

# Health Care Home Risk Stratification Tool

Marienne Hibbert and Michael Georgeff

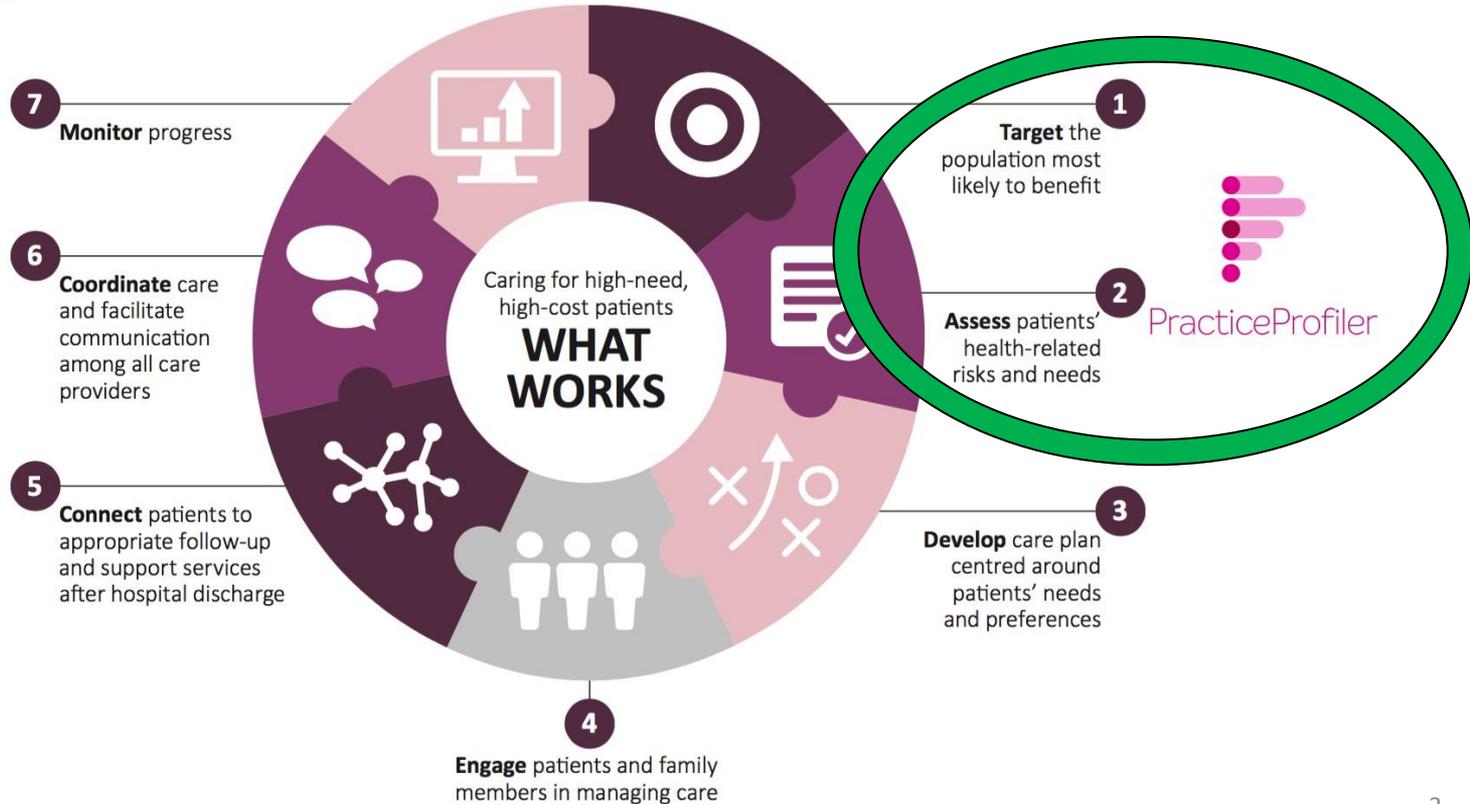
13 Sept 2018

# 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
- Provide continuity of care, coordinated services and a team based approach tailored to the needs and wishes of the patient
- Approach is supported by new payment mechanisms based on capitation payments instead of fee for service

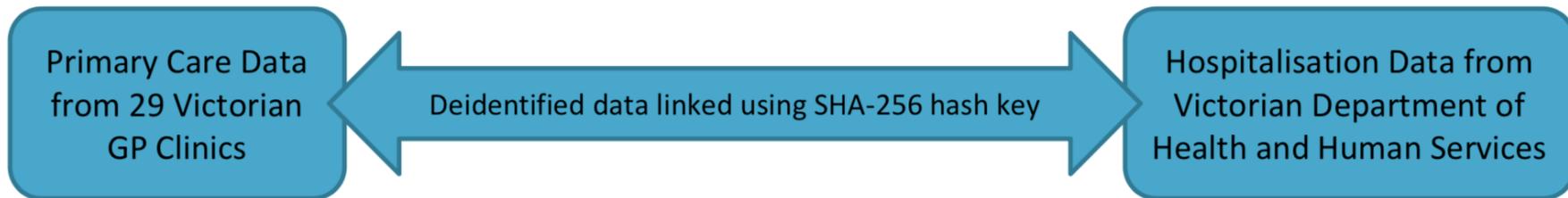
# Precedence products supporting the entire patient journey

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)

# 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

Patient : Clara Claf  
Gender : Female  
Born : 03-Jan-1939

- Check status
- Update health record
- Go to health record
- Download documents
- Go to patient list
- Create referral
- Start assessment
- Extensions...**
- Turn off reminders
- Check for update
- Settings...
- Help
- About
- Exit

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...

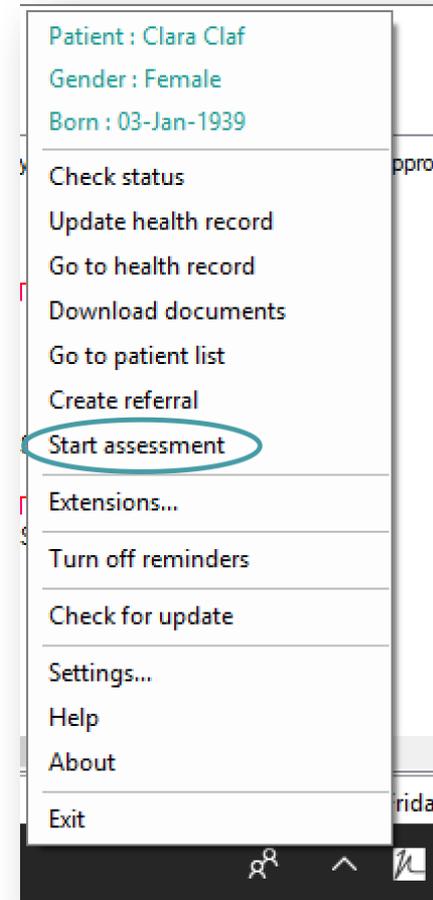
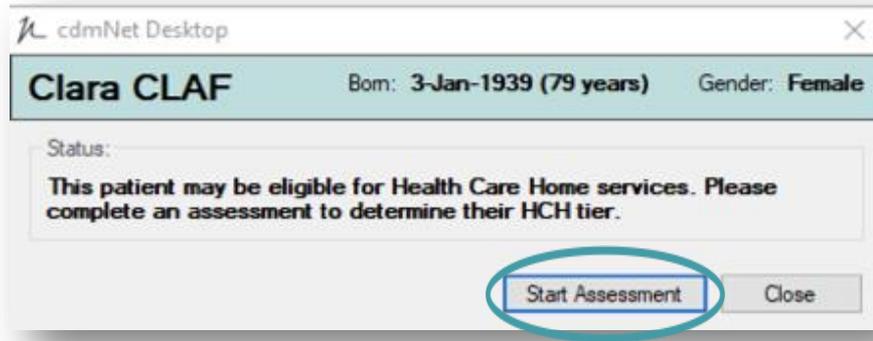
**Potential HCH Patients...** Patients with Certificates...

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

Close

	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](http://health.gov.au)

*(Required to continue.)*

Cancel

Continue

## 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](http://health.gov.au)

*(Required to continue.)*

Cancel Continue

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

### 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

IHI  
None Recorded

#### 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: 0000000000067048808  
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

\*Emergency or preventable

The screenshot shows a software interface with the following sections:

- Data Quality Report:** Includes a message "Data quality report creation completed Jun 21, 2018 3:34 PM" with a "View Results" link and a "Start" button.
- Health Care Home Risk Stratification (Australian Government):** Includes a message "HCH patient certificate report creation completed Jul 12, 2018 1:46 PM" with a "View Logs" link and a "Configure..." button.
- Buttons:** Below the second section are two buttons: "Potential HCH Patients..." and "Patients with Certificates...". The latter is circled in blue.
- MediTracker:** A section at the bottom with a description "Manage the upload of health data for patients who have registered for MediTracker" and a "Close" button.

	A	B	C	D	E	F	G
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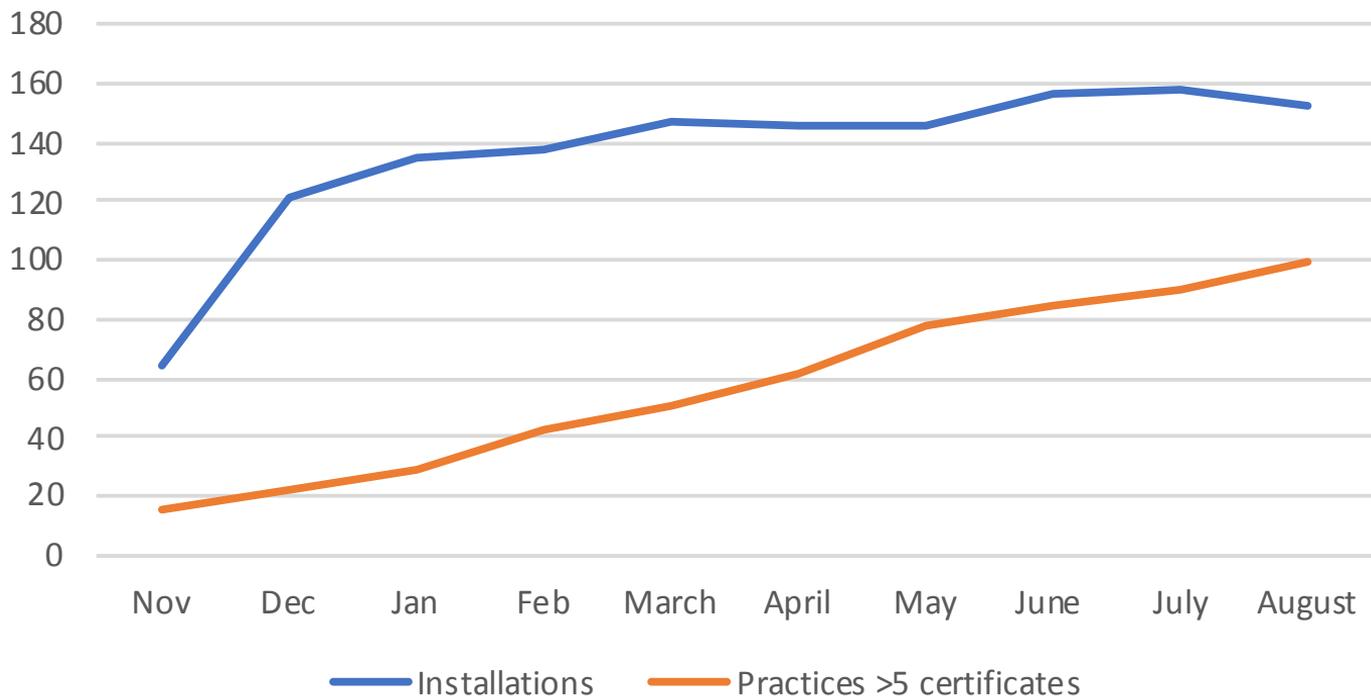
# The Health Care Homes trial - RST implementation

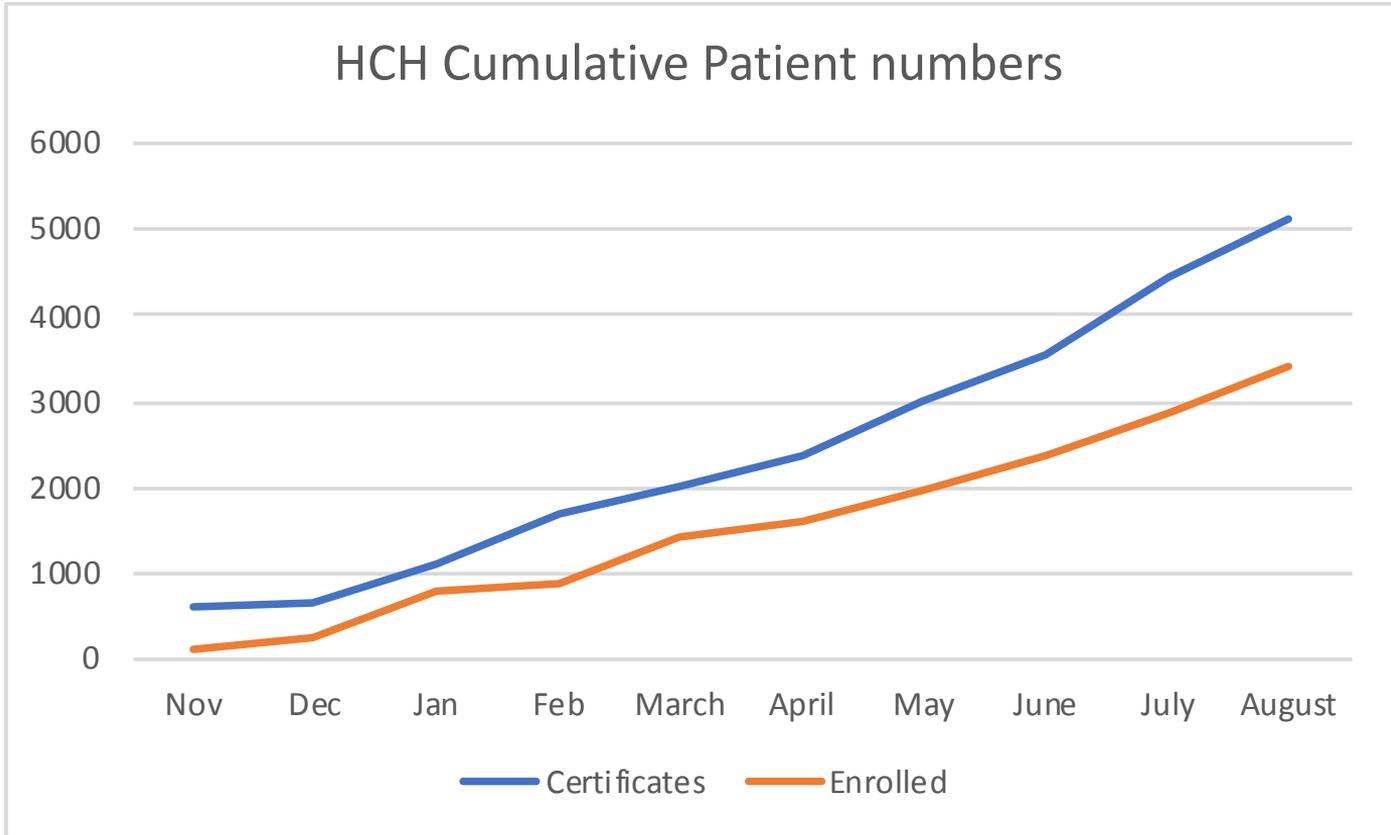
- Stage one trial commenced in October 2017 will run until November 2019
- 10 PHNs across Australia
- Up to 200 GP practices and Aboriginal Community Controlled Health Services (ACCHS)
- For eligible people with chronic and complex conditions

# Numbers so far

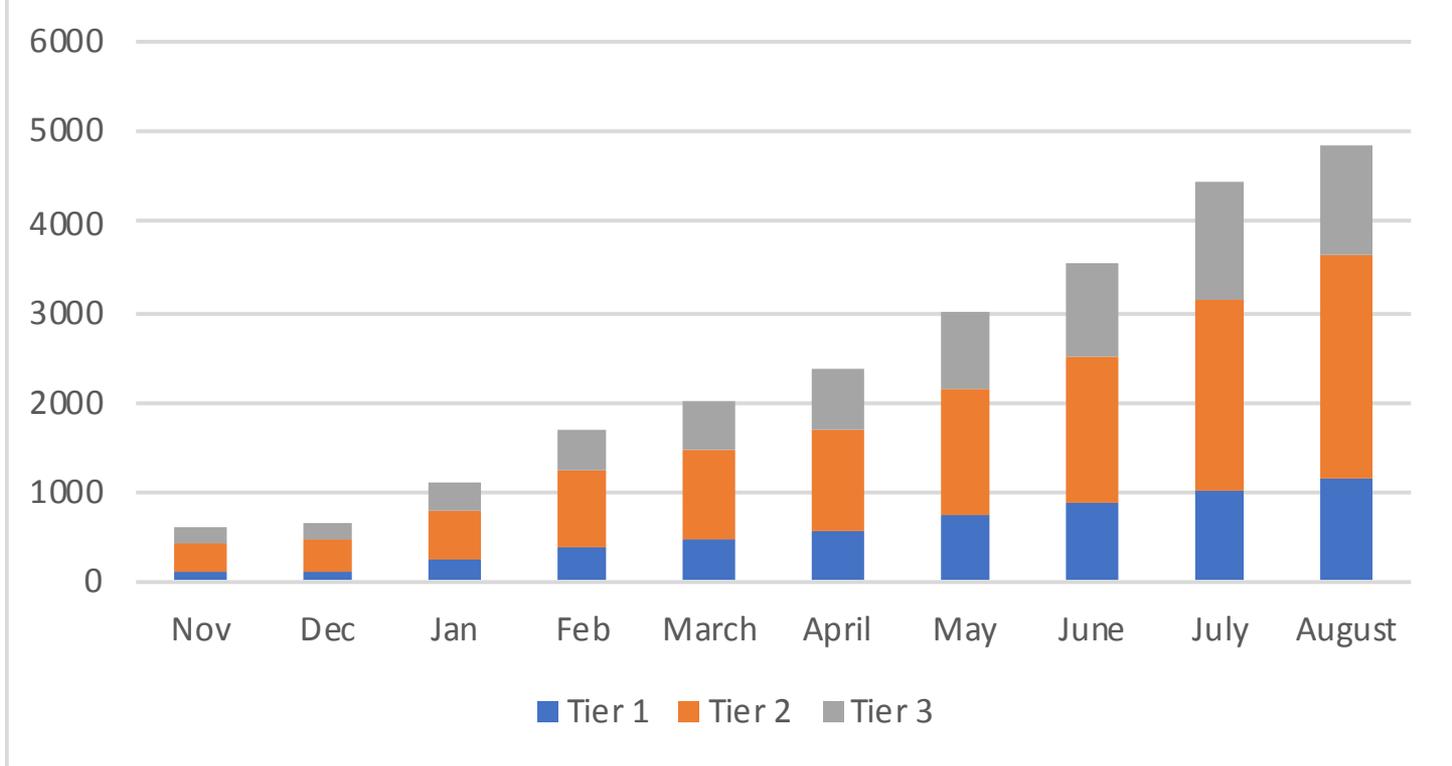
- By September 2018, over 175 practices and ACCHS participating
- 99% were registered with Precedence accounts and Practice Profiler
- 156 (89%) had installed the RST, with
  - 121 practices have at least one enrolled patient and
  - 100 practices have created more than 5 certificates
- Over 5,000 HCH certificates had been generated across the three tiers
- 50 practices using Precedence CareTracker
- Digital plans created for 1,125 patients using Precedence CareTracker

## HCH RST Installations and Use (Cumulative)





## HCH Certificate Tiers (Cumulative)



# How many patients have been risk-stratified to date?

As of 12 September 2018

Patient numbers	Tier 1	Tier 2	Tier 3	Total
HPOS – enrolled	934	1,896	1,053	3,883
Certificates – RST	1,214	2,654	1,606	5,474

# 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
- **Operational efficiency:** Provide an efficient POC alert running the algorithm
- **Privacy and security, consent work-flow** using hosted dedicated server (“cloud”)
- **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 till end of 2018

# Conclusion

- RST is highly efficient and works across most clinical desktops in Australia including MD, BP, ZedMed, MedTech and Communicare
- First validated PRM for hospital admissions risk in Australia
- Innovative cloud-based targeting, needs assessment, and certificate generation provides centralised control over processes
- Despite initial slow uptake and complexities in the overall enrolment process the enrolments are rapidly increasing
- Many practices now moved onto using digital care plans using the Precedence CareTracker product
- Provides a strong basis for future health care reform in line with the evidence for patient-centered collaborative team care

# Acknowledgements:



**Australian Government**

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**Department of Health**

**CSIRO - development of the algorithm**

**PHNs - support in implementation**

**Thank you**

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# 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.