

Health Care Home Risk Stratification Tool

Marianne Hibbert and Michael Georgeff

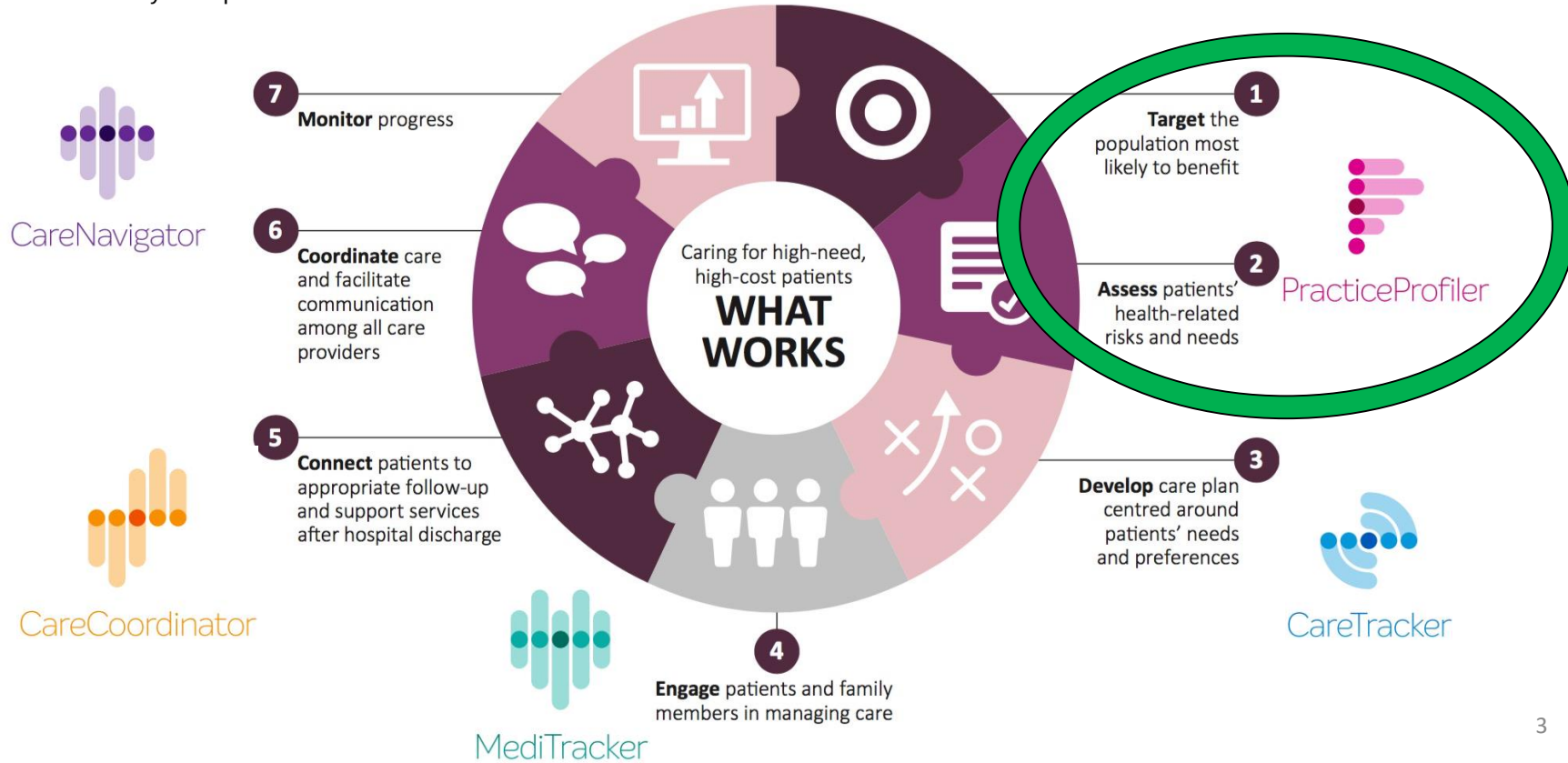
30 July 2018

What are Health Care Homes?

- A new and transformative model of health care
- Commonwealth trial in primary care to provide better coordinated and more flexible care for people with chronic and complex health conditions
- They provide continuity of care, coordinated services and a team based approach tailored to the needs and wishes of the patient
- This approach is supported by new payment mechanisms

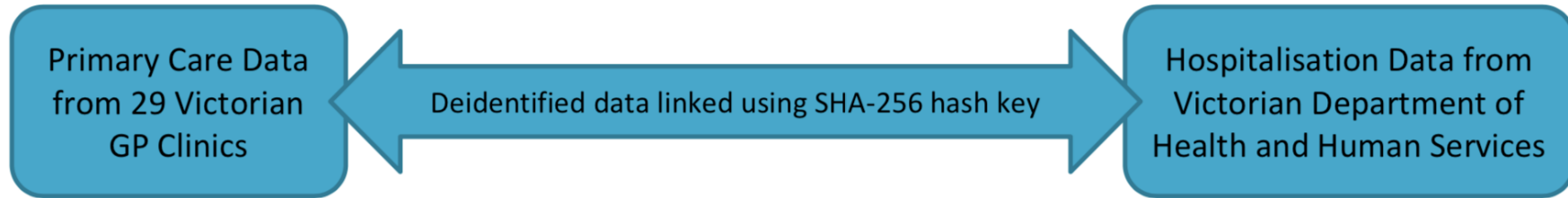
Precedence products supporting the entire patient journey

Report of the Primary Health
Care Advisory Group 2017



Health Care Homes Predictive risk model - design

Data used for CSIRO modelling and validation



Final model with more than 50 variables and interactions including:

- Demographics (eg. postcode, age, gender, indigenous status) + SEIFA
- Physiologic information (eg. blood pressure, body mass index)
- Medications
- Chronic conditions
- Pathology categories according to abnormal levels in test results
- Lifestyle (eg alcohol and tobacco use)

HCH RST processes

Risk algorithm
run to create
target list of
patients to recall

Patient attends
practice and the
RST alerts risk
score, eligibility

HARP Tool
completed with
patient

Health Care Home
certificate made,
stored locally

Risk algorithm runs and creates a list of patient's scores in the practice. Targeted patients can be recalled.

Patient is recalled **or** attends the practice ad-hoc and GP gets an alert of the Risk score.

Nurse or doctor completes the HARP assessment with some data pre-filled from GP system. The patient's identifying data is only stored in the session, and not stored in the database.

The certificate with patient risk, HARP score and other details is downloaded and stored on the GP system. De-identified data with risk score and other details are stored in HCH tables securely at Precedence.

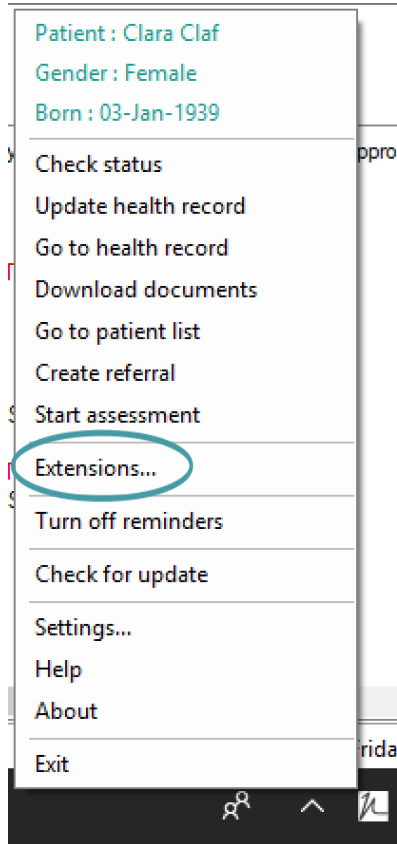
The HCH risk stratification tool

The RST uses smart technology to :

- **identify** potentially eligible patients
- **stratify** patients into three risk tiers of complexity and morbidity, and
- **issue certificates** to enable registration and payment

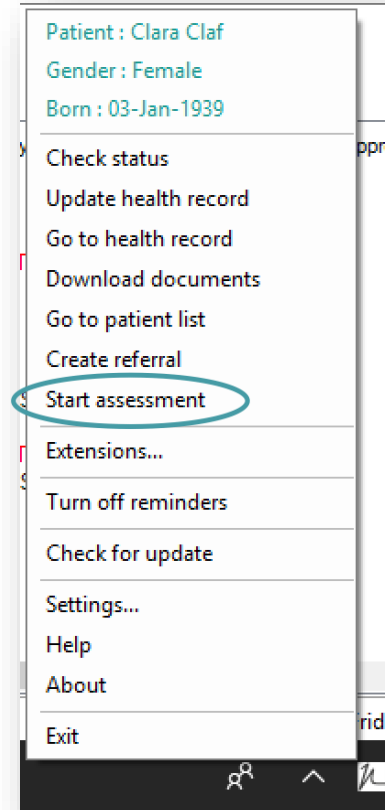
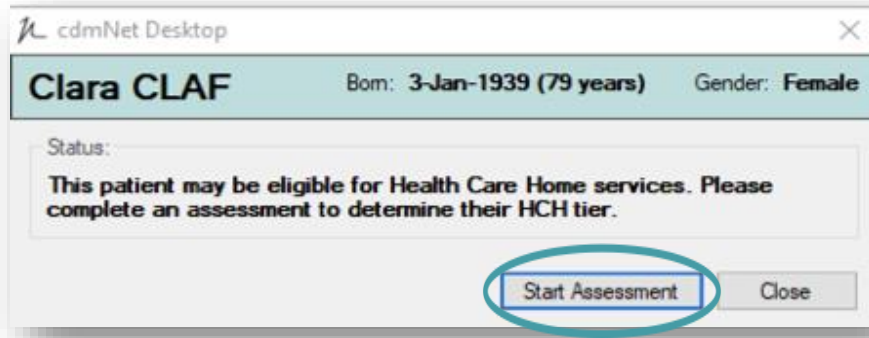
Ongoing feedback has been taken on board with functional improvements to the RST.

1. Assessing potential eligibility over the whole practice



	A	B	C	D	E	F	G
1	Patient ID	First name	Last name	Gender	Date of birth	Medicare no	Hospitalisation Probability
2	1	Janet	Jackson	Female	3-Apr-31	3634564181	0.1827755
3	2	Frank	Smith	Male	3-Apr-31	5718581831	0.18670084
4	3	Courtney	Jackson	Female	3-Apr-31	4378152401	0.1827755
5	9	Clara	Claf	Female	3-Jan-39	2916468171	0.24132046
6	16	Care	Health	Unknown	15-Jul-55	2778582341	0.10536535
7	17	Test	Pop up	Unknown	1-Apr-55	3068280211	0.10406715
8	20	Elena	Redfern	Unknown	11-Jun-58	5157284461	0.18319876

2. Stratifying patients into three risk tiers of complexity and morbidity



2. Stratifying - Patient consent before assessment

Health Care Home Risk Stratification

**Clara CLAF** 79 years
79 James St, Melbourne, Victoria, 3000

Born
3-Jan-1939

Gender
Female

Medicare
2916 46817 1 / 1

DVA
Gold

IHI
None Recorded

Complete Assessment: Consent

From: Dr Julia Hay
Date: 13-Jul-2018 3:41 PM (Australia/Melbourne)

The patient is potentially eligible to participate in the Health Care Homes program.

☒ I declare that the patient:

- has consented to provide personal information to the Commonwealth Department of Health to assess eligibility
- understands the information will not be used for any other purpose
- is aware that the Health Care Homes Patient Information Statement includes privacy information and can be found at health.gov.au

(Required to continue.)

CancelContinue

2. Stratifying - override of the predictive risk model with clinical justification

Health Care Home Risk Stratification

Henry CHILD 0 years
23 Smith St, Melbourne, Victoria, 3000

Born
13-Jul-2018

Gender
Unknown

Medicare
None Recorded

IHI
None Recorded

Complete Assessment: Consent

From: Dr Julia Hay
Date: 13-Jul-2018 3:49 PM (Australia/Melbourne)

Note that this patient was not identified as 'at risk'. By continuing you acknowledge that:

- The patient's record has been reviewed and is current and accurate, and that omission from eligibility is not a matter of insufficient data.
- Your clinical assessment is that this patient meets the clinical level of risk for inclusion in the Health Care Home.

Please provide the reason. (Required to continue.)

Reason:

The patient is potentially eligible to participate in the Health Care Homes program.

☐ I declare that the patient:

- has consented to provide personal information to the Commonwealth Department of Health to assess eligibility
- understands the information will not be used for any other purpose
- is aware that the Health Care Homes Patient Information Statement includes privacy information and can be found at [health.gov.au](https://www.health.gov.au)

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Create Assessment: Hospital Admission Risk Program (HARP)

This assessment aims to determine the risk of people with chronic or complex care needs presenting to hospital for treatment in the following 12 months and defines the entry point for health services. The risk screen is based on presenting clinical symptoms, service access profile, self-management, and psycho-social issues.

PART A: CLINICAL ASSESSMENT

1. Presenting Clinical Symptoms

Mark each symptom that the patient presents:

- ☒ Diagnosis of chronic respiratory condition such as COPD, paediatric asthma
- ☐ Diagnosis of chronic cardiac condition such as CHF, angina
- ☐ Diagnosis of complex care needs in frail aged such as dementia, falls, incontinence
- ☐ Diagnosis of complex care needs in people under 55yrs such as mental health issues
- ☒ Co-morbid diagnosis of diabetes and/or renal failure and/or liver disease

Score: 2

2. Stratifying patients into three risk tiers of complexity and morbidity

The threshold levels used to choose the Tier after doing the HARP are :

HARP score range	HCH Tier *
0-4	Not eligible: below threshold
5-12	Tier 1
13-23	Tier 2
24+	Tier 3

* Determined by the Department of Health Expert Committee for the RST

3. Issuing certificates to enable HCH enrollment and payment

Health Care Home Risk Stratification

Health Care Home Risk Stratification Certificate

Certificate Number: 00000000000067048808
Creation: 13-Jul-2018
Expiry: 13-Jul-2019

Name: Clara Claf
Date of Birth: 3-Jan-1939
Gender: Female
Medicare Number: 2916 46817 1 / 1
DVA Number: Gold

Hospitalisation Probability* (12 Months): 24.8%
HARP Score: 27
Risk Tier: Tier 3

Close Download Completed Assessment and Certificate

* Emergency or preventable

Extensions

Data Quality Report
Data quality report creation completed Jun 21, 2018 3:34 PM ([View Results](#))
Identify the potential data errors in patient records. **Start**

Health Care Home Risk Stratification (Australian Government)
HCH patient certificate report creation completed Jul 12, 2018 1:46 PM ([View Logs](#))
Determines probability of patient hospitalisation for Australian Government Health Care Homes. **Configure...**

Potential HCH Patients... **Patients with Certificates...**

MediTracker
Manage the upload of health data for patients who have registered for MediTracker

Close

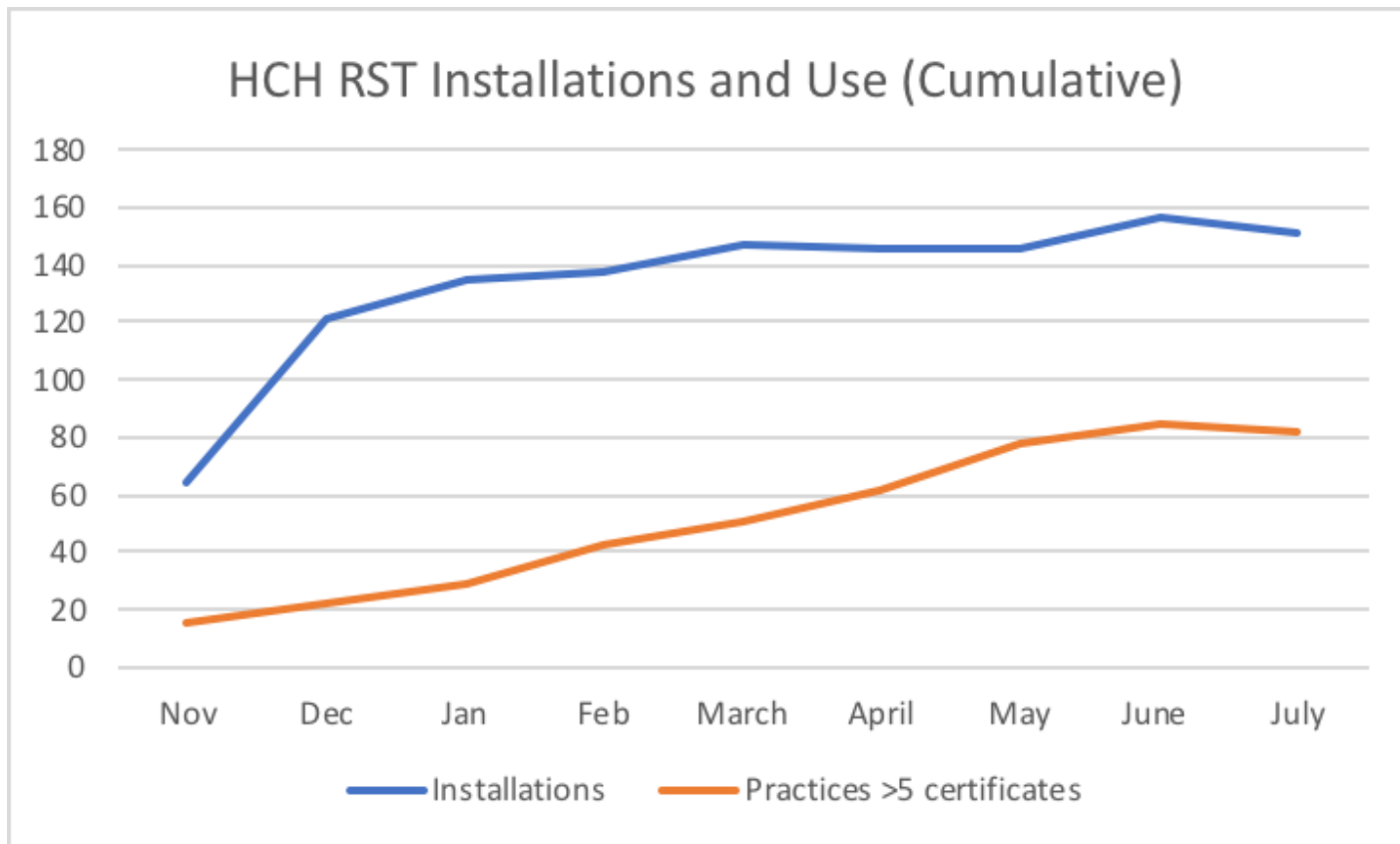
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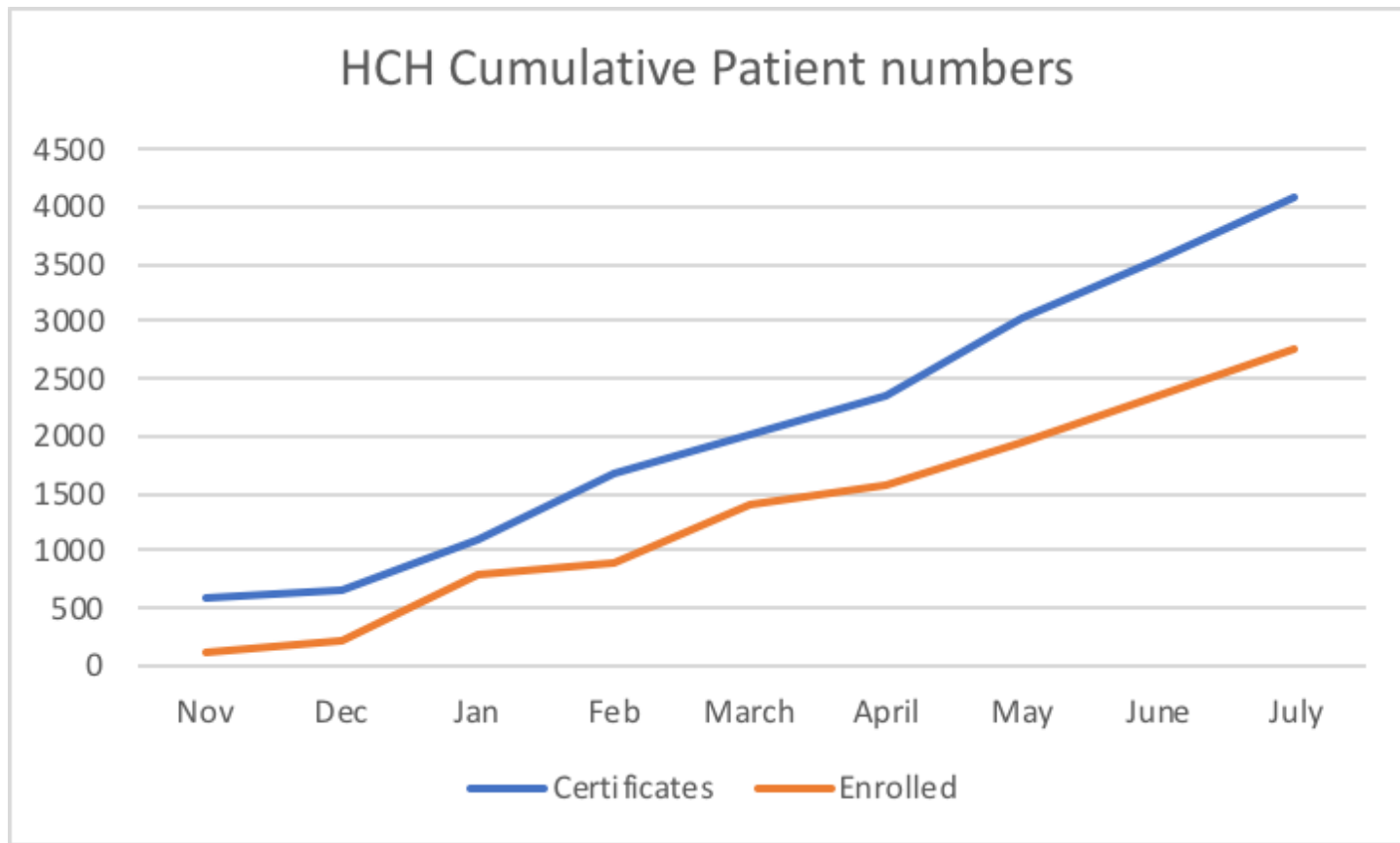
The Health Care Homes trial - RST implementation

- Stage one trial commenced in October 2017 will run until November 2019
- 10 PHNs across Australia
- Up to 200 GP practices and Aboriginal Community Controlled Health Services (ACCHS)
- For eligible people with chronic and complex conditions

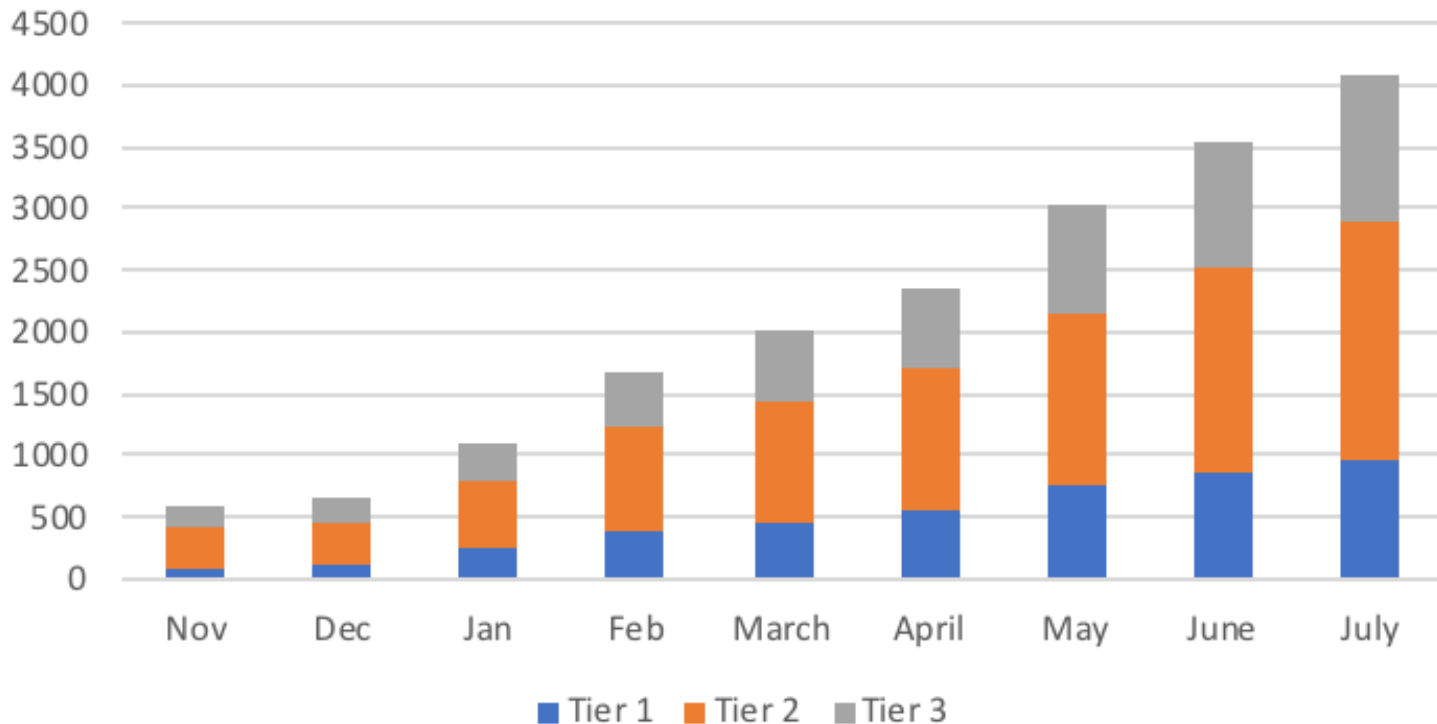
Numbers so far

- By July 2018, over 170 practices and ACCHS participating
- 99% were registered with Precedence accounts,
- 151 (86%) had installed the RST, with
 - 104 practices have at least one enrolled patient and
 - 82 practices have created more than 5 certificates
- Over 4,000 HCH certificates had been generated across the three tiers
- 42 practices have withdrawn to date and will form part of the evaluation





HCH Certificate Tiers (Cumulative)



How many patients have been risk-stratified to date?

As of 18 July 2018

Patient numbers	Tier 1	Tier 2	Tier 3	Total
HPOS – enrolled	698	1,334	711	2,743
Certificates – RST	970	1,914	1,186	4,070

This is far below the number of pop-up alerts that have occurred for the trial to date

Key innovations

- smart algorithms developed for analysing patient data
- identifies patients at risk of hospitalisation at the point of care
- smooth workflows for guiding users through the HCH certification process, and
- a new security mechanism for managing the data transmission to the secure and private cdmNet cloud

Challenges – many!

- **Performance demand:** a solution that performed well with the often inconsistent and incomplete GP data, coded and un-coded
- **Many CIS:** Integrated with many GP systems across multiple operating systems and browsers
- **Write-back:** Write the documents back to the different GP systems
- **Operational efficiency:** Provide an efficient POC alert running the algorithm
- **Privacy and security, consent work-flow**
- **Currency:** Old versions of software and operating systems

Challenges – overcoming them

- Online training and extended hours support provided
- Problem solving, remote installation, testing and HCH model
- Significant program of change and transformation - takes time!
- PHN facilitators 'on the ground' support essential for change management and implementation
- ... active patient recruitment still underway

Conclusion

- Tool innovative stratification for the clinic population and POC
- Diversity and age of GP software Operating systems and browsers only a challenge to 'writing-back', if RST entirely in cloud – much simpler
- Practices enrolling only a few patients per practices – need to understand issues more

Acknowledgements:



Australian Government

Department of Health

CSIRO - development of the algorithm

PHNs - support in implementation

Thank you