

Business Intelligence & Process Automation in an NHS Organization

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Introduction

This case study examines the use of automated report distribution and other business processes to drive down costs and increase efficiency and reliability. The specialist area within the NHS is Pharmacy and Oncology Directorate, but the situation and scenario can be applied to other disciplines within the Health Community, and also corporate business.

Background

The Pharmacy Department plays a key role in an acute NHS Hospital setting. The primary functions are the supply of drugs to clinical areas, and provide supporting information to clinicians regarding the safe and effective use of drugs. They are also involved in cost saving exercises to maximise drug expenditure within the organisation. For example in an NHS trust hospital with approximately 2000 beds the drugs spend can be in excess of £25 million per annum.

Drug expenditure and drug usage analysis has become a key driver for developing future treatment strategies. The current IT applications used within pharmacy can store each individual prescription transactions, record patient drug histories, hold purchasing information, measure prescription turnaround times, review on-call activities etc... Drug expenditure and drug usage analysis has become a key driver for developing future treatment strategies.

We currently use Crystal Reports to generate information from our following applications:

JAC PHARMACY AND PRESCRIBING SYSTEM

A complete stock control and drug accounting application

PRESCRIPTION TRACKING SYSTEM

An application to track the progress of prescriptions through the dispensary

ON CALL LOGGER

A web based application to log on-call activities.

CHEMOCARE

Chemotherapy Electronic prescribing system

All use standard database architecture MS SQL or Intersystem cache, and creating reports using Crystal Reports is straightforward.

Current Issues

The generation of Crystal reports were taking longer, and more information requests were coming through. The usual monthly, quartile and annual reports account for a large amount of staff time. The first 2 weeks of each month and quarter etc were spent running, formatting and emailing reports. Users of the service experience delays with receiving reports. The whole process was time consuming, and put pressure on limited Pharmacy IT staffing resources. Some reports had to be manually zipped up before they are sent, or sent in separate email batches this was an additional step in the process.

Process

To ease the situation it was clear a solution was needed to meet the current demands of reporting scheduling, and provide some scalability/scope for future demands. A scheduling tool was required to enable the reports to be sent out on time with little intervention. This tool had to be reliable, scalable and easy to use. From internet searches and reviewing various products we discovered an application called CRD. This was an application created by a company called www.christiansteven.com. They are a web based company who had a global product called CRD which suited our needs.

About CRD

CRD enabled us to automate production and distribution of our Crystal Reports. It would send the Crystal Report as an email attachment, a printer, a fax or output it to a selected folder. It has also be used as a general automation tool to run a schedule for other things for example, create folders, ftp files, send email reminders, database triggers on events, eg if "x" happens do "y", create registry keys and values. The first impressions of this application were of a Windows Explorer type interface, which was intuitive, easy to use.

Reports were scheduled on a monthly basis and the number of schedules, and reports were gradually increased to test how the application's scalability.

Over the coming weeks time was spent looking more closely at the application and understanding how it worked and realising the potential. The following month CRD was migrated to a server, and the product was put on general release by chrstiansteven.com

The first major step when using CRD was to redesign our reports to ensure they pulled the correct data. For example, when the schedule ran on the first of the month, it needed to only pull the last month's data.

We created formulas in Crystal to ensure we selected the appropriate data, these formulas now work on whichever month and day the schedule is ran.

Reports which were common to many different users were modified to include parameters. These parameter values could be added to the schedule in CRD, this gave the benefits of version control, and ensured creating new schedules was very easy.

Results

There were many benefits from using CRD:

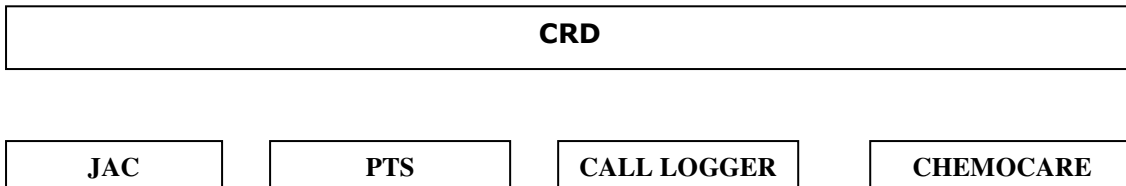
- Every time a new report is requested, a report package is created, rather than a single schedule. A package can contain many reports; this gives the benefits of adding further reports at a later stage.
- Reports are now created with the potential of adding them to the scheduler. Many report folders have been created in CRD for example Monthly and Quartley, which hold up to 150 reports in total. This number is growing weekly as more reports are required. Some are also required daily and weekly etc.
- We now have joint initiative with the Finance department. This service was not previously offered due to limited administration support. (Funding from these departments is now being explored to support software maintenance, and administration costs)
- More people are starting to realise the potential of using CRD, custom daily schedules are being created. For example: A patient list report is now scheduled to be printed in the pharmacy department every morning, this is used by the pharmacy receptionists.

Regarding the housekeeping and server, a CRD mailbox has been created which sends out all the schedules by email. This is not essential but it keeps all mail sent from one central place. The load on the server is minimal as CRD runs as a service and doesn't use much processing power or memory.

Overall the application is stable, requires little intervention or housekeeping, and is easy to use, there are comprehensive demo's and manuals available to help with training a system administrator. Where support from CS has been required issues have been resolved quickly and professionally

The future and realising the potential

CRD is now overlaid across all our applications to monitor them and also generate reports from them.



The numbers of reports which are scheduled are not huge compared to the requirements of some organisations, but this software has transformed the way we generate and deliver information across our NHS trust.

We have identified other potential uses of CRD which are currently being explored:

- Finance can create a schedule which first creates a folder in a network share e.g April accounts. Then the schedule will run the reports and dump the account information into an EXCEL spreadsheet, for all users.

- Sending discharge summaries to GP's
- Electronic transfer of take out hospital prescriptions (TTO's)
- Clinic/theatre/ward lists can be distributed by email from your PASS system
- Some hospital IT systems require updates using generated CSV files to upload update information files from other systems. CRD could be used to extract data and ftp to the required location/server.
- Performance data could be exported from Crystal into HTML to a website and then saved to an intranet server, providing up to date information to staff.
- Using the event based schedules there are options to monitor particular systems to ensure things are being done... e.g monitor an electronic prescribing system to see when new patients have been registered.
- As drugs cost are expensive you could monitor the pharmacy fridge temperature database to ensure the temperature is correct. If the temperature is raised above 8c you can set a schedule to send an SMS message to the on-call pharmacist who can implement a contingency plan.

Conclusion

CRD has released staff time and provided timely information to healthcare professionals. As time passes this application is becoming more integrated into our operations and will continue to do so in the future.