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ConCERT-D
an idox solution

Case Study - West London Mental Health Trust

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5th January 2016

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Introduction

ConCERT-D is an electronic patient record system designed specifically for the treatment of dementia patients providing R&D Departments with the necessary tools to manage consent and participation in clinical trials. ConCERT-D was designed by clinicians at West London Mental Health Trust to provide an easy-to-navigate clinical tool allowing clinicians to keep track of the patient's medications, assessments and diagnosis using ICD10 encoding.

It also provides a platform that encourages all parties to contribute to clinical research. The system allows researchers to easily identify eligible participants and manage the whole patient recruitment process. It also allows users to specify the patient's research diagnosis and the related research diagnostic criteria (RDC) which allow diagnoses to be consistent in psychiatric research.

Background

Dementia is a disease that affects not just the sufferer but whole families, prematurely destroying lives and relationships. It costs the NHS and other health providers around the world billions of pounds each year and there is little doubt that governments have now put this condition to the top of the list of diseases needing improved outcomes. The answer to providing better treatment and indeed elimination of this disease is to carry out far more research.

Increasing the number of patients and carers taking part in research is meeting UK government targets for Dementia research, helping with a global push for improvement.

> *"One of the greatest challenges of our time is what I'd call the quiet crisis, one that steals lives and tears at the hearts of families, but that relative to its impact is hardly acknowledged.*
>
> *We've got to treat this like the national crisis it is. We need an all-out fight-back against this disease; one that cuts across society."*
>
> **Prime Minister David Cameron, speaking at the Alzheimer's Society Conference, March 2012**

Increased participation in clinical trials will help introduce new drugs and protocols to the frontline sooner, thereby helping patients, carers and families to regain their lives.

Typically Dementia is treated in Memory Clinics or Psychiatric Centers within a hospital. Patients and carers are invited to meet with doctors and other clinical staff to determine a care pathway. Once patients are assigned to the Cognitive Impairment and Dementia (CID) care pathway the patient details are automatically imported in ConCERT-D and assembled through specialist services for people with cognitive impairment and dementia (e.g. memory clinics, old age psychiatry outpatients/day hospitals and care homes) as part of a Trust's clinical process for dementia treatment.

The Project

WLMHT undertook an initiative in collaboration with DeNDRoN to setup a Register system specifically aimed at Dementia. After the success of the Dementia Patient Register, the same register model is now being used as a benchmark to showcase the benefits that can be delivered to all patient groups across West London Mental Health Trust. Therefore, it was for the above mentioned reasons that it's being proposed to establish a register of people, along with their families and care supporters who would be willing to participate in research studies which will be used to answer some of the key questions faced by service users and providers, as well as other future studies.

Introduction to the Patient Register

The proposed system is a register of people, grouped together on the basis of their clinical/mental conditions, and their carers to provide the basis for efficient and appropriate identification of patients who are suitable for and would welcome the opportunity to participate in research studies. This patient register is being designed and developed with the purpose to be used as **RAFT (Recruitment and Feasibility Tool)** for Research Management and patient recruitment for any Research study running in the Trust.

All patients of WLMHT that are assigned to a supported care pathway will have their demographics and basic clinical details held on the proposed patient register application. Patients and their carers who have consented to participate in the DemReg research register and are willing to be approached for their involvement in research studies will have their consent details store and also be accessible by the research team at WLMHT. They may then be approached to be involved in a variety of clinical research projects, all of which will be subjected to separate ethics approval, R&D registration and consent. This may include cohort studies, intervention studies and other epidemiological enquiries.

Also, the Data Protection Act requires that all patients who are identified for research projects have given their consent to be identified in this way. A register of people who had consented to be approached would allow efficient identification of these patients while avoiding the delay of prospective identification of subjects.

Aims & Objectives

Aims

The main aims of the proposed patient register are:

- The main aim of the proposed application is to develop a register of WLMHT patients (from across all clinical domains) and their carers to provide the basis for efficient and appropriate identification of patients who are suitable for and would welcome the opportunity to participate in research.
- Provide a clinical database system to complement RiO, to facilitate clinical activity and audit / service planning / pharmacy monitoring etc.
- Provides capability for in-depth search for research audit and/or clinical use.
- Facilitate identification and recruitment of appropriate & suitable patients for future clinical research.
- To provide infrastructure to link such patients into well-designed and highly organised clinical studies.

Key Objectives

Primary Objectives

- To store clinical details of all patients in WLMHT, assigned to a care pathway that is catered for by the Patient Register. Current scope only supports the Cognitive Impairment and Dementia (CID) care pathway. Future iterations of product development may include other pathways, but this will require additional development effort and dedicated funds.

- To support the process of inviting them and their carers to join a research register, providing a platform to record their consent, research preferences and activity.

- To hold a minimum dataset of information about all WLMHT patients assigned to a care pathway catered for by the Patient Register, plus information about their consent to the research register, to enable appropriate matching of register members to research projects.

- Works within the WLMHT data warehouse and is compatible with other Trust systems, such as RiO.

Secondary Objectives

- A solution that can be extended to other organisations involved in patient care.
- The same technical model can be implemented in other Trusts / organisations involved in patient care in the future.
- A scalable and robust system that will be capable to incorporate future requirements for different:
    - Care Pathways
    - Trusts

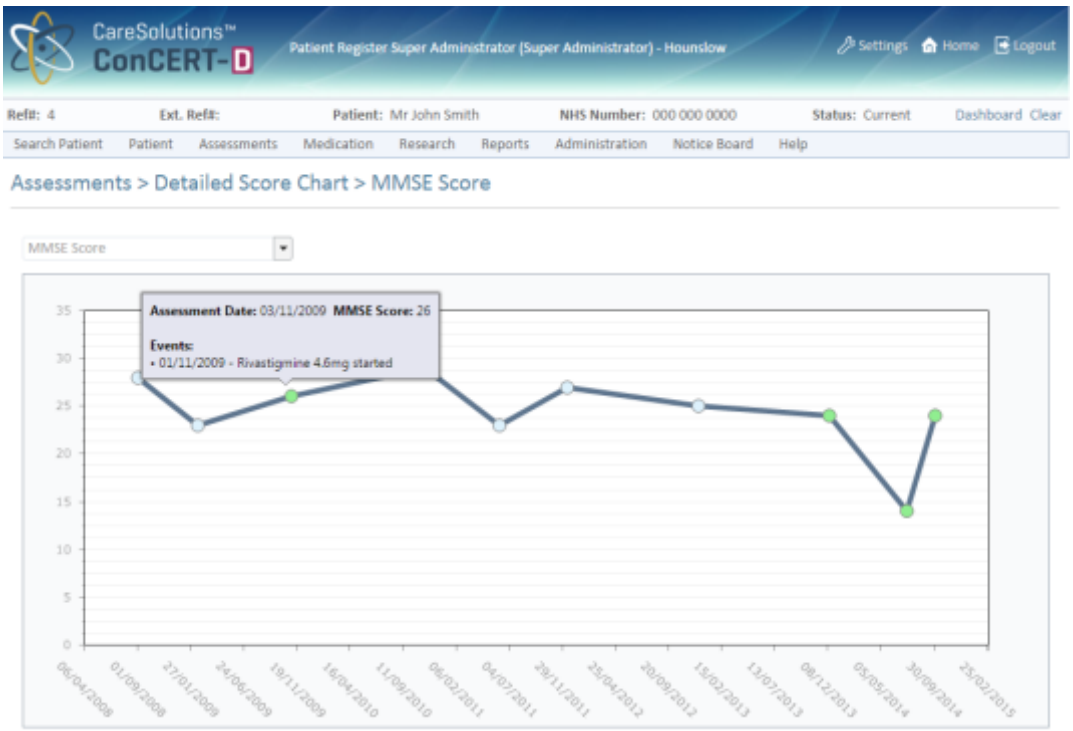
However, treatments and medications offered to patients in different disease registries might be different, so it should allow for a modular approach i.e.

- One module for the patient details (e.g. demographics, contact details etc.)
- One module for the clinical domain (e.g. clinical assessments, GP and consultant details, medication etc.)
- One module for research (e.g. research participation, research management etc.)
- One module for reporting
- One module for administration (e.g. user management, permissions, auditing etc.)

Clinical Perspective

From a clinical point of view ConCERT-D is an Electronic Patient Record designed specifically for the treatment of Dementia patients. Understanding and recording information on a patient's condition has to date been done using patient notes. However this does not encourage a collaborative approach to viewing data because it's difficult to plough through paper records. ConCERT-D was designed by Clinicians at West London Mental Health Trust to provide an easy-to-navigate clinical tool which, when used in clinical sessions, provides a platform that encourages all parties to contribute. It provides simple displays of results and key information for clinicians, while updating records (both clinical and non-clinical records) is straightforward and a simple task.

ConCERT-D displays captured mental assessment scores for tests such as MMSE (Mini Mental State Examination) in a graphical way, enabling clinicians to relate fluctuations in scores with events that happened in the meantime. These could be medication related events such as a change in dosage or a newly prescribed drug, clinical trial participation events or other life events which the clinicians may deem have affected the patient's health.



The medication module allows clinicians to easily keep track of the patient's diagnosis, prescribed drugs, related side effects, allergies and chronic conditions. The in-built drug formulary is specially geared towards dementia patients. Half of all dementia patients routinely receive drugs that make their symptoms worse. To counter this, in ConCERT-D the accumulative anticholinergic cognitive burden (ACB) is automatically calculated allowing clinicians to take better decisions and ultimately reducing the risk of cognitive impairment and death. It is well accepted that each definite anticholinergic may:

- Increase the risk of cognitive impairment by 46% over 6 years.
- Decline the MMSE (Mini Mental State Examination) score by 0.33 points over 2 years
- increase the risk of death by 26%

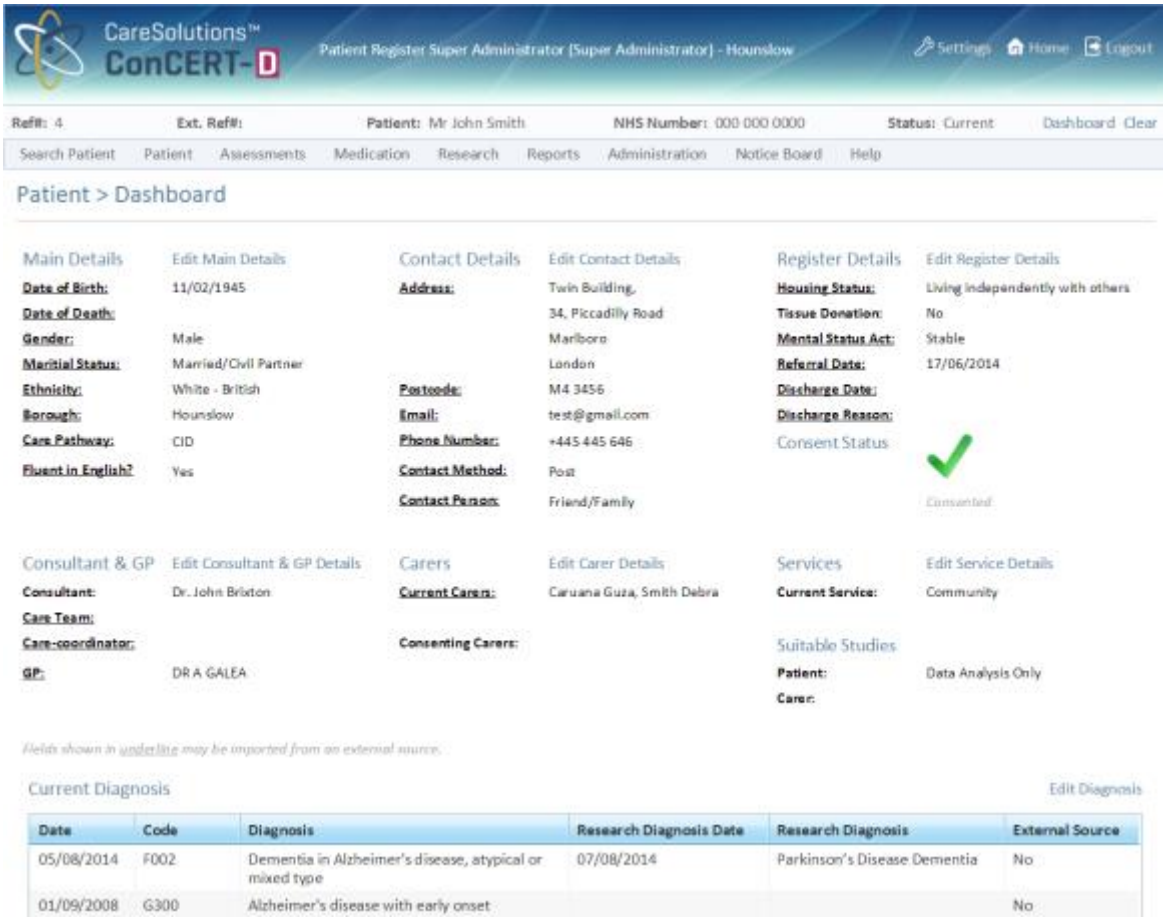
The medication module also allows the clinicians to check the dosages for antidepressants and antipsychotics being taken by the patient as a percentage of the British National Formulary (BNF) maximum dosages set for these medication. Also for each medication prescribed, the dosage is calculated as a percentage of the BNF maximum.

The patient's clinical information gathered and managed by clinicians within ConCERT-D is then used by the R&D department who thrive on this information to find suitable participants for the various clinical trials. In the second part of this blog I will wear the R&D department's hat and look at ConCERT-D as a useful and handy research register tool.

Research Perspective

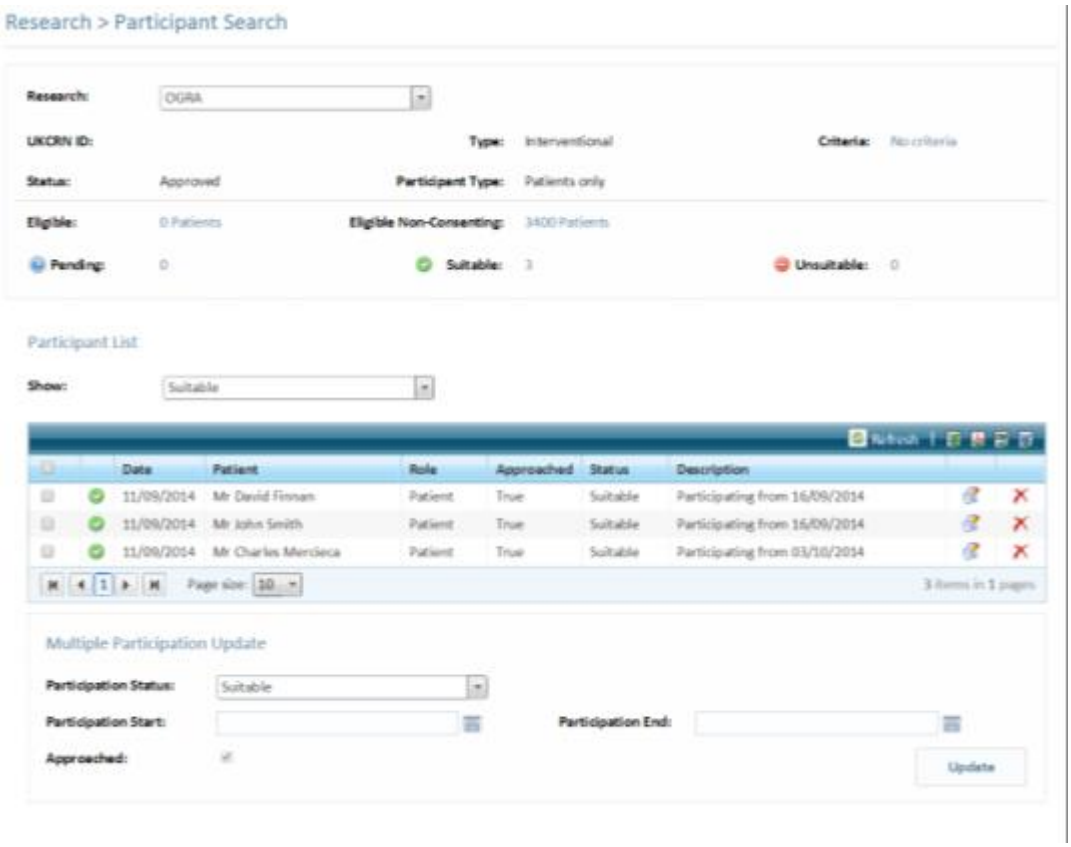
Besides being an Electronic Patient Record system for clinicians, ConCERT-D gives the R&D department the necessary tools to manage patient consent and trial participation.

Capturing the consent to participate in clinical trials is a key factor of ConCERT-D and is how it got its name. It captures the approvals of patients and carers and stores that information clearly indicating the status of that patient with respect to consent. Using a simple tick and cross system, a health professional can, at a glance, see whether the patient, carer or both have consented to participate in clinical trials. If there is no indication of an approach having been made, this can easily be brought up and the consent process can be initiated. Even if they have previously declined to participate, the position can easily be discussed again with the patient and/or carer.



Dementia trials are now seen as a major government target and the drive is on to include more participants. The process of determining who is eligible for a clinical trial has traditionally been a laborious one. Pharmaceutical companies announce a new trial and issue details and eligibility criteria to NHS organisations. It then falls to the Researchers to determine if they have any patients who meet the trial criteria. The ability to easily identify patients and carers that match a clinical trial's participation criteria provides a highly effective tool to increase that participation in research. The desired outcome is that patients can be offered additional treatment options and, in the long term, more research will be the path to understanding and curing the disease.

The R&D department can build the appropriate participation criteria for a clinical trial in ConCERT-D and at a click of a button, the system will automatically report on patients who are eligible for participation in this study. This saves significant time in getting information on eligible patients to the trial organisers which is very important not only to patients but to trusts too who can benefit from a substantial income stream resulting from providing this information. Once a patient satisfies the inclusion and exclusion criteria a process kicks off whereby internal background checks are done, the R&D department speaks to the patient's carers for advice and in some cases tests and screening is also carried out. This process is managed by ConCERT-D and in case the patient is found unsuitable to take part in the clinical trial the reason why is logged and the patient is automatically excluded in subsequent participant searches for that trial.



ConCERT-D facilitates accreditation in programmes such as The Memory Services National Accreditation Programme (MSNAP) which allows the trust to benchmark its services against national standards and provide quality assurances. MSNAP also enable staff to ensure they are making a meaningful difference to people's lives as well as supporting implementation of the National Institute of Clinical Excellence (NICE) guidelines. ConCERT-D allows the clinicians to capture MSNAP information during interactions with the patient and then generate reports with the information gathered. These reports allows the identification of trends, assessment of completeness and are of great use for assessors when rewarding accreditation.

Better research will ultimately lead to better treatments and outcomes for patients and this will begin to reduce the overwhelming impact Dementia is having on health budgets, families and individuals. We at Idox Health are proud to do our small part in pursuing defeat of this dreadful illness.

Business Benefits

Outcomes/Feature	Benefit	Description	Financial
Outpatient consultation increase in productivity and capacity	Time Savings Quality Improvements Patient Satisfaction Improvements	Increase in quality and effectiveness of clinical consultation. As all of a patient's relevant information (e.g. medications) is available on the one screen clinicians do not need to open several systems to obtain the information. The consultation with the patient therefore takes less time making it more efficient. More patients can be seen per clinic, increasing throughput and efficiency. For a trust with 3 consultants, 2 junior doctors, a total of 30 clinics per week, 60 patient appointments per week (3120 per year), using the system would result in 624 additional 30 minute patient appointments (20% additional capacity). Same number of clinicians seeing more patients = an increase in capacity. In monetary terms this equates to £67k (average cost of an Outpatient appointment = £108, Department of Health Reference Costs published 2013). The interaction with the patient is also improved with more eye contact possible. The patient's experience is improved. As a result there is an increased compliance and adherence with treatment. Ultimately saving time and money in reduced appointments.	£67K

Electronic Dementia patient record – faster access and simple consolidated display of patient data. **Full integrated pathway management of Dementia patients.**	Quality improvements (Clinical Decision making and patient experience) Time Savings	Facilitation of collaborative working for geographically remote located clinicians. As clinicians are able to view and document in a collaboratively developed care record less time is spent on travelling from one location to another to view the information, or waiting for the paper record to become available. Quality benefits: with increased collaboration less time is spent on clinical decision making and care planning. Quality of decision making improves and patient risk is reduced (better overview of polypharmacy). Patients have a better experience with fewer visits to different clinicians. Cost benefits associated with this exist but are difficult to enumerate as the savings are dependent on travel time and costs and the extent of the polypharmacy (but these could be identified). Joins existing Mental Health clinical applications to one integrated system.	Time saving and increased quality
Facilitated Clinical Trail participation	Time savings	The inclusion of the consent functionality for patients and carers allows clinicians to quickly identify whether patients/carers have consented to participate in clinical trials. The system enables the identification of suitable cohorts of patients for trials based on a search of the records. This information is then made available to the trials co-ordinator for further processing. The amount of time saved (no longer having to look through patient paper records to identify suitable patient cohorts) is huge. If a cohort of 50 patients is required for a study and each paper record needs to be scanned for suitability and each scan takes 3 minutes, and 200 patient paper records need to be scanned to achieve the final 50, the using ConCERT-D would save about 10 hours in work. If the scanning is done by a junior doctor this equates to £290 per trial. It also helps meet the UK Government targets for Dementia research to help push towards global improvement of clinical practice and intervention with earlier identification.	

Graphical displays of mental health scores like MMSE (Mini Mental State Examination)	Savings	Graphical display of MMSE scores enables clinicians to look at trends and impacts from changes to medications, and other events. Therefore facilitating clinical decision making and speeding up treatment. Although this would produce cost savings it is difficult to enumerate these at this stage. There is potential reduction in numbers of outpatient appointments at the very least.	Financial savings and increased outpatient capacity
Automatic production of GP letter	Cost and time savings (annual)	A letter is produced by each consultant for each appointment. Each letter takes a consultant 5mins to dictate and 5mins to QA. Administration staff take 10 mins to type each letter. Number of letters per year 3120 (Consultant, 10x3120/60x£60; Admin, 10x3120/60x£9)	£36k
Reduction in time by staff producing MSNAP report	Time Savings	Automatic generation of MSNAP report from system reduces time spent by the data manager entering the details again. If the data manager spends 5 mins per MSNAP report. 15-20 per week then approx. 1040 reports per year this equates to a time saving of 5200 mins = 86hrs per year (2wks saving admin per year)	Time saving 2 weeks per year of admin staff
Automatically calculates the Anticholinergic cognitive burden (ACB)	Savings	ACB automatic calculation facilitates clinical decision making on medication prescribing. This in turn can reduce the risk of cognitive impairment and mortality. The benefits of improved prescribing (reduction in ACB) could be monetary in that fewer drugs would be prescribed, postponement of cognitive deterioration and less hospitalization. However to measure these benefits, further analysis would be required.	Potential significant financial savings and improved quality of patient care

Medication management of dementia patients	Savings	The internal medication module allows clinicians to check the dosages for dementia related medications including anti-depressants and antipsychotics being taken by the patient as a percentage of the British National Formulary (BNF) maximum dosages set for these medications. This facilitates better medication management resulting in quality benefits for patients and potentially cost benefits for healthcare organisations (reduction in unnecessary meds).	Potential significant financial saving and improved quality of patient care

Conclusion

Better research will ultimately lead to better treatments and outcomes for patients and this will begin to reduce the overwhelming impact Dementia is having on health budgets, families and individuals. We at Idox Health are proud to do our small part through ConCERT-D in pursuing defeat of this dreadful illness.