us all the capabilities of the charts we used in the paper chart setting; we can plot the potential growth of any child derived from measurements of parents, make adjustments for pre-term birth, and adjustments for different growth rates from bone measurements - all in a much easier way, and more reliably than on paper charts. All children grow at different rates of course, for all sorts of reasons, and this level of analysis makes our jobs much easier.

The plan is for us to stop using the paper charts for almost all patients this Autumn, as the new system is entirely bedded in and in universal use across the region. The single biggest benefit is the same as for the portal system itself: everyone everywhere can see the data in the same form, without having to physically transport a paper chart. All CWS users see exactly the same record, wherever they are across the Health Board area (limited of course by access controls related to their role etc.). What was a static paper record with limited flexibility is now genuinely dynamic, constantly being updated.

The clinical acceptance of this approach has been quite remarkable: when it first went in I was actually convinced that no-one was using the new system because I wasn’t getting any critical feedback or complaints - but in fact it was because it did exactly what it was supposed to do! Nurses in particular have been full of praise for the new chart: it simply makes their lives easier.

The clinical benefits, of not just the growth chart system but the entire electronic medical record approach, have been enormous. This new ‘integrated world’ is having a really positive impact on safety, clinical efficiency and of course cost.

There is considerable further potential for the system to be expanded into other areas including adult care, and we are also considering mobile access: which would be very helpful for community health visitors in a patient’s home. From CCube Solutions’ perspective as well, the success of the growth chart project here in South Wales presents a great opportunity for them in the wider health sector. They have an opportunity to develop this solution into something that can be easily implemented elsewhere and developed to suit the future needs of the NHS in general.

More info: www.ccubesolutions.com