Using DAWN AC for Paediatric Patients Managed on Warfarin

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The UK National Patient Safety Agency (NPSA) Alert 18 prompted a review of the paediatric warfarin management service offered at Leeds Children’s Hospital. Growing numbers of paediatric patients on warfarin (44 in Aug 2012, 78 in Aug 2013) meant it wasn’t appropriate for paediatricians based on an acute ward nor the adult anticoagulation service to take on the management of these patients.

There are also a number of clinical considerations that make the management of children on warfarin more complex and thus strengthen the argument for a dedicated paediatric warfarin service:

- Different pharmacokinetics
- Variations in weight-dose and age-dose responses
- Frequent intercurrent illnesses
- Variable dietary intake
- Concurrent medication

The review highlighted that certain elements of the current system weren’t compliant with the standards set in NPSA 18; these were addressed by developing the new formal paediatric warfarin clinic. The first clinic was held in September 2012.

Comparison of service before and after changes

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<tr>
<th>Old Service</th>
<th>New Service</th>
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<tr>
<td>Based on acute paediatric ward</td>
<td>Formal, dedicated outpatient clinic based in a clinic room</td>
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<td>Parents phoned on an ad hoc basis; no follow up if they failed to ring</td>
<td>Formal appointment times and follow up if appointment missed</td>
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<td>Paper records kept. No written communication with GP/parents. No formal follow up arrangements.</td>
<td>Computerised recording system (DAWN AC!) which does it all!</td>
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For paediatric patients, seemingly insignificant changes, such as growth spurts, altered dietary intake, term time vs. school holidays, can affect their INR. They also appear to be more sensitive to changes in dose, thus requiring more subtle dose changes and more frequent monitoring.

**Benefits of using DAWN AC:** up to date record of anticoagulation history, current medications and medical history; documentation of all INRs and dosing recommendations; written communication to GPs and parents/carers; formal follow-up arrangements; and an audit trail.

**Limitations of using DAWN AC:** being able to distinguish between adults and children would be a further benefit of the DAWN AC system. A dosing algorithm that takes into account the sensitivity of children to dose changes and environmental changes that can affect their INR would be extremely
beneficial. This would mean our letters don’t have to be altered by hand before they can be sent out.

The DAWN AC system has transformed the way the paediatric warfarin clinic works at Leeds, improving the service to patients, enabling it to comply with NPSA 18 and providing a fully auditable system.

The paediatric warfarin team are getting ready to publish a paper on their use of DAWN AC and to promote the use of computer aided dosing software in anticoagulation therapy management for paediatrics.