

Innovating a community healthcare coordination platform:

Move fast and move together



A/Prof Christina Igasto

Chief Digital Health Officer and CIO, Digital Health Solutions

Weis Lu

Director, Digital Health Innovation & Enablement, Digital Health Solutions

Western Sydney Local Health District



Westmead
Health Precinct

AMBULANCE
EMERGENCY

AMBULANCE
EMERGENCY

Acknowledgement of Country



“I would like to acknowledge the traditional owners of the land we are meeting on and remind people that we are on Aboriginal land.”

I also acknowledge the Elders past present and emerging as well as all Aboriginal and Torres Strait Islander people attending today’s event”

Agenda – What we will be talking about today

Innovating a community healthcare coordination platform: Move fast and move together



A brief case study into an Innovation Project:

- 1. Problem Statement & Mission Overview**
- 2. MVP Objectives**
- 3. New Way of Working – The Journey**
- 4. Solution – Platform & Products**
- 5. Lesson Learnt & Takeaways**
- 6. Acknowledgements**

Opener...

Innovating a community healthcare coordination platform: Move fast and move together



What is your innovation mindset?





How would you describe YOUR innovation mindset?

Quiz question 98 answers 98 participants

Openness to Change - 43 answers



Curiosity and Continuous Learning - 67 answers



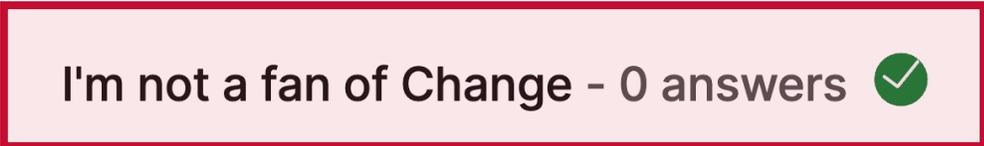
Embracing Failure and Taking Risks - 21 answers



Disruptive - 8 answers



I'm not a fan of Change - 0 answers



Problem Statement

Innovating a community healthcare coordination platform: Move fast and move together



Health Challenges

1. Covid Cases on the Rise 📈 during 2021
2. **Integrated Community Health** challenges managing COVID+ Patients in the Community and at Home 🏠
3. Following spike and high caseloads in COVID in community outreach Jul '21, **need for a technology enabler** to enhance use of clinical systems to manage **COVID clinical workflows**
4. We learnt from use of CHOC eMR to focus in on **pain points** (eMR CHOC Build Opportunities vs. new inTouch MOC)
5. Engagement on an innovation leap of faith opportunity via a **strategic partnership** with industry vendors

Problem Statement – Cont'd

Innovating a community healthcare coordination platform: Move fast and move together



Digital Challenges

1. Need to quickly set up a **scalable application** to assist clinicians
2. **Overload** of eMR Production environment and performance
3. **Access + unlock** data in system of record (near real time)



Mission Overview: What we did...We built an App

Innovating a community healthcare coordination platform: Move fast and move together



1. **Oct '21 – Dec '21** Discovery, **Integrated Community Health** requirements to formulate a Business Case i.e. Statement of Works
2. Develop a **Minimum Viable Product** in under 8 week of design and development and take **Digital Health Solutions, Integrated Community Health** and WSLHD on a journey
3. Stood up a **organic high performing team** from **Digital Health Solutions** with different streams (Clinical Applications, Solution Architecture, Data Analytics, Project Governance)
4. Adopt an **Agile Project Methodology** and a **NWOW**, test the boundaries of collaboration via a truly **multidisciplinary** approach
5. Forge **new partnerships**, alliances, service models (**Integrated Community Health, Digital Health Solutions, Microsoft, eHealth**)



Microsoft

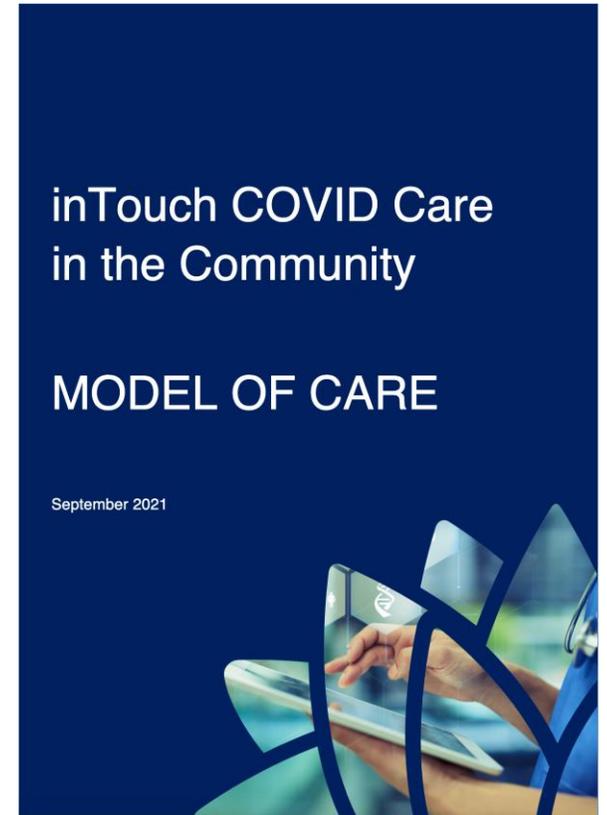
The Opportunity

Innovating a community healthcare coordination platform: Move fast and move together



3 Three-way partnership of collaboration

- Late 2021 the **Digital Health Solutions** project team engaged with **Integrated Community Health** to establish how we could assist inTouch Covid Community Care with **improving** their systems and processes.
- **Integrated Community Health** inTouch COVID-19 Model of Care gave us a canvass to **ideate** and **innovate**
- Innovate in a **LEAN** and **AGILE** manner to build a **Minimum Viable Product**
→ taking risk to explore **new capabilities** (Cloud Computing Infrastructure / Components, New eMR System Integrations)
- **Near-real time** eMR data accessible for Data Analytics



The Journey – Sprinting an MVP

Innovating a community healthcare coordination platform: Move fast and move together



- Collaboration of Microsoft, the WSLHD project team reviewed the **current workflows, infrastructure, and pain points** to identify ways we could improve productivity, accessibility and reportability of inTouch service.
- **70+** User Stories (Product Features) collected, **66+** Backlogged (Future Roadmap)
- **32 Prioritised** to build into a **Minimum Viable Product (MVP)**
- **Under < 8-13** weeks of development time from design to prototype
- Focus on building **capability, usability** and **flow**
- **MVP application:**
 1. **Client List**
 2. **Scheduling**
 3. **Data Analytics Dashboards**



Realising Benefits

Innovating a community healthcare coordination platform: Move fast and move together



Integrated with the eMR and support our **Integrated Community Health** services. Focus on pain points or gaps.

Some of the short- and long-term benefits include:

1. Improving access to **timely data-driven insights**
2. Improving **patient engagement & experience**
3. Inclusion and **digital connectedness**
4. **Simplifying and automating processes** that facilitate more efficient engagement and monitoring of remote protocols
5. **Integrating multiple data sources** incl. EMR, the patient flow portal, and IoT devices
6. Providing **capability and scalability** of products and platform

Building Foundations

What's in capability set?



What's in capability set?



Skills

Notable skills from the MVP

- **Agile** delivery, and a focus on business outcomes,
- Effective **co-innovation** and **skills** transfer to empower in-house delivery

Functionality

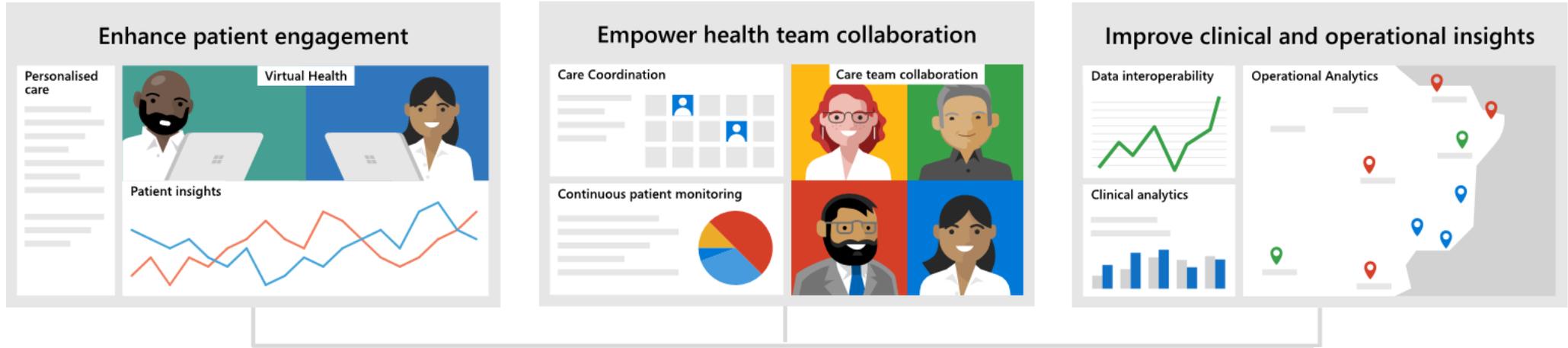
Notable functionality as part of the 1st MVP

- **Liberating data** by **integration** with the EMR.
- Defining care plan workflow templates.
- **Dashboards** and other **visualization** improvements that have reshaped the staff experience

Technology

Key technology deployed within the 1st MVP

- An **integration to Cerner** that is extensible, allowing for more value from clinical data beyond the EMR.
- A **FHIR-based interface**, a key building block for future interoperability including Internet of Medical Things use cases.



Microsoft Dynamics 365

Microsoft 365

Microsoft Power Platform

Common data model

Microsoft Cloud for Healthcare

Azure



Azure API for FHIR



Managing and scheduling
PAS



Medical records
EMR/HER



Connected devices
IoMT, Imaging



Business as usual
CRM/ERP



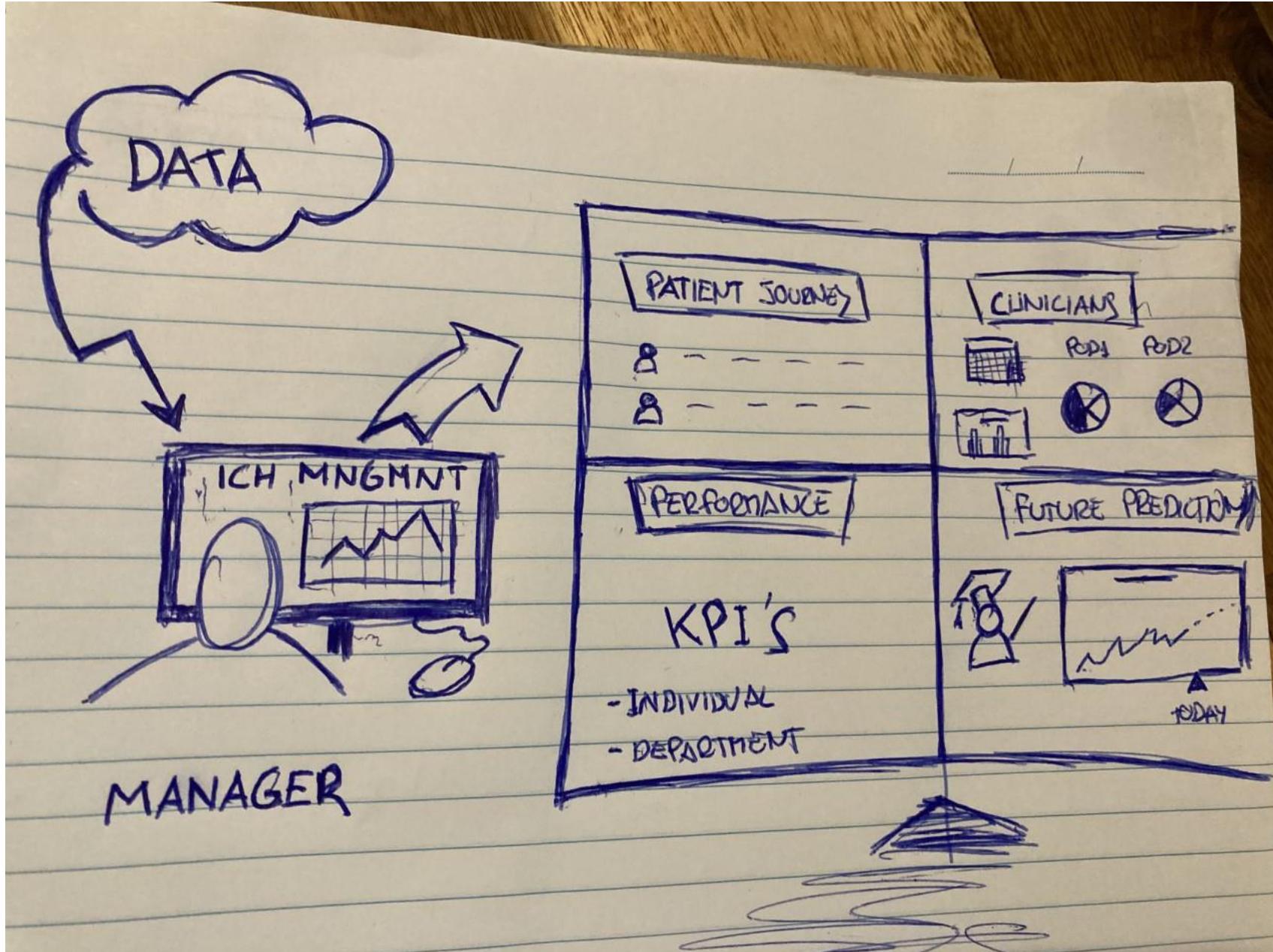
Other sources
Departmental systems,
legacy apps, external data

HL7 FHIR

MuleSoft

Microsoft 365

Inspiration & Early Wireframing



Take full advantage of Klaxoon + unlimited use of all Templates from €9.90/month

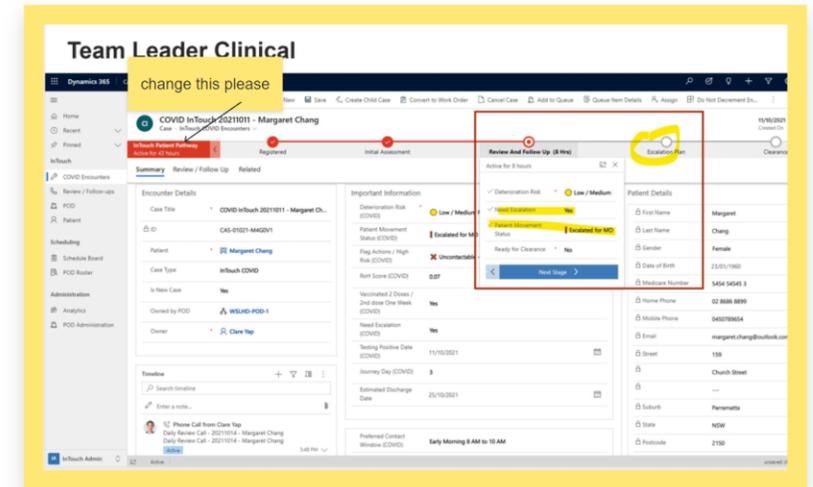
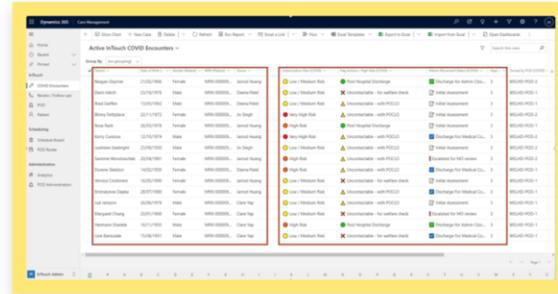
buy now

board

Clinical App design

share

Klaxoon - Visual collaboration tool



Demographics

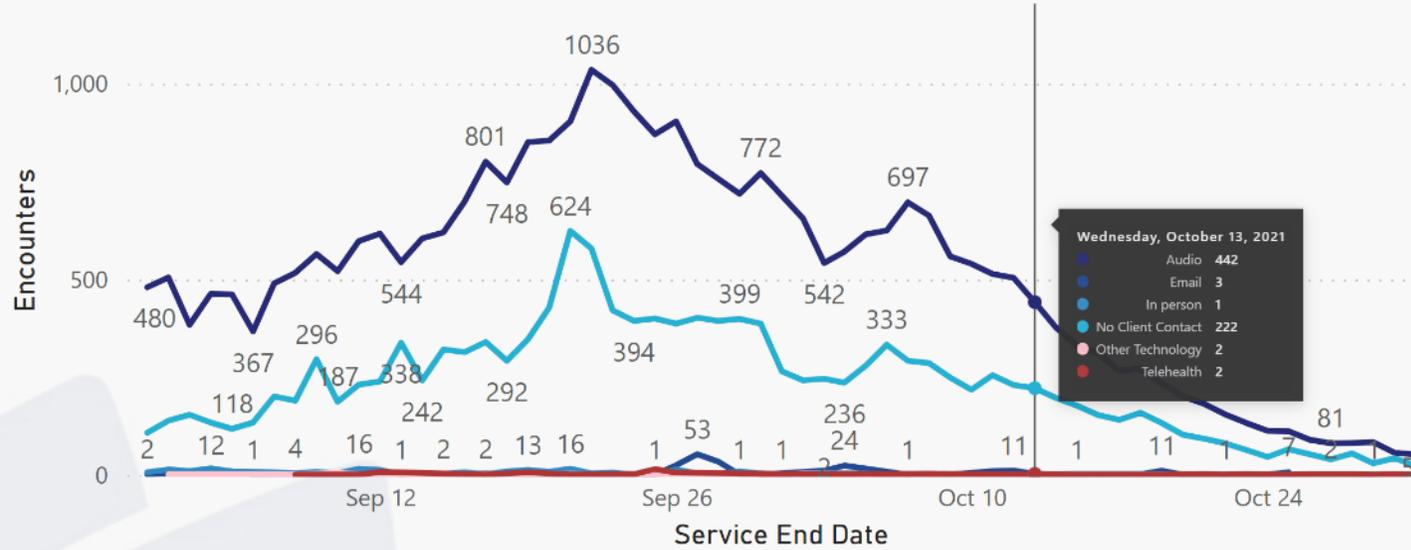
Modality

Productivity

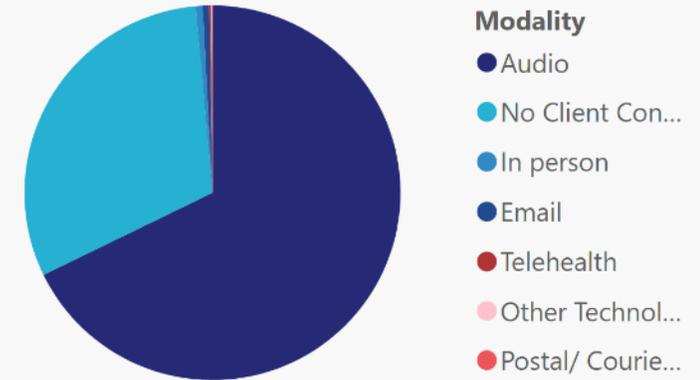
Provider

All

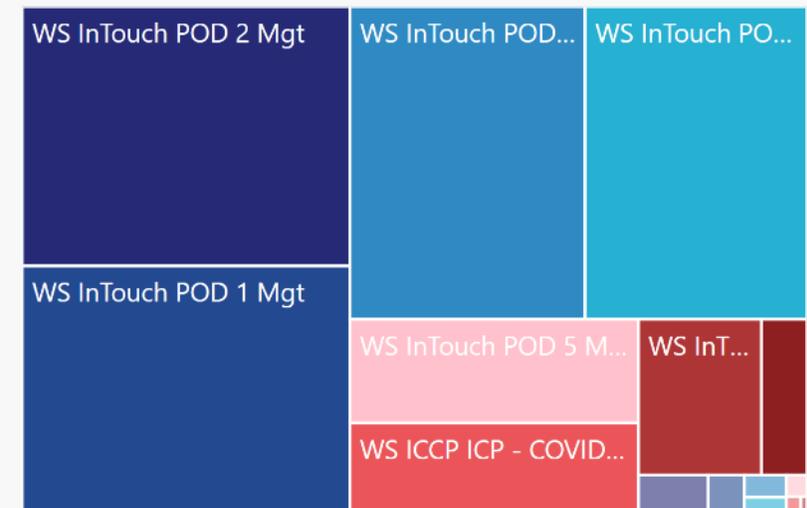
Encounters by Service End Date and Modality



Encounters



Modality	OOS	Encounters	Clients
Audio	31152	10759	8231
No Client Contact	14151	5711	4887
In person	274	260	259
Email	256	251	250
Telehealth	71	51	50
Other Technology	54	47	46
Postal/ Courier Service	3	3	3
Total	45961	11465	8649





Date range

9/1/2021

11/29/2021



Overall

Powerforms

Clinician

Totals

6917

COVID-19 Initial Assessment

14.48K

COVID-19 Review

10.84K

Contact Attempts

16.02K

ACC Progress Note

26.45K

ACC Service Event

77.14K

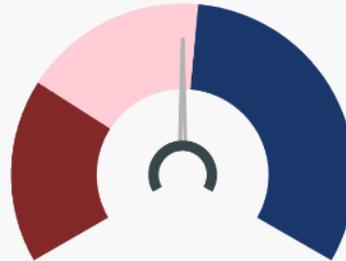
Powerforms and Powernote...

Averaged



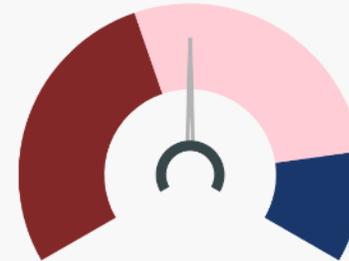
5.23

Review Powerforms per
discharge patient



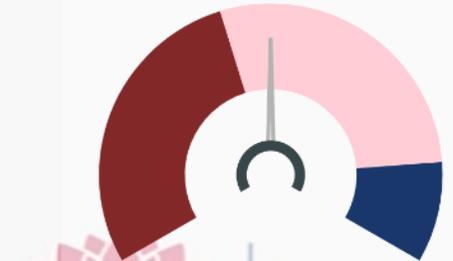
7.67

Review Powerforms per
active patient



3.56

Contact Attempts Powerforms
per discharged patient



2.33

Contact Attempts Powerforms
per active patient

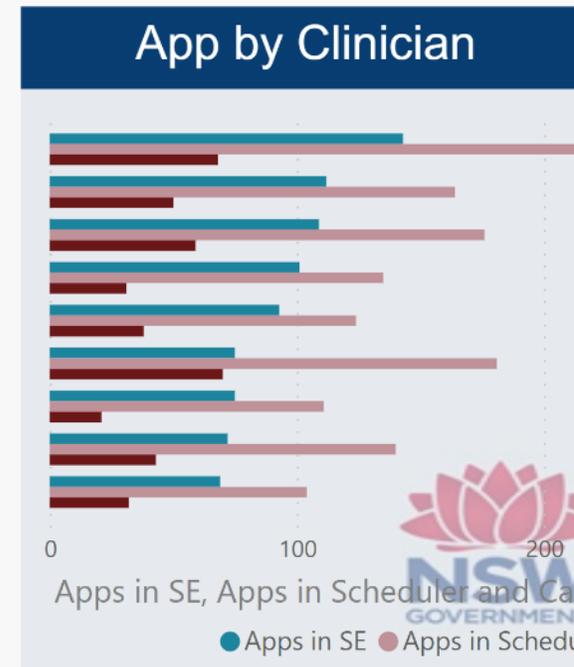
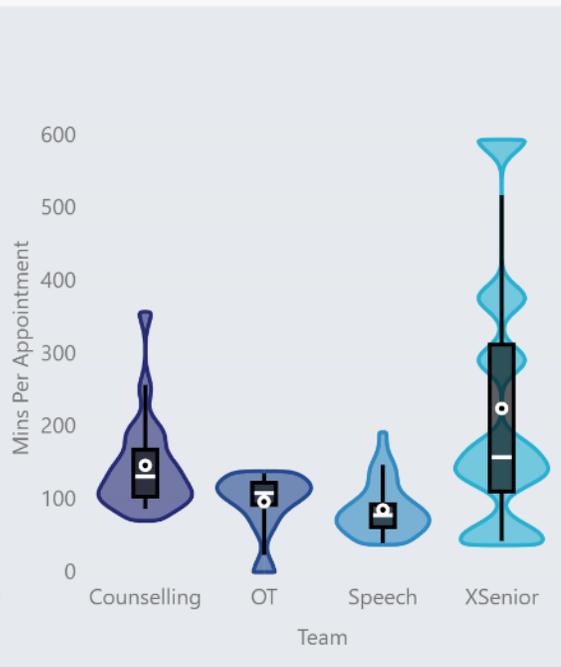
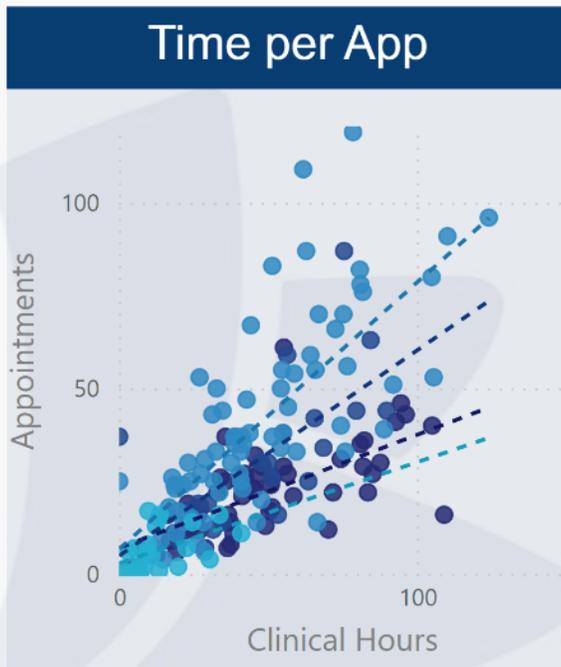
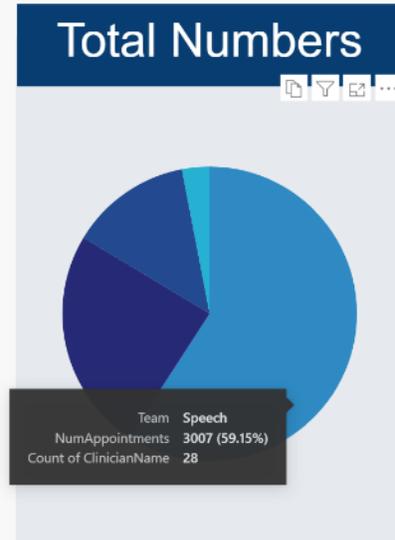
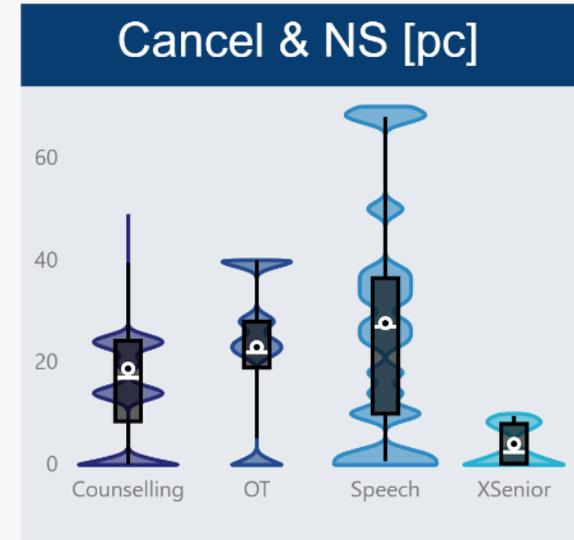
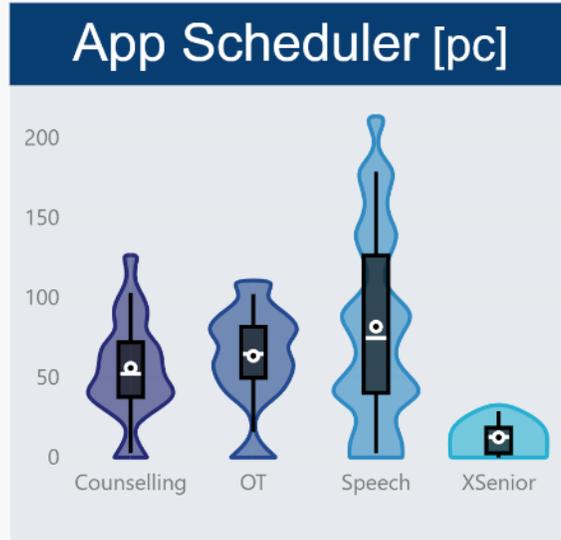
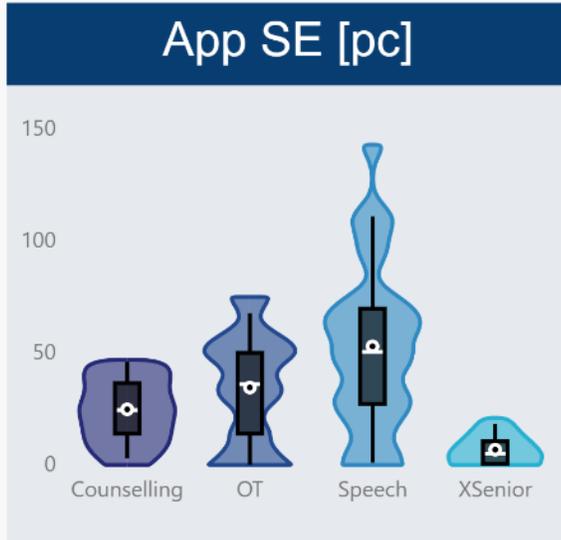




Team

- ◆ Counselling
- ◆ OT
- ◆ Speech
- ◆ XSenior

- Median
- Mean



- Clinician
- Stankovska, Angela
 - Wakelin, Julia
 - Alameddine, Farrah
 - Aghajanian, Fiona
 - Lee, Nancy
 - Betchakjian, Zabelle
 - Mangalaraj, Nancy
 - Cheung, Grace
 - Hiriyur, Rashmi



46.21K

Total Service Events (OOS)

12.18K

Encounters

Demographics

Modality

Productivity

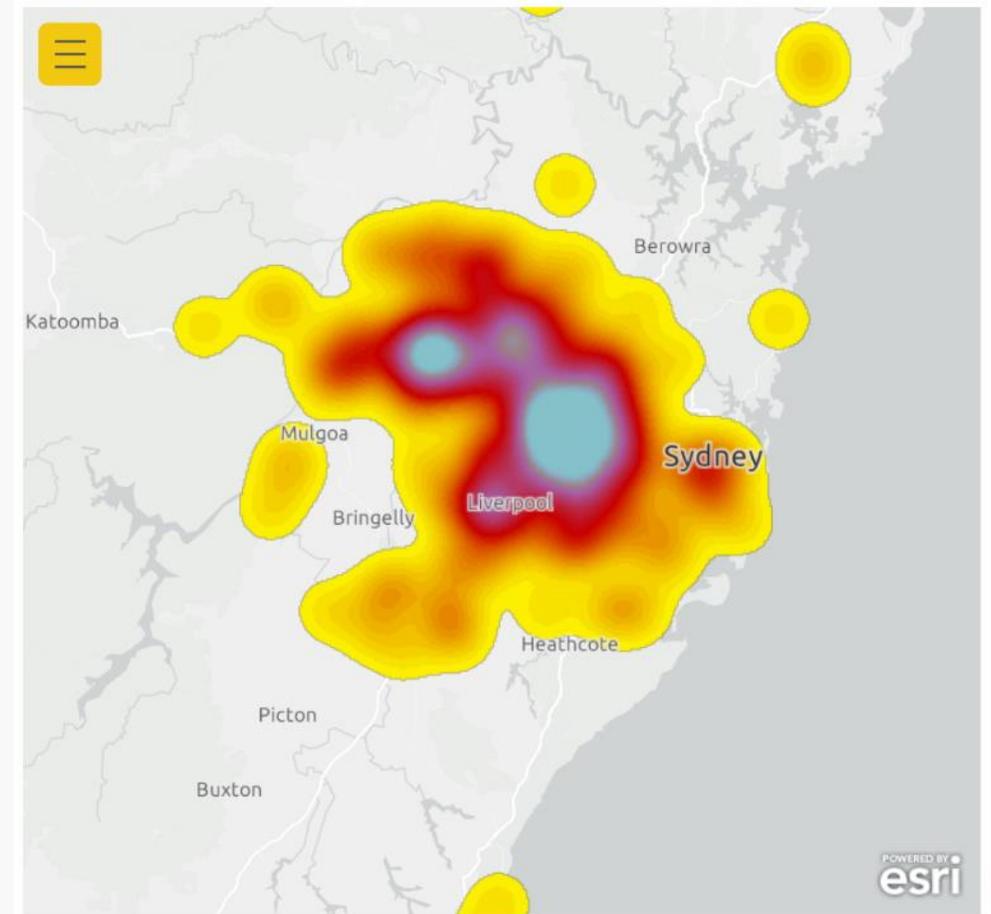
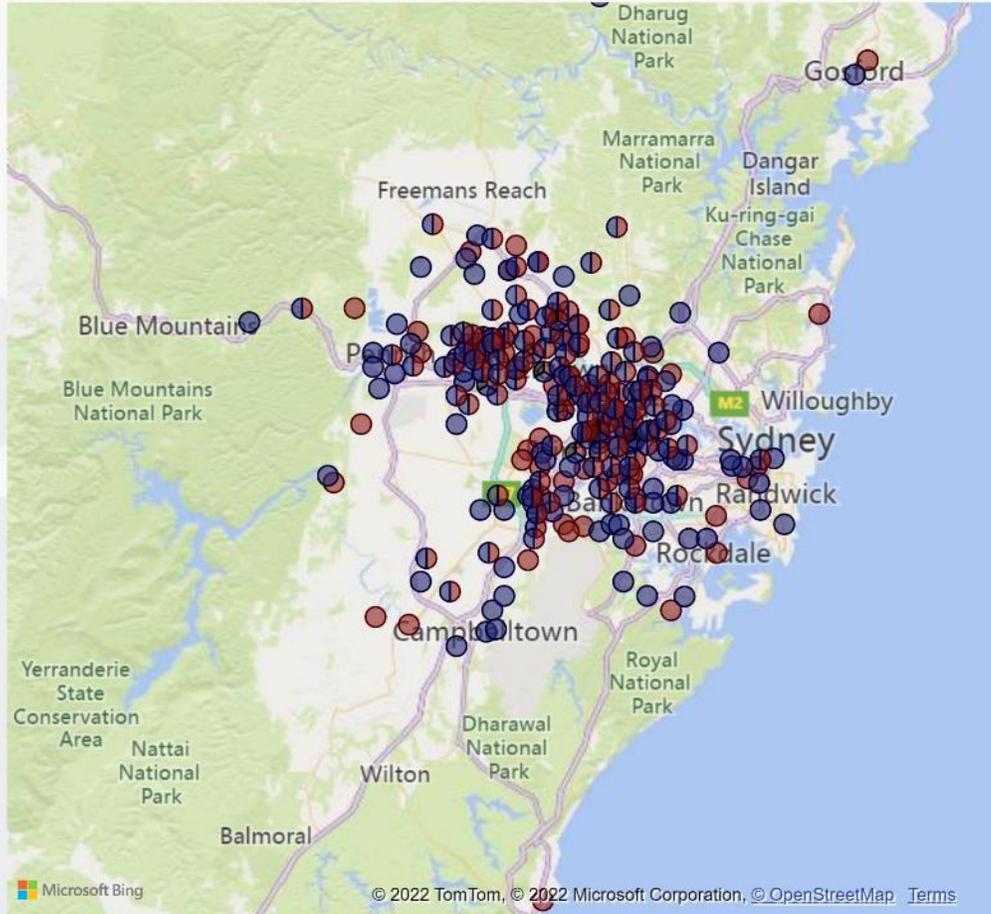
Date range

8/16/2021

10/31/2021



GENDER ● Female ● Male ● Unknown



EARLY RAPID PROTOTYPING – 1

Dynamics 365 | Care Management

11/10/2021 2:09 AM Created On

COVID InTouch 20211011 - Margaret Chang

Case · InTouch COVID Encounters

InTouch Patient Pathway Active for 43 hours

Registered Initial Assessment **Review And Follow Up (8 Hrs)** Clearance

Active for 8 hours

✓ Deterioration Risk * **Low / Medium Risk**

Need Escalation **No**

✓ Patient Movement Status **Escalated for MO**

Ready for Clearance * **No**

Next Stage

Encounter Details	
Case Title	* COVID InTouch 20211011 - Margaret Ch...
ID	CAS-01021-M4G0V1
Patient	* Margaret Chang
Case Type	InTouch COVID
Is New Case	Yes
Owned by POD	WSLHD-POD-1
Owner	* Clare Yap

Important Information	
Deterioration Risk (COVID)	* Low / Medium Risk
Patient Movement Status (COVID)	Escalated for MO review
Flag Actions / High Risk (COVID)	Uncontactable - for welfare check
RoH Score (COVID)	0.07
Vaccinated 2 Doses / 2nd dose One Week (COVID)	Yes
Need Escalation (COVID)	No
Testing Positive Date (COVID)	11/10/2021
Journey Day (COVID)	3
Estimated Discharge Date	25/10/2021
Preferred Contact Window (COVID)	Early Morning 8 AM to 10 AM

Patient Information	
Name	* Margaret Chang
Gender	Female
Date of Birth	23/01/1960
Phone Number	5454 5454 3
Home Phone	02 8686 8899
Mobile Phone	0450789654
Email	margaret.chang@outlook.com
Street	159 Church Street
Suburb	Parramatta
State	NSW
Postcode	2150

Timeline	
Search timeline	
Enter a note...	
Phone Call from Clare Yap	
Daily Review Call - 20211014 - Margaret Chang	
Daily Review Call - 20211014 - Margaret Chang	
Active	5:48 PM

IA InTouch Admin

Save

EARLY RAPID PROTOTYPING – 2

Dynamics 365 | Care Management

11/10/2021 2:09 AM
Created On

COVID InTouch 20211011 - Margaret Chang
Case · InTouch COVID Encounters

InTouch Patient Pathway
Active for 43 hours

Registered | Initial Assessment | **Review And Follow Up (8 Hrs)** | Escalation Plan | Clearance

Summary | Review / Follow Up | Related

Timeline

- Phone Call from Clare Yap
Daily Review Call - 20211014 - Margaret Chang
Daily Review Call - 20211014 - Margaret Chang
Active 5:48 PM
- Phone Call from Clare Yap
Daily Review Call - 20211013 - Margaret Chang
Daily Review Call - 20211013 - Margaret Chang
Active 5:46 PM
- Phone Call from Clare Yap
Daily Review Call - 20211012 - Margaret Chang
Daily Review Call - 20211012 - Margaret Chang
Active 5:40 PM
- Phone Call from Clare Yap
Daily Review Call - 20211012 - Margaret Chang
Daily Review Call - 20211012 - Margaret Chang
Closed 3:34 PM
- Auto-post on WSLHD-POD-1
COVID InTouch 20211011 - Margaret Chang was added to W...
11/10/2021 9:26 PM

Testing Positive Date (COVID) 11/10/2021

Journey Day (COVID) 3

Estimated Discharge Date 25/10/2021

Preferred Contact Window (COVID) **Early Morning 8 AM to 10 AM**

Preferred Contact Language (COVID) **Mandarin**

Interpreter Requirement (COVID) **No**

Patient Registered in CHOC (COVID) **Yes**

Initial Intake Triage Assessment Completed (COVID) **Yes**

Notification Received (COVID) **Yes**

Ready for Clearance (COVID) **No**

No. of Overdue Review Calls ---

Street 159

Church Street

Suburb Parramatta

State NSW

Postcode 2150

IA InTouch Admin

DYNAMIC PATIENT LIST

Active InTouch COVID Encounters

Search this view 🔍

Group By: Deterioration Risk (COVID)

Patient |
 Date of Birth (...) |
 Gender (Patient) |
 MRN (Patient) |
 Owner |
 Deterioration Risk (COVID) ↑ |
 Flag Actions / ... |
 Patient Movement ... |
 Days In Pathw... |
 Owned by PO... |
 Created On

High Risk											
Rosa Rash	26/03/1978	Female	MRN 000009...	Jarrold Huang	High Risk	Post Hos...	Initial Asses...	3	WSLHD-POD...	11/10/2021 8:37 PM	
Sammie Wondraschek	20/04/1981	Female	MRN 000009...	Jarrold Huang	High Risk	Uncontac...	Escalated for ...	3	WSLHD-POD...	11/10/2021 8:42 PM	
Dorene Skeldon	14/02/1950	Female	MRN 000009...	Deena Patel	High Risk	Uncontac...	Discharge Fo...	3	WSLHD-POD...	11/10/2021 8:33 PM	
Hermann Shankle	16/11/1953	Male	MRN 000009...	Clare Yap	High Risk	Post Hos...	Discharge for...	3	WSLHD-POD...	11/10/2021 8:35 PM	
Low / Medium Risk											
Reagan Gaymer	21/02/1966	Female	MRN 000009...	Jarrold Huang	Low / Medium Risk	Post Hos...	Discharge for...	3	WSLHD-POD...	11/10/2021 8:44 PM	
Elwin Hatch	23/10/1976	Male	MRN 000009...	Deena Patel	Low / Medium Risk	Uncontac...	Initial Asses...	3	WSLHD-POD...	11/10/2021 8:32 PM	
Brad Swiffen	13/03/1962	Male	MRN 000009...	Deena Patel	Low / Medium Risk	Uncontac...	Initial Asses...	3	WSLHD-POD...	11/10/2021 8:36 PM	
Justinian Seebright	23/09/1950	Male	MRN 000009...	Jiv Singh	Low / Medium Risk	Uncontac...	Initial Asses...	3	WSLHD-POD...	11/10/2021 8:41 PM	
Vernice Crichmere	16/05/1990	Female	MRN 000009...	Jarrold Huang	Low / Medium Risk	Uncontac...	Initial Asses...	3	WSLHD-POD...	11/10/2021 8:33 PM	
Emmalynne Depka	28/07/1980	Female	MRN 000009...	Jarrold Huang	Low / Medium Risk	Uncontac...	Discharge Fo...	3	WSLHD-POD...	11/10/2021 8:30 PM	
Jud Jansson	26/06/1978	Male	MRN 000009...	Clare Yap	Low / Medium Risk	Uncontac...	Initial Asses...	3	WSLHD-POD...	11/10/2021 8:34 PM	
Margaret Chang	23/01/1960	Female	MRN 000009...	Clare Yap	Low / Medium Risk	Uncontac...	Escalated for ...	3	WSLHD-POD...	11/10/2021 2:09 AM	
Lion Barnsdale	15/08/1951	Male	MRN 000009...	Clare Yap	Low / Medium Risk	Uncontac...	Discharge Fo...	3	WSLHD-POD...	11/10/2021 8:37 PM	
Very High Risk											

- 🏠 Home
- 🕒 Recent
- 📌 Pinned
- Care Scheduling**
 - 📅 Schedule Board
 - 👤 Scheduled Appointm...
- Care Planning**
 - 👤 Patients
 - 👤 Encounters
 - 📅 Care Plan Activities
- Team Management**
 - 👤 Clinicians
 - 🕒 Time Off Requests
- Care Templates**
 - 📄 Plan Templates

AL ██████████ - Saved
Patient

- General** | Vaccination Status | Equipments | Notes & Activities | Conflicts Tab | Related

Deceased Indicator	No
Deceased Date	---
Covid 19 Vaccination Doses	14

Contact Methods

Preferred Contact Time	---
Contact Method	---
Email	Allow
Consent For SMS	---
Email Address	---
Mobile Phone	██████████
Home Phone	██████████
Business Phone	---

Address Line 2	---
Suburb	Dharruk
State	NSW
Postal Code	2770

[Get Directions](#)

📍 **Dharruk**
NSW 2770

© 2023 TomTom, © 2023 Microsoft Corporation, © OpenStreetMap

Latitude	-33.74621
Longitude	150.81905

Description ↑

- Cough
- Dizzy standing up
- Pt symptom of nausea

1 - 3 of 3

- Home
- Recent
- Pinned
- Care Scheduling
 - Schedule Board
 - Scheduled Appointment...
- Care Planning
 - Patients
 - Encounters
 - Care Plan Activities
- Team Management
 - Clinicians
 - Time Off Requests
- Care Templates
 - Plan Templates

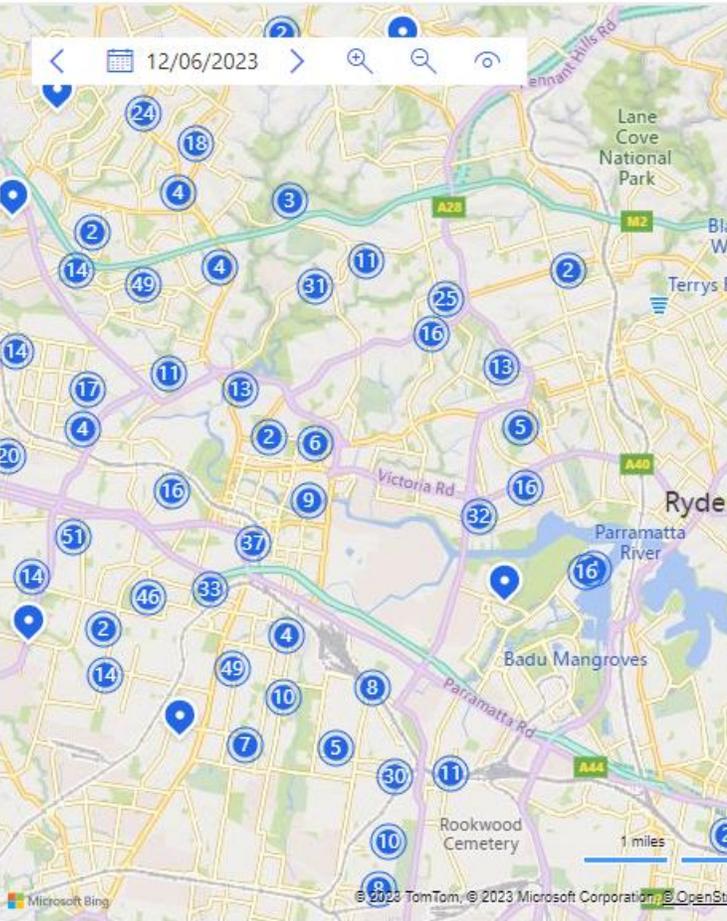
POD 1 : POD 2 : +

Filters Hourly Gantt < 12/06/2023 - 18/06/2023 > Book ...

jo

Tuesday - 13/06/2023

	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM
Joanne Medlin (0m booked) 0%								
Katia Joseph (0m booked) 0%								



< 1 - 2 of 2 > 100

All Open Activities | All Activities for Today | All Activities for Tomorrow | All Activities for the Next Week

Name	Patient	Activity Start Date	Interpreter Booked	Interpreter Booked DateTime	Contact Window
[Redacted]	[Redacted]	18/07/2022	No		
[Redacted]	[Redacted]	03/07/2022	No		
[Redacted]	[Redacted]	11/06/2022	No		

Registration Date Range: 6/09/2021 - 15/11/2022

Status (Patient): All

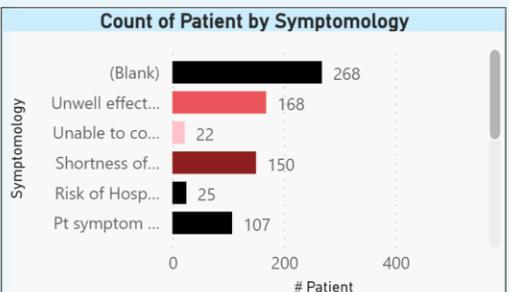
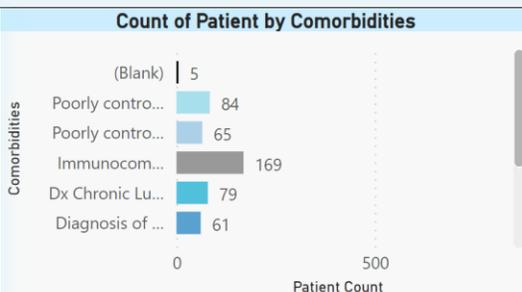
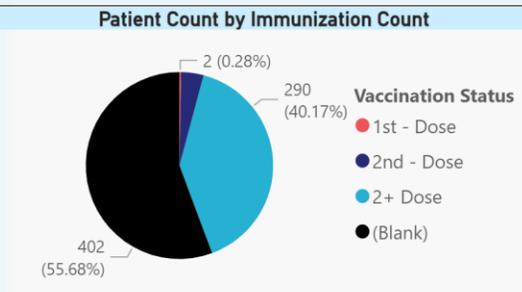
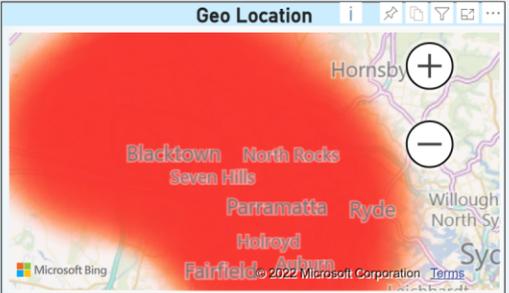
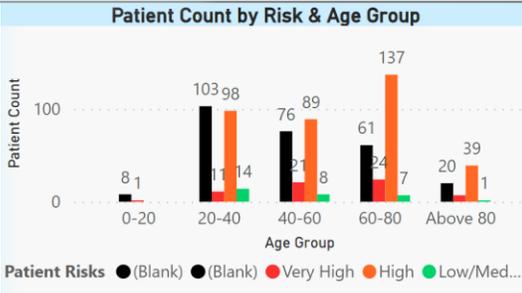
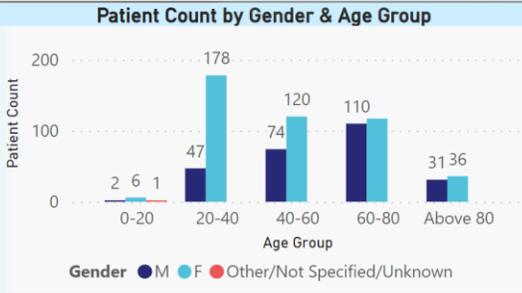
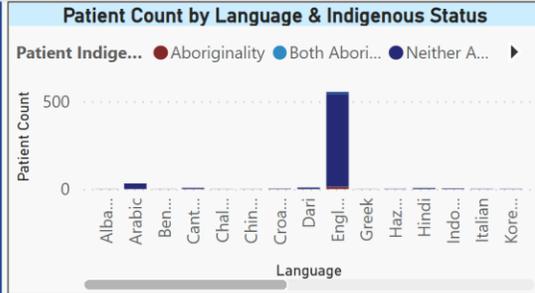
Suburb: All

Location: All

Clinician: All



Patient Profile



Encounter

743

Patient

722

Q&A

AUID	EncounterId	DOB	Suburb	Gender	Risk Profile	Patient Journey Stage	Comorbidities	Journey Zero Date	Journey Day	Most Recent Contact Attempts	Days since most recent As
			Doonside	F	Low/Medium	Initial Assessment	COVID-19	27/08/2021	445	26/10/2022	
			Berala	F	Low/Medium	Initial Assessment	COVID-19	4/09/2021	437		
			Parramatta	F	Low/Medium	Initial Assessment	COVID-19	4/09/2021	437		
			Parramatta	F	Low/Medium	Initial Assessment	COVID-19	5/09/2021	437		
			Baulkham Hills	M	Low/Medium	Initial Assessment	COVID-19	8/09/2021	433	12/09/2022	
			Auburn	M	Low/Medium	Initial Assessment	COVID-19	9/09/2021	432		

Documentation

Registration Date Range

6/09/2021 15/11/2022

Status (Patient)

All

Location

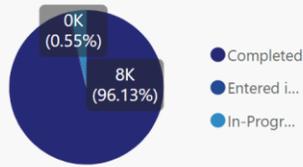
All

Clinician

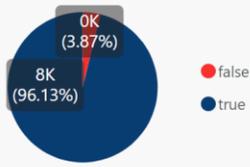
All



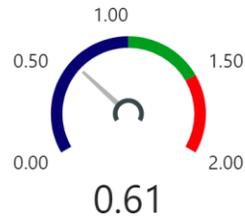
Powerform Status



Signed / Unsigned



AVG of Initial Assessment



AVG of Review Assessment



AVG of Service Event



AVG of Contact Attempts



AVG of Progress Note



Powerform

8794

Powernote

(Blank)

Occasion of Service

4846

Initial Assessment

437

Review Assessment

2285

ACC Service Event

3771

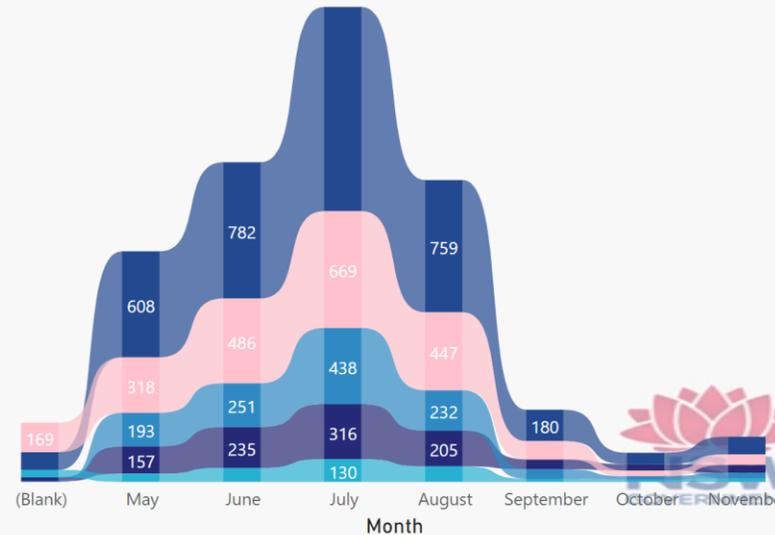
Contact Attempts

1226

ACC Progress Note

1075

Powerforms Count by Date & Type



Encounter

743

Patient

722



Form Name	Form Id	AUID	Location	Created On	Modified On
Aged & Chronic Care Progress Note V3				6/11/2022	6/11/2022 10:30
Aged & Chronic Care Progress Note V3				24/08/2022	24/08/2022 11:00
Aged & Chronic Care Progress Note V3				24/08/2022	24/08/2022 11:00
Aged & Chronic Care Progress Note V3				15/08/2022	15/08/2022 10:00

Patient Flow

Registration Date Range

6/09/2021 15/11/2022

Status (Patient)

All

Risk Level

All

Location

All

Clinician

All



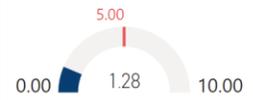
Referral To Registration (Days)



Registration To Today (Days)



Registration To IA (Days)



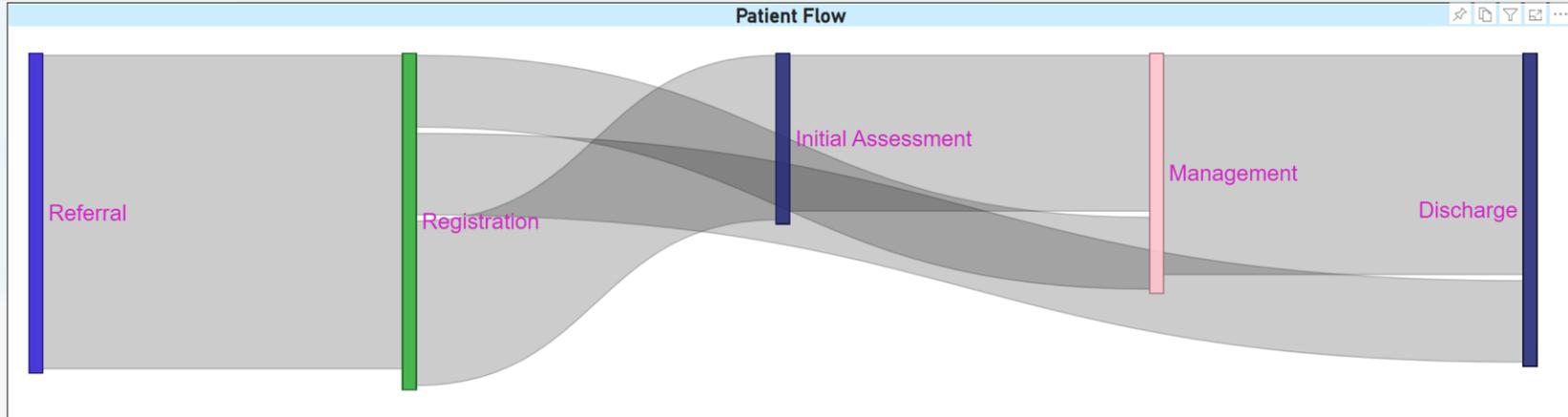
Registration To Discharge



Registration To OOS (Days)



Patient Flow



Patient Journey

AUID	EncounterID	Day	J0	J1	J2
		15	🔥 Registered, 📄 Covid +ve, 📄 Initially Assessed, 🚑 Referred	🔍 Review Assessment	🔍 Review Assessment
		6	🔥 Registered, 📄 Covid +ve, 🚑 Referred	🔍 Review Assessment	🔍 Review Assessment
		10	📄 Covid +ve	🔥 Registered, 🚑 Referred	📄 Initially Assessed
		5	📄 Covid +ve		
		2	📄 Covid +ve	🔥 Registered, 📄 Initially Assessed, 🚑 Referred	👤 Discharged
		5	🔥 Registered, 📄 Covid +ve, 🚑 Referred	📄 Initially Assessed	🔍 Review Assessment
		8	🔥 Registered, 📄 Covid +ve, 🚑 Referred	📄 Initially Assessed, 📞 Contact Attempted	🔍 Review Assessment
		7	🔥 Registered, 📄 Covid +ve, 🚑 Referred	📄 Initially Assessed, 📞 Contact Attempted	
		0	🔥 Registered, 🚑 Referred, 👤 Discharged		
		7	📄 Covid +ve		🔥 Registered, 🚑 Referred
		6	📄 Covid +ve	🔥 Registered, 📄 Initially Assessed, 🚑 Referred	
		6	📄 Covid +ve	🔥 Registered, 📄 Initially Assessed, 🚑 Referred	🔍 Review Assessment
		4	📄 Covid +ve	🔥 Registered, 📄 Initially Assessed, 🚑 Referred	🔍 Review Assessment

Encounter

743

Patient

722



Lessons Learnt & Insights

Innovating a community healthcare coordination platform: Move fast and move together



1. Being a **trail blazer** requires **innovative** thinking, **opportunities** and **growth culture** from all stakeholders
2. Adopting an **AGILE** and a **Digital Health Solutions / Integrated Community Health Multidisciplinary Team** approach results quickly with **high value buy-in** and **engagement**
3. **Prototyping** can help showcases what works and what doesn't very quickly (i.e., Weeks) e.g., FHIR integration, enriched visualized Data Analytics capability / common data reference model, Enterprise Scheduling, elastic cloud compute.
4. Technical Jargon **Translation** → Dev Ops to clinical business '**real talk**'
5. Data Analytics insights is a **MUST HAVE upfront NOT** an afterthought function
6. **Great Executive Sponsorship** can and will move mountains 🏔️

Acknowledgements

Innovating a community healthcare coordination platform: Move fast and move together

Acknowledgements



“Alone we can do so little, together we can do so much. Simple yet so true” Michelle Gabriel 14/2/22

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Microsoft

Thank You

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