Home Delivery Monitoring System (HDMS): Haemophilia in the 21st Century

Ms Mandeep Kaur Rai
Haemophilia Reference Centre, St Thomas' Hospital
Guy's & St Thomas' NHS Foundation Trust, London, UK

Objectives/ Purpose

In autumn 2003, The Haemophilia Reference Centre (HRC) initiated a partnership with dedicated Home Delivery Companies to manage and deliver blood products directly to Patient's home addresses.

This system provided immense benefits for NHS Trust's in the form of resource savings and VAT savings on recombinant blood products. It also gave Patients more freedom and an enhanced quality of life.

However, its introduction also posed several challenges and risks that had to be managed effectively to achieve those rewards:

•Reduced oversight of the Patients' home based treatment pattern

•Reduced oversight of the patients stocks of blood products

•Reduced communication between The Centre and The Patient, especially those in isolated areas

•Effectively Integrate Home Delivery Companies

Therefore the HRC developed an IT system – Home Delivery Monitoring System (HDMS) to address these issues of Patient care and Pharma-economics

Method

HDMS is a highly secure IT system that monitors blood product stock levels located at Patients ' homes, and replaces the current paper based Home Treatment forms that Patients use to report home treatments.

In brief, the Home Delivery Companies are provided with an internet based interface, through which they can:

•Send & receive messages to and from the HRC or the Patient

•View the Patients stock levels at home

•Log deliveries of products for individual Patients

Patients are also given an interface (*see Figure 1*) to:

•Send & receive messages to/from the HRC or the Home Delivery Company

•Confirm home deliveries

•Log prophylactic product usage

•Report bleeds

Figure 1:Screen shots from Patient interface

The Interface can be accessed via a personal computer (with an internet connection) or an internet enabled XDA (*see Figure 2*).

Figure 2: The interface can be accessed via a PC or internet enabled XDA (pictured right)

These messages are relayed through a central hub and are fed into the particular Patients' records in our HRC database – Data8, so HDMS is integrated with our existing system (*see Figure 3*).

Using Data8 the HRC can then access:

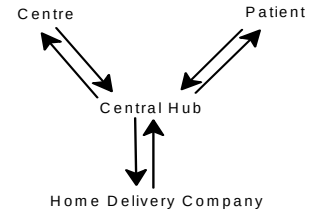
•Real-time monitoring of Patients
- Stock levels & Deliveries
- Product Usage Statistics
- Bleed History

•Send/Receive 'text messages' to and from Patient

•Monitor Home Delivery Company efficiency

•Order and monitor remedial action

Figure 3: Message Flow within HDMS



Key:
Patient: Patient interface (via internet enabled XDA or PC).
Centre: HRC database - "Data8".
Central Hub: The messages are relayed through here.
Home Delivery Company: Home Delivery Company's Interface.

Results

In September 2006, the HDMS pilot phase was initiated – 12 Patients were trained to use the system. The pilot group was surveyed in November 2006. The results illustrated:

•All Patients surveyed found the HDMS interface to be user friendly.

•All Patients surveyed said they preferred to use HDMS rather than complete paper based Home Treatment Forms.

•89% of Patients surveyed found it easy to enter prophylaxis/bleed data using HDMS.

•67% of Patients surveyed said that they enter in their prophylaxis/bleed data immediately after treating themselves.

•56% of Patients surveyed had used the HDMS to send a message to the Haemophilia Centre or Home Delivery Company.

•All users that are a Parent/Carer of a child who has Haemophilia said the HDMS would make it easier for them to involve their child in their treatment.

70 Patients (aged between 12-72 years) are now using the HDMS with another 30 Patients to be trained by autumn 2008 (*see Graph 1 & 2 for patient and usage data*).

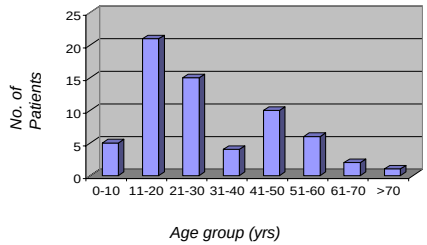
Approximately £20,000.00 has already been saved by using HDMS for early identification of:

•Patients not rotating stock appropriately

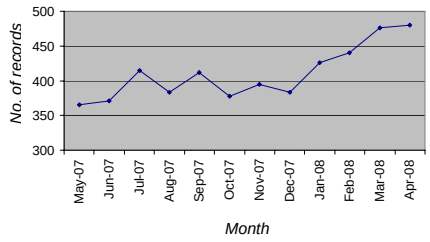
•Patients not following their prophylactic treatment regime

•Patients using on demand treatments inappropriately

Graph 1: Age range of Patients using HDMS



Graph 2: Number of home treatment records submitted via HDMS



Patients have been very receptive to the system and provided much positive feedback:

"I think it is very good. It is an improvement on the skeleton forms; it is easier to make comments and to communicate with the centre. Treatments can be entered immediately and any problems can be identified straight away rather than keeping the forms for the next delivery which is usually every 4 weeks."JL

"I think it is great; it is much easier to use rather than the paper forms. It is simple to use, just the click of a button and all the information is submitted". HM

"I can't praise the HDMS System enough. It is very reliable and easy to use. Even my son, who is only 6, is learning to use it. It was worth everything recently when, due to a nostal delay, we had run out of reatment forms but could still log his reatments. Thanks." RB (MS's num).

n December 2007 HDMS also won he London NHS Innovators Awards n the category of ICT & Software *see Figure 4*).

Figure 4: The London NHS Innovators Award and at the Awards Ceremony (L-R):
Dr Savita Rangarajan (Consultant Haematologist), Stephen Lowe-Watson (Software Developer) & Mandeep Rai (Data/Blood Products Manager).

Conclusion/ Evaluation:

The HDMS helps reduce the risks of Patients stock running low, Patients failing to rotate stock, Patients failing to follow their given prophylactic regime, Patients using out of date or recalled stock, inappropriate use of on-demand treatments and failure to identify medical conditions early enough to enable straight forward treatment.

Reducing these risks helps avoid costly emergency treatment interventions and patient harm. The system proposes vast improvements in patient monitoring and treatment because the treatment data is in 'real-time' allowing Consultants and Haemophilia Centre Staff quick and easy access to patient details, ensuring early identification of patient non-compliance and patient bleeds.

The system is running efficiently and already there are associated resource/cost savings from running the system, which will increase with the continuation of the service. Clinical involvement and Patient discipline remain key issues to system strategy.

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