

“Moving to a digital platform will improve the consistency of our nursing practise – it will enable us to offer a more streamlined and responsive service.”

– Andrea McLeod, Chief Operating Officer



Koorb and Marker Metro deliver a real-time electronic client health record solution to Plunket

Managing the Well Child

Founded over 100 years ago, the Royal New Zealand Plunket Society is New Zealand’s largest provider of support services for the development, health and wellbeing of children between the ages of 0 – 5. Their Well Child health service plays a vital role in the lives of young families: 62,000+ babies are born in New Zealand every year and more than 90 percent of their parents access some aspect of the Plunket service.

Over 700 Plunket nurses and health care workers provide face-to-face support through home and clinic visits, mobile clinics and through PlunketLine, a free telephone advice service for all NZ parents.

As a basic requirement, the Well Child Framework includes seven core contacts for each child before their fifth birthday. These visits capture a child’s developmental milestones: undertaking nursing assessments, recording weight, height and health outcomes. Nurses handwrite clinical notes and record data into the child’s 50 page Plunket Health Record (PHR). Client appointments are scheduled manually and are mostly recorded in paper diaries.

To maintain their clients’ privacy, Plunket nurses collect the paper files they need before they start their visits each day, returning them to their base office at the end of the day to be stored securely.

The trouble with paper

While Plunket’s model of care has evolved over the years, they still retained a paper based system. This meant that with over 55,000 new babies added to the service every year, Plunket were responsible for storing hundreds of thousands of paper files for a set regulatory period.

While Plunket has a legacy contact system, it holds just that – contact details. The more specific details of a child’s progress remain in the painstakingly maintained Plunket Health Records. Should an authorised health professional require information on a child, the relevant pages of that file are faxed, scanned and emailed, or if the family or child relocates, the entire PHR file is transferred to the nearest Plunket branch via courier or post.

“Using agile development methodology has meant we have been able to modify things along the way.... Our understanding has changed as we’ve become more involved in the development of the application. I believe that what we have developed will help us meet our technology vision for the future.”

- Andrea McLeod Chief Operating Officer, Plunket.

As a health provider Plunket is required by the Ministry of Health to perform regular audits on their current client health records - the manual auditing of files is a time consuming task.

Andrea McLeod, Chief Operating Officer for Plunket, was very conscious of the risks inherent in their paper based system.

“We didn’t have an easy way of monitoring the consistency and quality of the data entered in the client files from one nurse to the next. From a health statistics point of view accuracy of health data is paramount. By moving to electronic records we became

more efficient, holding real-time data that we could share with not only our staff and funders, but other necessary health providers. It also put us in a better position to respond rapidly to health trends, or a public health situation, something that was previously problematic because of our paper-based records.”

Time to move forward

In terms of technology, Plunket had a strong vision of where their service needed to go, and a good grasp of how to get there. In 2014 they decided the time was right to make the move.

The organisation needed an electronic system that fully supported the Well Child service Framework and transformed the way its frontline staff recorded and accessed client health information. The system needed to fully replace the traditional paper records and diaries.

It had to be integrated and interactive, highly efficient, give Plunket access to digital information, and provide nurses with the ability to work online or offline seamlessly. To increase the value of the data, critical metrics, as well as out-of-the-ordinary information needed to be tracked, analysed and reported on by child, district and demographic. Reporting and auditing processes needed to be both streamlined and compliant, and real-time reporting made available to both internal and external stakeholders.

“The Plunket team are really pleased with the ePHR and feel that the application is quite intuitive from a clinical perspective. There’s nice transition between the screens that make sense, nurses have the ability to be able to enter data easily while still be open to allow for something extra to be noted if needed. I think some of the functions in the app are really nice – for example you can take a photo of the baby and it displays on their clinical record and that’s a personal touch which makes the ePHR unique. I guess in a way it’s like the icing on the cake for a service like ours.”

- Andrea McLeod Chief Operating Officer, Plunket.

The solution

Overall the solution needed to fit into the existing business model, be easy to use, reliable, robust and secure.

The solution is the Plunket Well Child electronic Plunket Health Record (ePHR). It encompasses the use of Windows based tablets, a custom developed Windows 8.1 app (a very user-friendly app specially designed for the nurses), and incorporates Microsoft Dynamics CRM (customer relationship management) Online.

Plunket engaged Koorb Consulting to tailor Dynamics CRM to support the ePHR system. Marker Metro, a team of local specialist Windows app developers, were contracted to design and build the custom ‘front end’ application. The new app presented a simplified and streamlined version of the ePHR to the nurses in the field.

The initial engagement with Koorb and Marker Metro concentrated on a proof of concept around the proposed technologies and some specific features the solution needed to deliver on. A solid foundation for the development and delivery of the various components of the solution was formed from there. While Koorb and Marker Metro designated and managed their own project roles, Plunket undertook to feed the broader programme of work into their architecture by integrating it back into their existing enterprise solutions/infrastructure.

Working in an agile development process, workshops and sprint reviews with nurses and clinical leaders from Plunket were used to provide continuous feedback as the application evolved from wireframes to the final app that the nurses would utilise.

The teams behind the scenes

Building a solution like this takes teamwork, especially when it requires collaboration between three organisations – Plunket, Marker Metro and Koorb Consulting. Aside from having regular meetings, chat, Trello and Basecamp were used to stay on the same page and work together.

“We’ve been genuinely pleased with the relationship and feel it’s been a collaborative one. We’ve worked in partnership - it’s been really positive,” said McLeod.

Plunket had worked with Marker Metro prior to this project, and had a high level of respect for their team, and a complete trust in their abilities.

McLeod is more than happy to recommend Marker Metro to other potential clients. “The staff at Marker Metro, have all shown absolute commitment to helping Plunket achieve its goals. At times it has taken long hours and patience, but Marker have seen things through to the end.”

Although they were the ‘new kid on the block’ for this particular project, Koorb proved equal to the job. “The relationship with Koorb is one that we want to continue. We believe that we’ve been given good advice when we’ve requested it, and they’ve

made recommendations that will stand us in good stead when we move forward with other planned developments.”

After working so closely together on this project, and recognising and respecting the expertise of the other, Koorb and Marker Metro are looking forward to working together again.

The technology

Originally Plunket looked at other technology, however after developing a proof of concept with the Windows 8.1 app and CRM, coupled with the fact that the solution has the ability to integrate with Plunket’s existing enterprise solutions/ infrastructure, it was an easy choice to move forward with the Windows 8.1 app / CRM Online custom built solution.

The custom built Windows 8.1 application authenticates with Azure Active Directory, and allows for scenarios such as Single Sign On. The application then communicates with Microsoft Dynamics CRM Online through the exposed WCF service and stores the data locally in a SQLite database.

McLeod said choosing Dynamics CRM Online was easy. “Our organisation already had experience using Microsoft products: PlunketLine has operated for over 10 years on Microsoft CRM. Our experience to date provided us with a good level of comfort, so it wasn’t as if it was new and scary.”

While the app fits into the existing Plunket business model, the ongoing process of collaborative review and modification ensured that Plunket achieved the greatest benefits of implementing a digital solution for their nurses.

Coupled with the development of the ePHR application, as part of the larger technology programme Plunket are now deploying around 800 Windows tablets to their care delivery staff across New Zealand.

Designed for the Plunket Nurse

The average age of a Plunket nurse is around 50 years. Many are new to using technology as a work tool so it was important that the solution be highly intuitive. The Windows app needed to provide just the right amount of interaction and functionality to make life easier, without requiring an understanding of the CRM in the background.

To encourage uptake of the new solution Plunket provided their nurses with tablets before the solution rollout. “It was great,” says McLeod. “They used the devices out of hours, using the email and calendar functions and accessing the internet – this was just what we wanted to happen.”

The driving principles for this project revolved around taking a proven paper-based workflow used for capturing child client health records and information, and creating a digital version. Marker Metro maintained a tight focus on the artful meshing of user experience and functionality.

The Landing Page provides a visual display and entry points for appointments, recent activity and clients. Icons and images allow nurses to quickly and easily identify statuses, hazards and information at a glance. An intuitive wizard-style enrolment form steps the nurse through capturing a child’s details, and identifies family/whanau relationships as well as those with the community and wider medical/support services and practitioners.

Automating key workflows means that a child’s age based milestones are presented in an individual delivery plan. The app itself was specifically designed to reflect the language and processes the nurses were familiar with. Transitions from one screen to another follow in a logical fashion. Day-to-day client

management is provided through the calendar and scheduling functions and additional activities are possible, like taking a child’s photo and linking it

to their record. Boxes for additional notes and observations are also provided. Any potential hazards that a nurse might face during the day appears on the client profile and client appointments. This provides the nurses with at-a-glance risk mitigation for environmental, health and safety hazards: from aggressive dogs to muddy driveways.

McLeod is more than happy with the first iteration of the app. “From a diagnostic point of view, it has improved the consistency of our nursing practise and overall it helps us offer a more responsive service.”

Over time, as paper-based records no longer need to be collected and returned for filing, nurses will use the regained time to see additional clients, or simply spend more time on each visit.

Data security

The Windows app synchronises all records to the CRM means the client’s data is protected and secure. Additional ‘break-glass’ functionality allows authorised staff (for example, a stand-in nurse) a 24 hour window of access to client information, with a full audit trail. While at the same time, administration users with direct access to CRM can only see the level of data detail they are permitted to view.

Plunket is leading innovation in healthcare by being the first public health services provider in New Zealand to utilize Azure services. Although Dynamics CRM is hosted offshore, Plunket data is repatriated back to New Zealand on a daily basis to meet its legal obligations as a health service provider.



The rollout

After their face-to-face and online training, the Plunket nurses applied their time, tools and skills to electronically enrol approximately 160 new Northland babies every month. The rollout to the rest of the Northern Region (which encompasses over 40% of all Plunket's Well Child clients) is scheduled for completion by mid-2015, and by 2016 all Plunket nurses throughout New Zealand should be using the solution.

The second phase of the project will see the migration of client data from the existing paper based system to the ePHR. McLeod also envisages a future where a client-facing portal for parents sends out automated appointment reminders, alerts people about impending car seat upgrades, local parenting courses, and online enrolments for other Plunket services.

The future

Although the demise of the paper record may be mourned by some, in the short term Plunket slashed its considerable printing and stationery costs, and in the long term, can free up a significant amount of floor space.

Primarily, the solution effectively and efficiently meets the needs of the organisation, its nurses and clients. It also helps Plunket keep pace with the rest of the health sector, while further enhancing the valuable service they provide to the children of New Zealand.

"This is only the starting point of our technology journey," says McLeod. "Things change rapidly in the health sector and this technology gives us flexibility to deliver the service that's needed today."

About Koorb Consulting – Microsoft Dynamics Partner

Koorb Consulting is one of New Zealand's leading Microsoft Dynamics partners.

They have completed more Microsoft Dynamics AX implementations in New Zealand than any other partner, and their relatively new Dynamics CRM practice is rapidly acquiring a customer base which includes some of the most iconic local businesses and organisations. Their CRM projects are noted for the delivery of immediate business outcomes, resulting in outstanding customer acclaim.

Koorb won the Microsoft New Zealand Dynamics CRM Partner of the Year award last year and the Innovative Technology for Good Citizenship award for 2015 for the Plunket ePHR project.

About Marker Metro - Windows Application Specialists

Marker Metro make world-class award winning apps and chart-topping games for all major mobile, console and TV platforms, with a specialisation in Windows.

Their expertise with the Windows development environment means they are confident in their ability to deliver a quality application their clients can be proud of. Developing bespoke line of business apps such as the Plunket ePHR is well within the reach of this services based agency. Marker Metro's collaborative and responsive ethic allows them to grow their business relationships by evolving their Windows App solutions to meet their client's changing needs.

Marker Metro have won the Microsoft Windows Application Developer of the year in 2011, 2013 and most recently in 2015 for the Plunket ePHR Windows app.

Microsoft Partner

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