# Health Care Home Risk Stratification Tool

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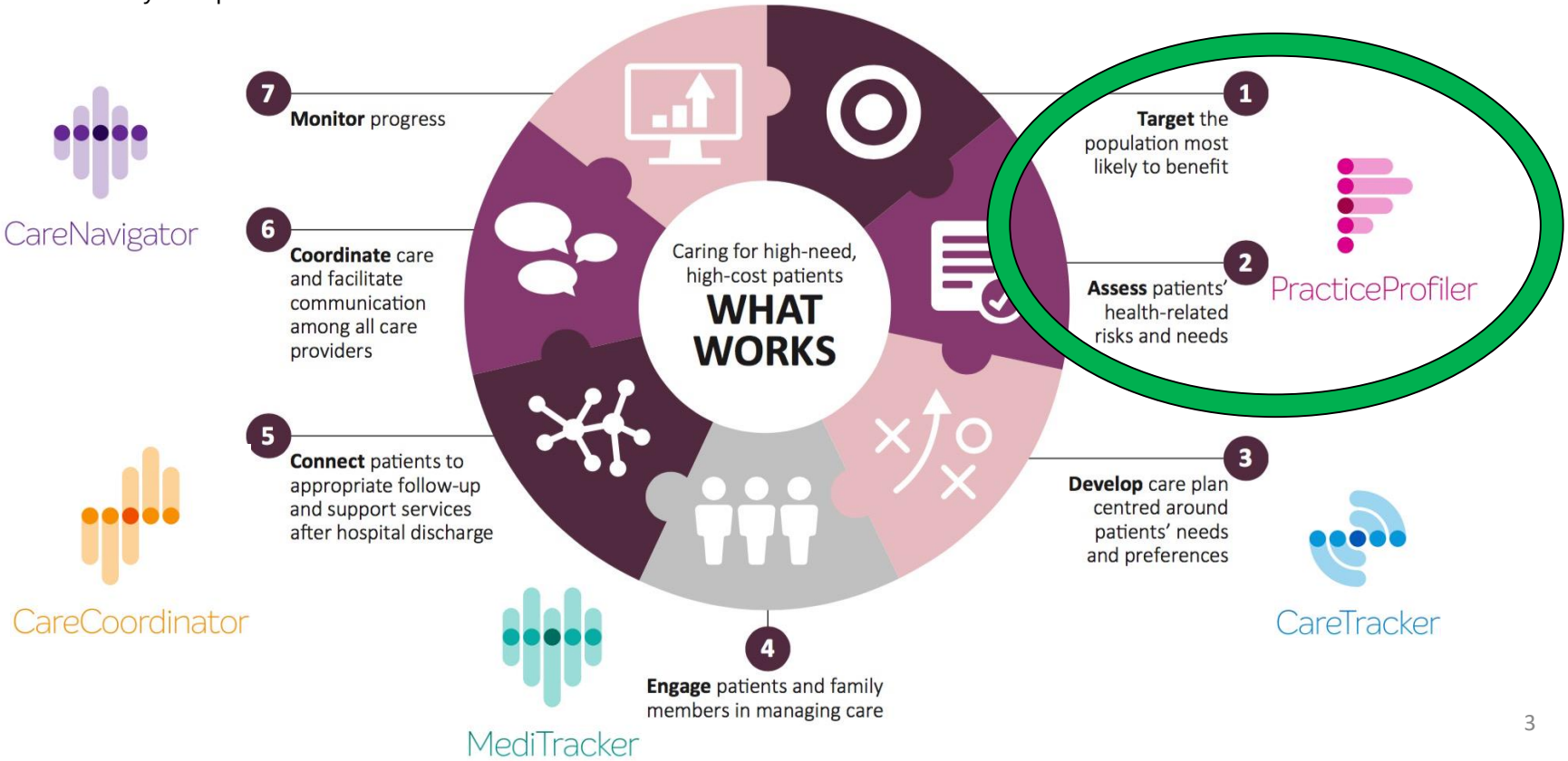
# What are Health Care Homes?

- A new and transformative model of heath 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

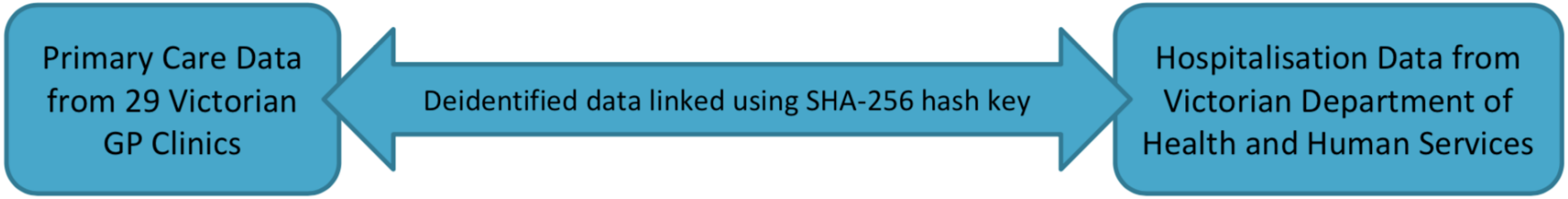
# Precedence products supporting the entire patient journey

Report of the Primary Health Care Advisory Group 2017



# Health Care Homes Predictive risk model - design

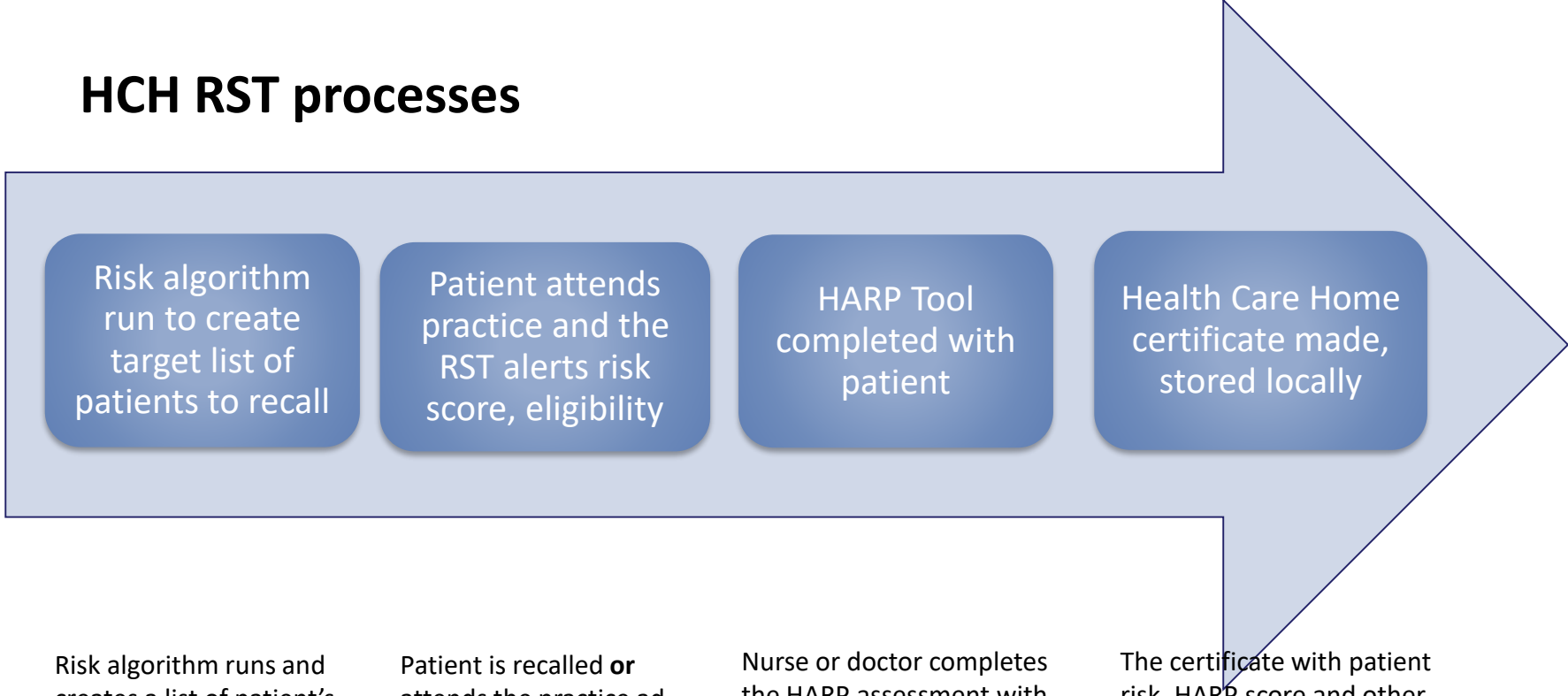
Data used for CSIRO modelling and validation




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 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.

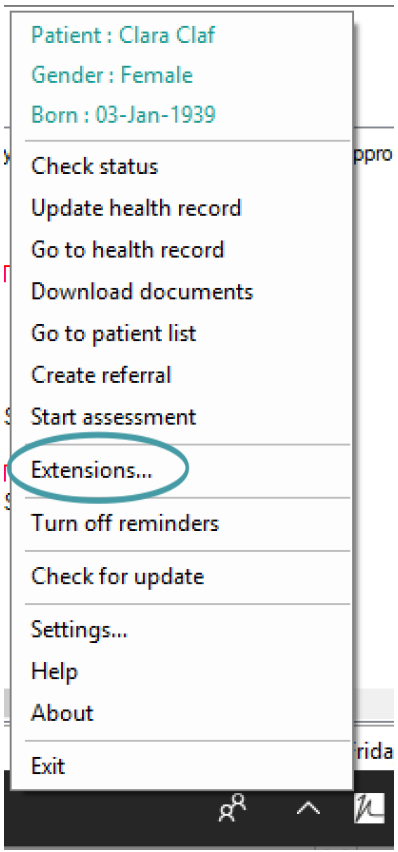
# The HCH risk stratification tool

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

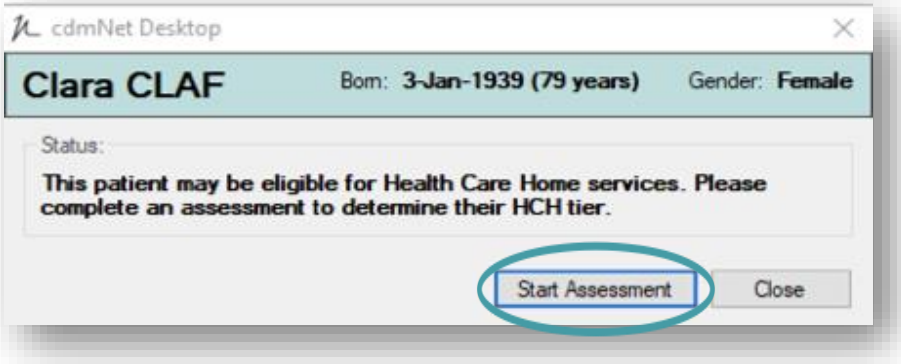


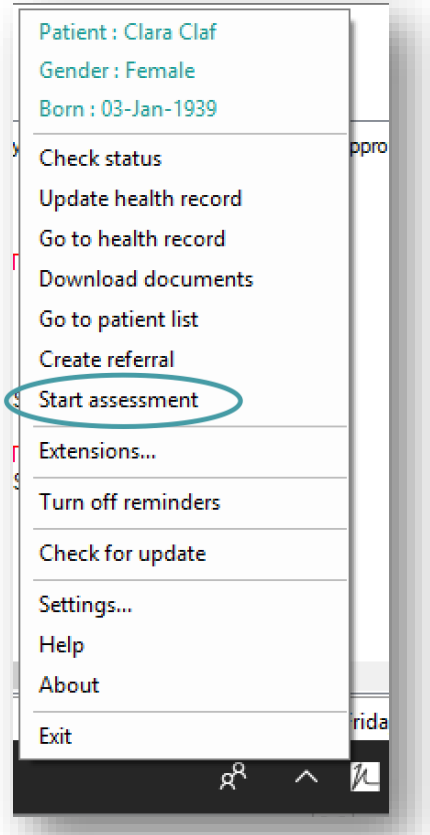


| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | Patient ID | First name | Last name | Gender | Date of Birth | Medicare no | Hospitalisation Probability |
| 2 | 1 | Janet | Jackson | Female | 3-Apr-31 | 3634564181 | 0.1827755 |
| 3 | 2 | Frank | Smith | Male | 3-Apr-31 | 5718581831 | 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 |

Fake data

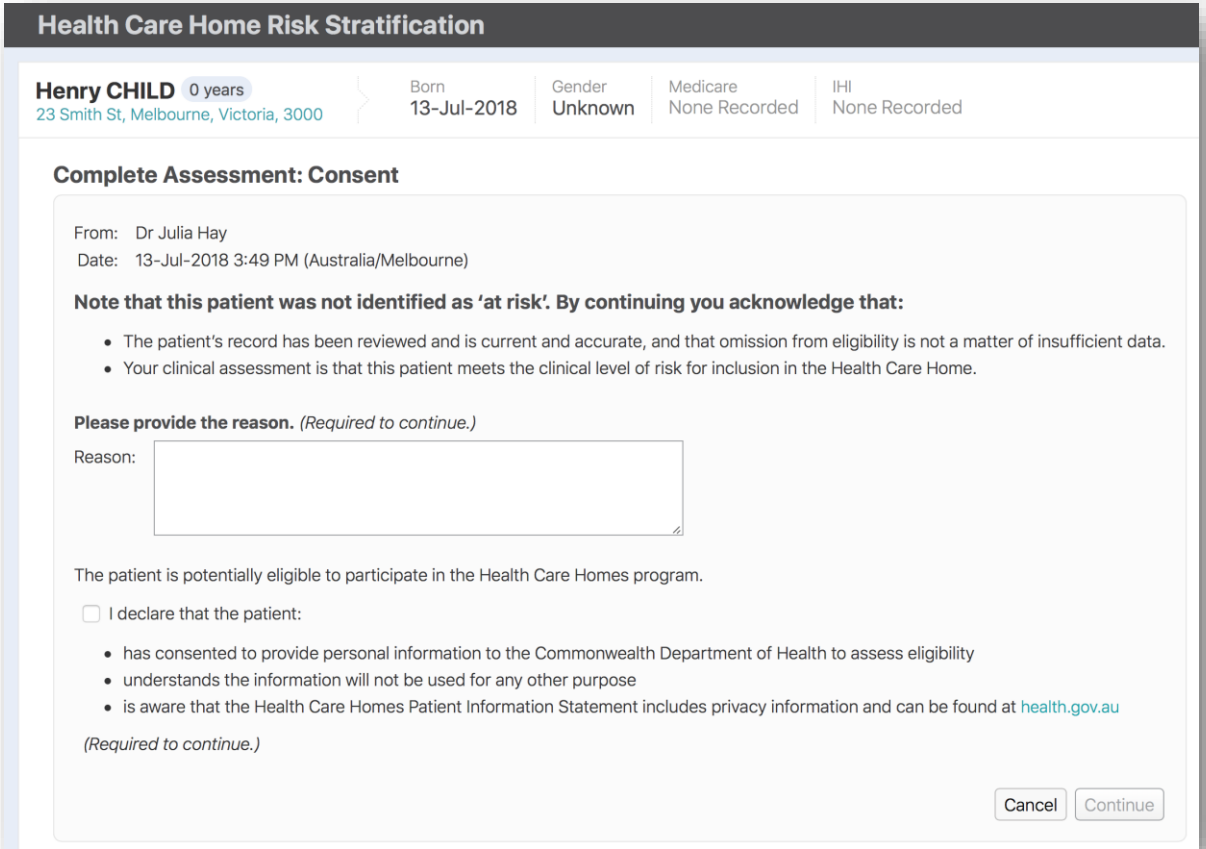
# 2. Stratifying  patients into three risk tiers of complexity and morbidity



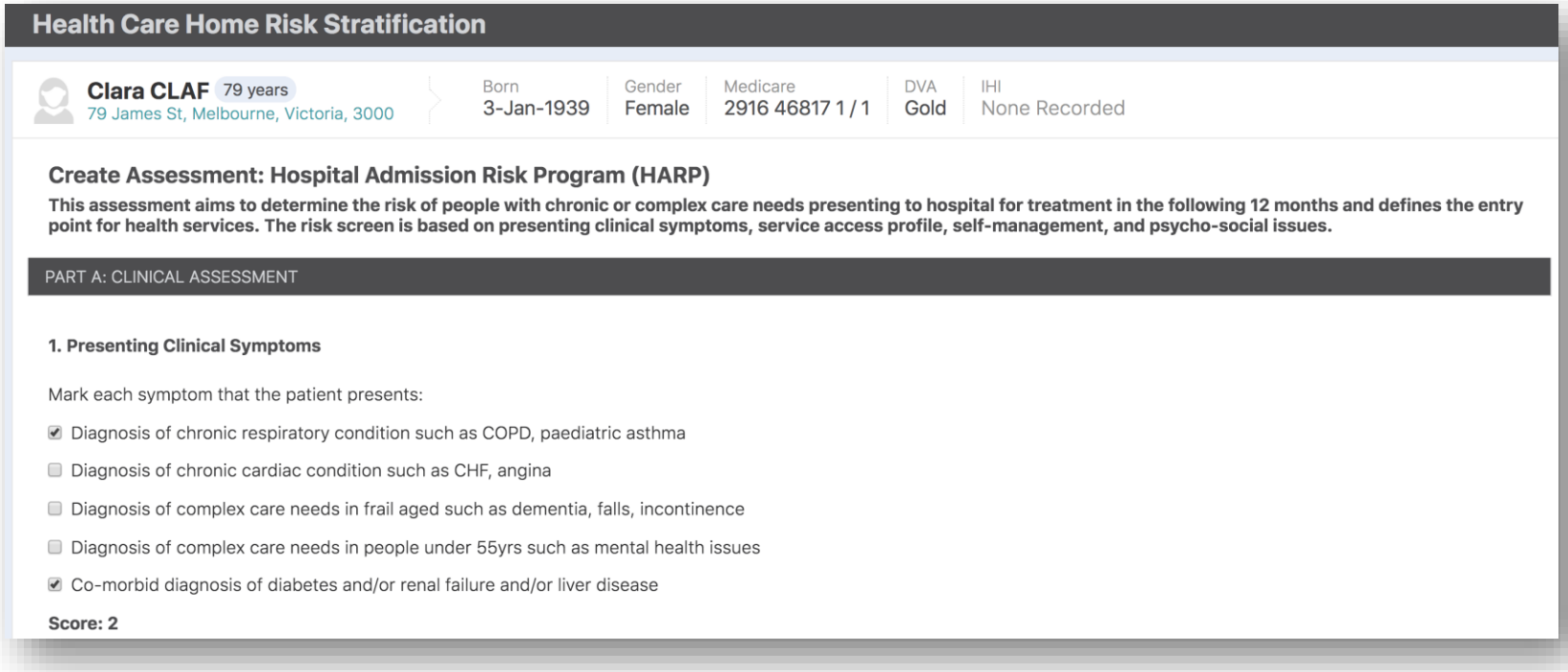



# 2. Stratifying - Patient consent before assessment

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



# 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 | Gender | Medicare | DVA | IHI |
|---|---|---|---|---|
| 3-Jan-1939 | Female | 2916 46817 1 / 1 | Gold | 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:

- [x] 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
- [x] Co-morbid diagnosis of diabetes and/or renal failure and/or liver disease

**Score: 2**

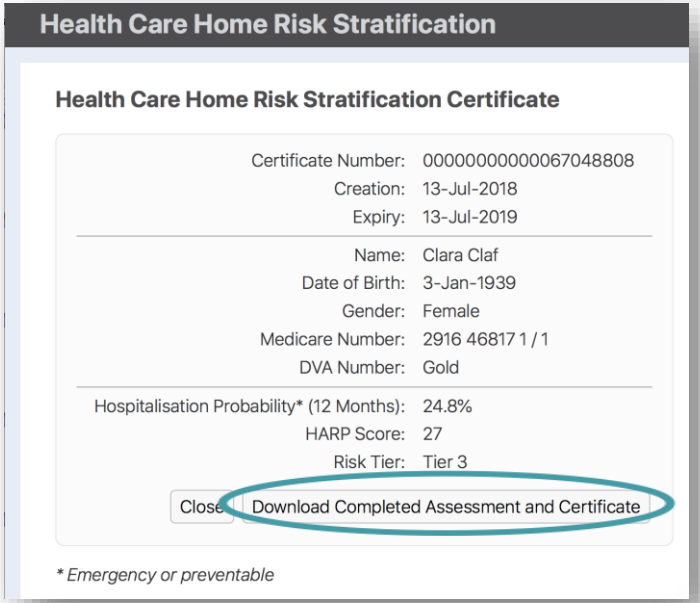
# 2. Stratifying  patients into three risk tiers of complexity and morbidity

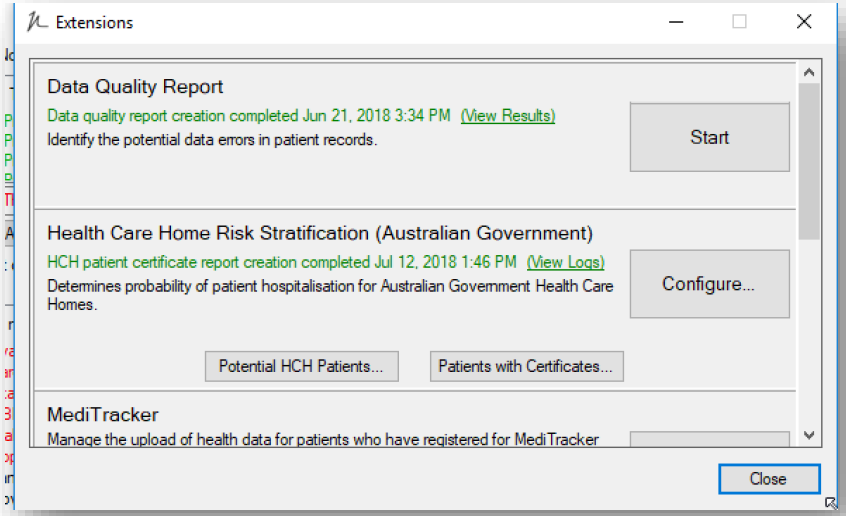
The threshold levels used to choose the Tier after doing the HARP are :

| 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

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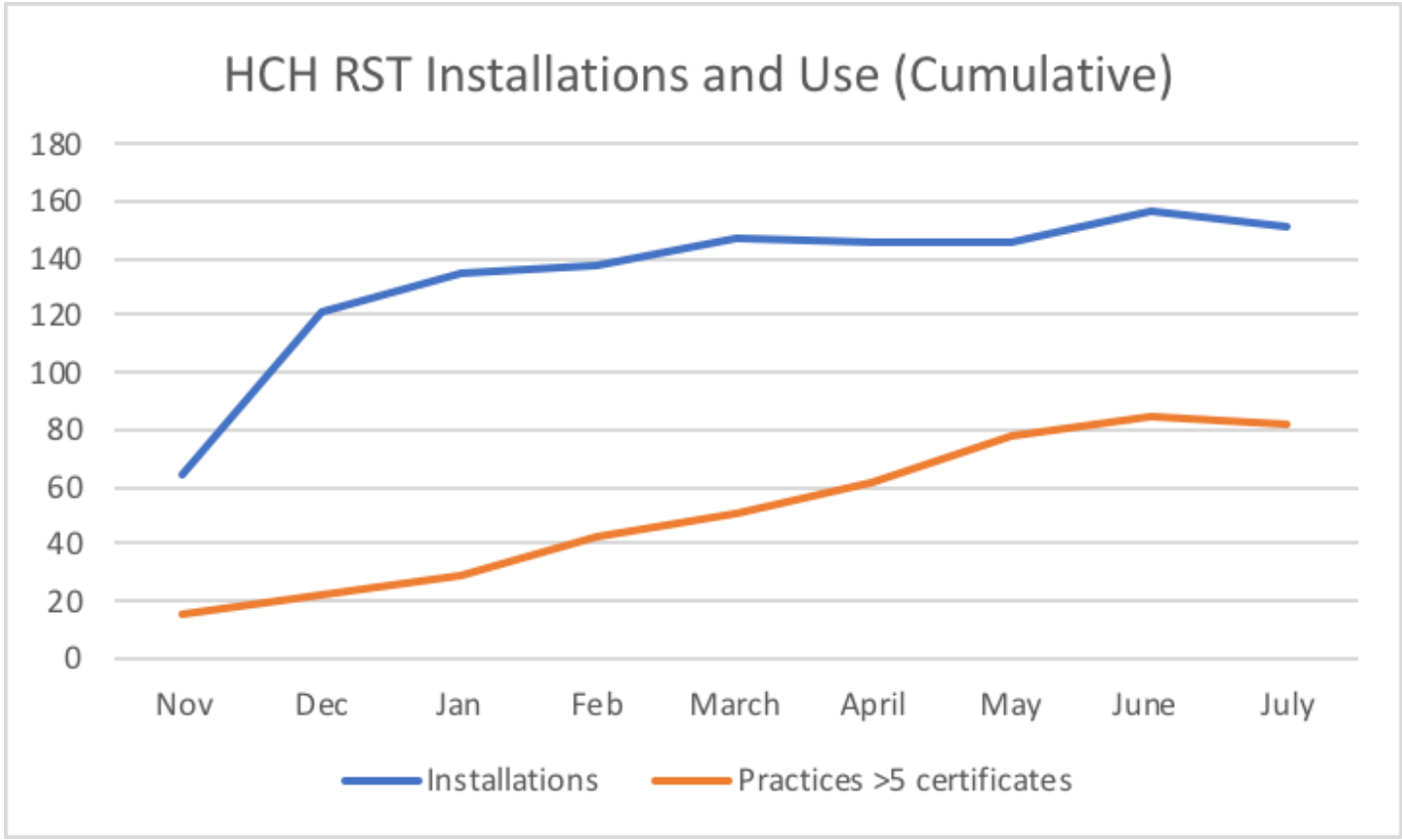
# The Health Care Homes trial - RST implementation

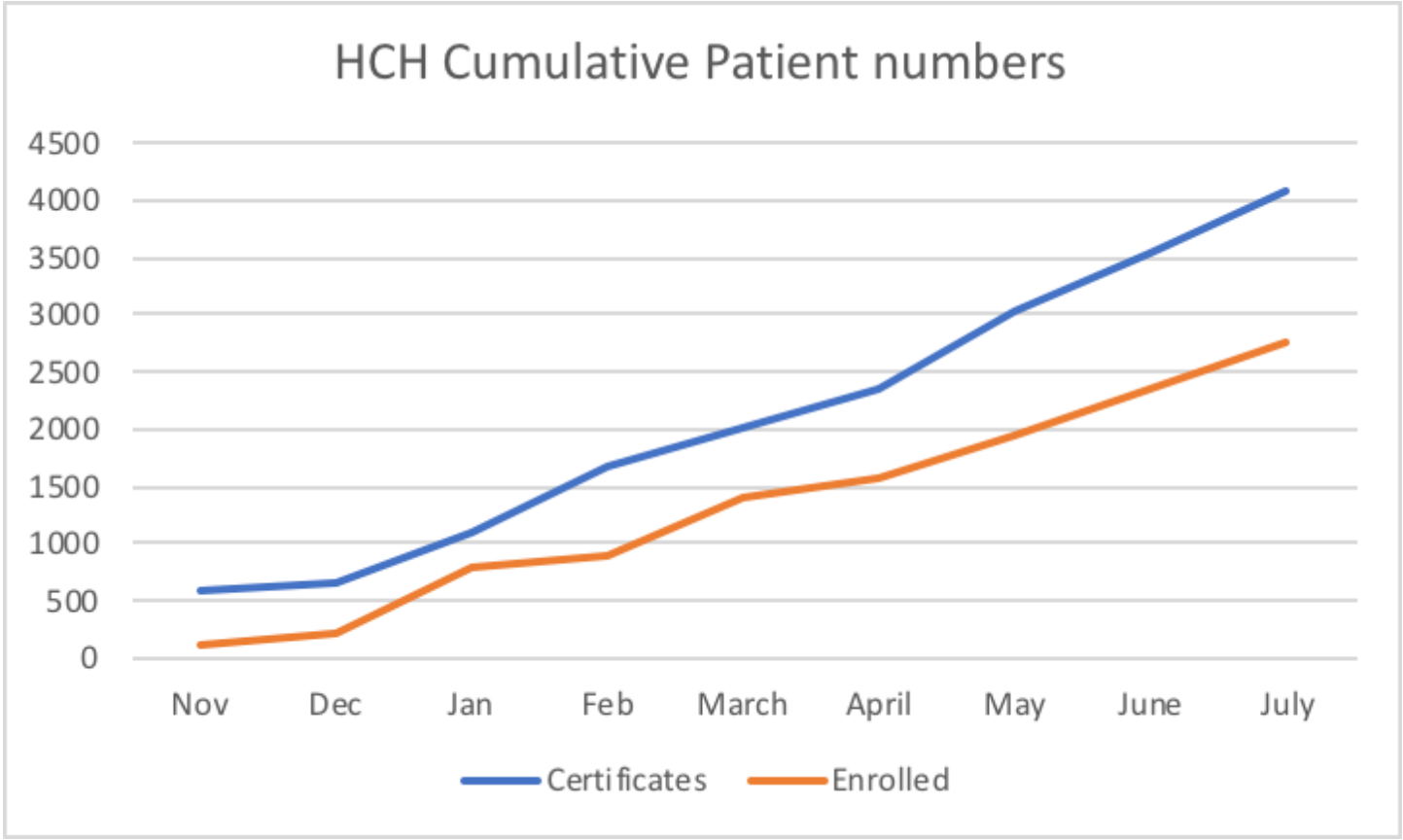
- Stage one trial  commenced in October 2017 will run until November 2019
- 10 PHNs across Australia
- Up to 200 GP practices and Aboriginal Community Controlled Health Services (ACCHS)
- For eligible people with chronic and complex conditions

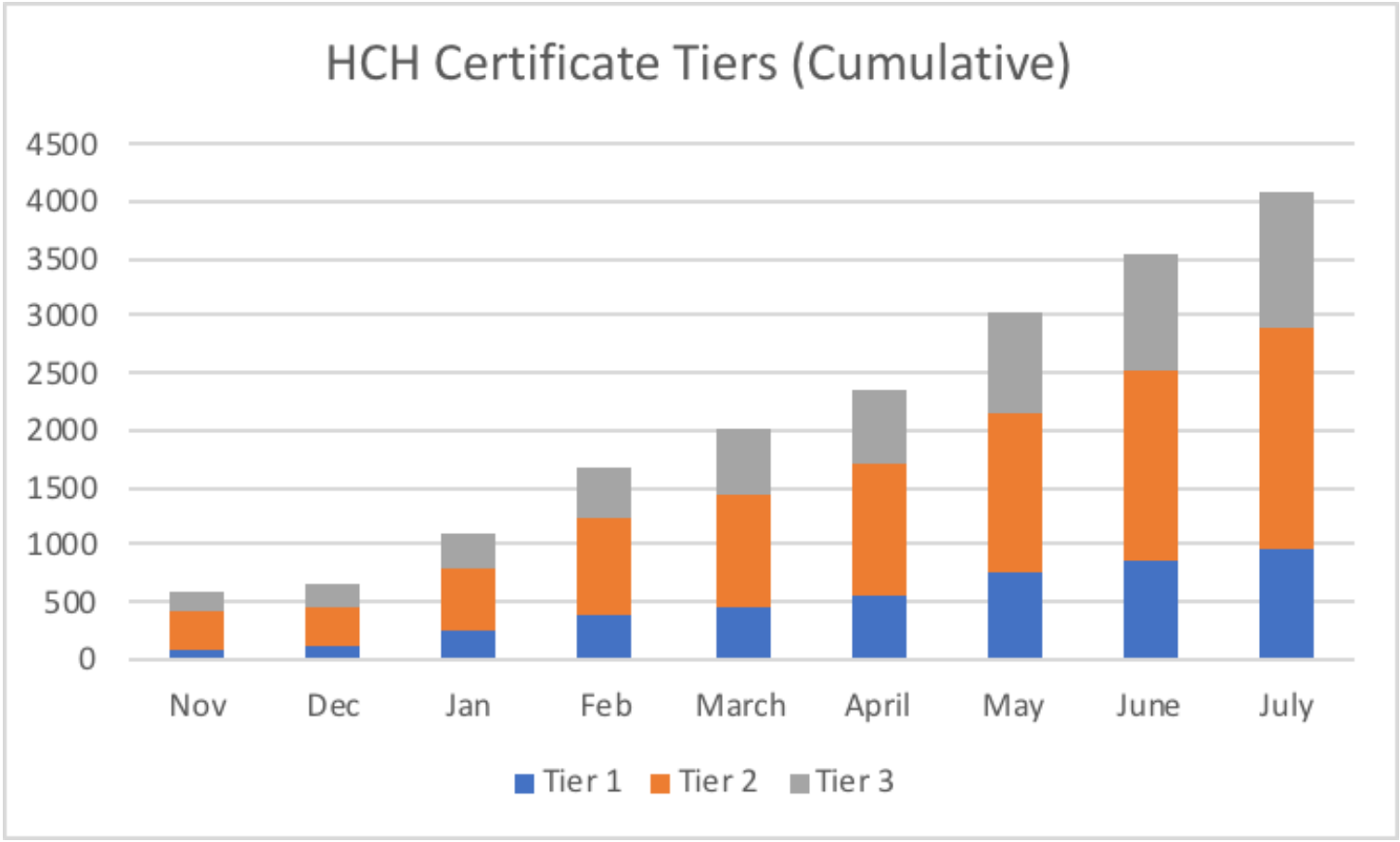
# Numbers so far

- 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 RST Installations and Use (Cumulative)
180
160
140
120
100
80
60
40
20
0
Nov
Dec
Jan
Feb
March
April
May
June
July
Installations
Practices >5 certificates


HCH Cumulative Patient numbers
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Nov
Dec
Jan
Feb
March
April
May
June
July
Certificates
Enrolled


HCH Certificate Tiers (Cumulative)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
Nov
Dec
Jan
Feb
March
April
May
June
July
Tier 1
Tier 2
Tier 3

# 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