



Peter MacCallum Cancer Centre

Victorian Chemotherapy Service Redesign Project (VCSRP)

Final Report:
Key Messages and Executive Summary

April 2014

Danielle Murray, Project Manager
Marliese Alexander, Project Officer



Acknowledgements

The Victorian Chemotherapy Services Redesign Project (VCSRP) was a collaborative project, which drew on the strengths, experience and expertise of several different individuals and teams from across Victoria. The many positive outcomes of this project would not have been achieved with the loss of any of the collaborating partners. In particular, I would like to thank;

- DH Cancer Strategy Branch program staff, Kathryn Whitfield, Adam Chapman and Liz Simkiss for assistance with the establishment of the project, its funding and governance
- Jenny Byrne and Di Seward from WCMICS for their support with the Community of Practice events and CDU Redesign Workspace Forum
- WCMICS data managers, Steven White and Belinda Zambello for the ICT development and ongoing hosting of the CDU Flow Manager database and performance reporting tool
- Anton Freischmidt and staff from the DH Redesigning Hospital Care Program for assistance with the editing and production of 'A guide to Chemotherapy Day Unit Redesign Measures for Improvement' Toolkit (2014)
- Marliese Alexander, for her project support and expertise in statistical data analysis which made an important contribution to the validation of reporting scripts in CDU Flow Manager and to the determination of measureable improvement at sites
- All of the site based project staff and their CDU Nurse Unit Managers and staff at each of our 10 participating pilot sites for their generous collaboration and enthusiastic leadership of site projects
and
- The entire multi-disciplinary team, that together manage the care of patients at Peter MacCallum Cancer Centre's CDU, who started the journey of developing a suite of clinically meaningful CDU performance measures with me in 2011.

Danielle Murray, Program Manager VCSRP.

Key Messages

1. Prior to commencing the Victorian Chemotherapy Services Redesign Project (VCSRP) the depth and breadth of chemotherapy day unit (CDU) performance data being monitored at the participating sites was very limited.
2. 60% of sites reported limited or no access to Information Communication Technology (ICT) systems or support for developing performance reports presenting a key barrier to producing data for improvement.
3. 'CDU Flow Manager' a purpose built data base with a comprehensive user guide was developed to house a chair-side patient flow audit and produce a suite of fully automated performance reports for the VCSRP sites.
4. Sites were surprised by lower than expected chair utilisation rates with baseline chair utilisation at a median of 48% and post redesign 56% indicating there is some spare capacity across all of the participating sites.
5. Additional baseline data collected by manual case note audit revealed big variation in timeliness of access to first medical oncology review ranging from 9-90 days and access to first haematology review ranging from 15-107 days across the VCSRP sites. Waiting times for new patients to commence treatment in CDU ranged from 0- 21 days.
6. The majority of sites focused on reducing patient waiting times on the day of treatment with a series of interventions designed to improve the accuracy of appointment scheduling by applying new knowledge gleaned from the baseline diagnostics about predicted length of stay (LOS) and the turn-around times of key processes.
7. Having a comprehensive suite of performance data and collaborating sites to share and benchmark with supported statistically significant improvement in one or more of the key measures at 4 of the 10 sites.
8. All sites combined achieved significant improvement in 3 key areas being a; 5 minute reduction in total patient waiting time (34- 29 mins, $p<0.001$), 4% improvement in value added chair time (83-87%, $p<0.001$) and 8% increase in median chair utilisation (48-56%, $p=0.004$).

9. CDUs should be incentivised to routinely monitor and report on key performance measures to promote service quality and efficiency and to support improved demand and capacity planning.

10. Cancer service providers should consider referencing the suite of measures defined in CDU Flow Manager when specifying management reporting functionality in business cases for new chemotherapy prescribing and scheduling ICT platforms.

11. Consideration should be given to the development of a state-wide performance measures framework for monitoring and reporting on access to cancer services and service performance.

12. The absence of a standard mechanism for prioritising patient access to first cancer specialist review and then to cancer treatment services, reflected in a lack of granularity in the new Victorian Integrated Non-Admitted Health (VINAH) data set (1), is a key gap that would need to be closed to achieve a comprehensive and clinically meaningful data suite.

Executive Summary

Background

In Australia, 1 in 2 people will be diagnosed with cancer and one in 5 will die of cancer before they reach 85 years of age. By 2016-17, cancer separations across Victoria are predicted to increase by 20% for multi-day and 30% for same-day stay (2). As the incidence of cancer and chemotherapy separations continue to rise, at reported and projected estimates of between 2.5 to 3.5% per annum (3-5), along with increasing complexity around delivery of chemotherapy treatments, treatment centres will face upward pressures as they attempt to meet the need for timely care when faced with ever increasing demand. It is well described in the literature that excessive appointment delays are emerging as a primary source of overall dissatisfaction among oncology patients and staff both in Australia and internationally (6-7). Further, long wait times may adversely affect patient adherence to scheduled appointments and recommended oncology treatment schedules (8-10). Accordingly, there is growing acceptance to broaden the definition of quality to include both efficiency and timeliness (11). However, the existence and use of clinically meaningful performance data has been lacking in chemotherapy day units (CDUs) with a limited number of published papers quoting benchmarkable data to inform the improvement agendas of chemotherapy service providers (12-14).

Following a successful project conducted at the Peter MacCallum Cancer Centre in 2011 (12), where multi-disciplinary staff collaborated to improve the efficiency of their CDU by developing a suite of performance measures to inform targeted interventions, the Department of Health called for 'Expressions of Interest' for up to 8 health services to collaborate in a Victorian Chemotherapy Services Redesign Project (VCSR). A key driver for the establishment of this project was to test the broader application of the measures in a diverse range of CDUs to see if others could replicate the measures, gain insights into local systems constraints and then apply the leanings to achieve similar efficiencies.

Key VCSRP Objectives

- To increase the capability of Victorian CDU management teams to employ lean business improvement techniques and consistent performance measures to support locally lead service improvement
- To develop a CDU redesign toolkit and suite of performance measures to be made available to all Victorian day chemotherapy services for use as an improvement guide
- To improve the efficiency of participating CDUs and share the leanings promptly through a community of practice
- To improve the patient's experience of CDU.

Site Selection

8 sites from across metropolitan and regional Victoria were selected to participate as follows; Austin Health, Bendigo Health, Western Health, Peninsula Health, Ballarat Health, Easter Health (Box Hill, Maroondah and Yarra Ranges sites), Barwon Health and South West Health. Regrettably Austin Health withdrew from the VCSRP at the end of the diagnostic period due to competing priorities in their Oncology service and hence only 7 health services (9 CDU sites in total) completed the program of work.

Project Management and Governance

A Project Manager was appointed from Peter MacCallum Cancer Centre who provided the overall timeline, reporting milestones and report formats for the pilot sites. Pilot sites met formally on five occasions throughout the year to help progress key phases of the project and required reporting including; project set up, diagnostics, solutions design, implementation and evaluation. In between meetings the VCSRP Project Manager and Project Officer supported site project staff and local CDU managers with regular phone coaching and email contact. In addition, each site established and reported to a local project governance group.

The VCSR Project Manager met regularly throughout the year with relevant DH program managers from Cancer Strategy Branch to provide updates on progress against key milestones.

Capability for Improvement Surveys

Completion of an improvement capability assessment survey was undertaken at baseline and project completion. The survey was designed to evaluate the existence of organisational systems and structures known to support success in self-management of ongoing business improvement. The survey was based on the seven criterion defined within the [Department of Health, Health Improvement Capability Quotient Tool](#) from the Redesigning Hospital Care Program (RHCP) (15). When the baseline survey revealed 6 out of 10 sites reporting 'limited or no ICT systems or data support for developing CDU performance measures' the VCSR Project Manager collaborated with an expert data base developer from WCMICS to enable CDU Flow Manager (16), a fully customised database and reporting tool, to be developed to assist with the capture and reporting of common performance data.

Diagnostic Phase Activity

9 out of 10 sites completed a 3-4 week chair side audit of patient throughput data and common delay reasons using the CDU Flow Manager database. One site, Barwon Health chose to utilise their own patient journey audit tool designed to focus on the interface between the medical clinic review and CDU, which was a known issue for their service. All sites conducted additional site-specific diagnostic activity (e.g. tracking nursing staff activity) to gain further insights into the root causes of identified issues.

Key Findings at Baseline

- Lower than expected CDU Chair utilisation –median 48% (range 38-72%)
- Value added chair time accounting for only 83% of total chair time (17% of time in the chair being "idle")
- 11.4% of appointments were cancelled on the day with a significant impact on utilisation (range 2-15%)

- Total patient waiting time in CDU (inclusive of waiting to get in the chair and then waiting idle in the chair) averaged 34 minutes with a range of 0 – 120 minutes
- Non oncology work being performed in CDU chairs averaging 9% of total treatment hours, with 4 sites under 5%, 3 sites between 9-12% and one site the outlier at 30%
- Most units rostered 1 direct care nurse to manage 3 CDU chairs whilst the total rostered staff hours (Nursing, Clerical, Pharmacy and PSA) per patient hour of treatment averaged 1.4 : 1 (range 1.09 - 1.73 : 1)
- The majority of sites identified complex manual scheduling practices as the number one reason for sub optimal chair utilisation and prolonged patient waiting times. Managing the tension of asking patients to attend on separate days for pre-treatment pathology/medical review and CDU treatment, in order to reduce the likelihood of same day cancellations, was also identified as a common constraint to maximising utilisation and timely throughput.

Solutions Design

There were 9 different solutions themes including improving; patient preparation, chemotherapy product availability, staff engagement with measures for improvement, use of data management systems, role clarity and standard operating procedures, environmental redesign, standardising chemotherapy education and improving care between treatments. However, the most common interventions were focused on improving the accuracy of CDU appointment scheduling with new business rules.

Key Results

4 out of 9 sites achieved a statistically significant improvement in one or more key measures while all sites combined achieved significant improvement in 3 key areas as follows; a 5 minute reduction in total waiting time (34- 29 mins, $p < 0.001$), a 4% improvement in value added chair time (83-87%, $p < 0.001$) and an 8% increase in median CDU chair utilisation (48-56%, $p = 0.004$).

Supporting Sustainability

The pilot sites collaborated freely between themselves and participated in a Community of Practice (COP) coordinated by the Western Central Melbourne Integrated Cancer Service (WCMICS) to support broad and timely sharing of key learnings from the pilot sites with other Victorian CDUs. A 'CDU Flow Manager User's guide' (17) on how to use the tool to support CDU performance measurement and a 'Guide To Chemotherapy Day Unit Redesign Measures For Improvement' tool kit (18) was developed and shared along with other resources on a CDU COP Workspace hosted by HUMERICS.

Conclusion

The development and application of a common suite of CDU performance measures utilising the VCSRP developed CDU Flow Manager chair-side audit and database reporting tool provided an excellent platform for the participating CDUs to inform local service improvement priorities. The audit has established some interesting findings about the current demand and capacity within the system and has highlighted the complexity around achieving accurate scheduling to maximise timely patient access and to level out daily workload demand so that both patients and staff have a good CDU experience.