



PainChek

Intelligent Pain Assessment

**Company Presentation
September 2018**

**PainChek Ltd
ASX:PCK**

OUR 'WHY'

Our purpose is to
give a **voice to people**
who **cannot verbalise**
their pain



PainChek® Highlights

Proven business model

Accelerating sales in Residential Aged Care (RAC) including Allity, Top 5 RAC

Partnering with 3rd Party Software Suppliers for local and international market expansion

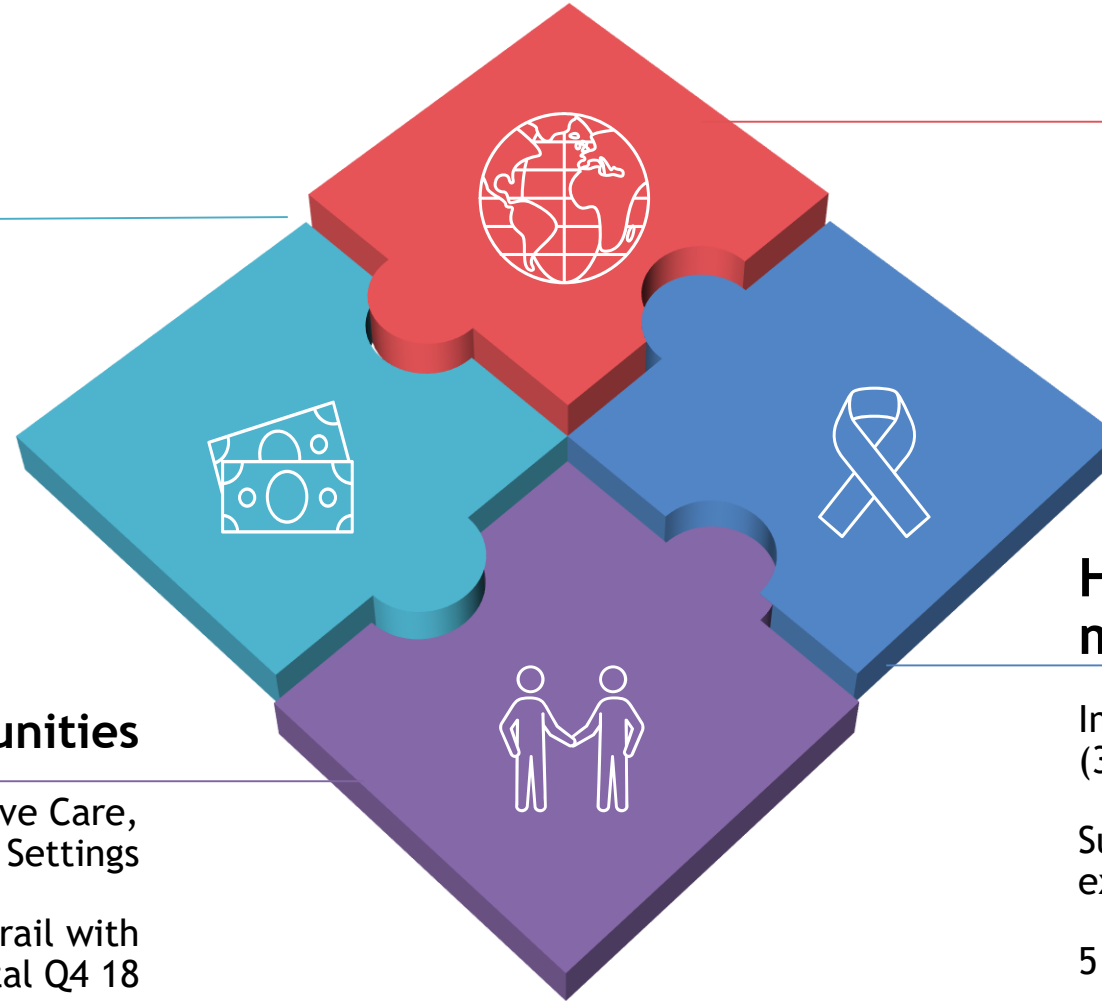
Core team in place for global market execution

New Business Opportunities

Dementia App extending into Palliative Care, GP, Pharmacy and Home Care Settings

Anticipate Kids App clinical trial with recognized children's hospital Q4 18

PainChek becoming standard of care for pain assessment and monitoring



Large initial global market opportunities

47M people living with dementia worldwide - CAGR 3%

400M children aged between 0-3 years old

Broad range of carers in health care professional and consumer segments

High clinical relevance and market acceptance

Improving current clinical practice (3000+ clinical assessments in 2018)

Support of industry and leading clinical experts

5 peer reviewed publications

CE Mark and TGA regulatory clearance - FDA in progress

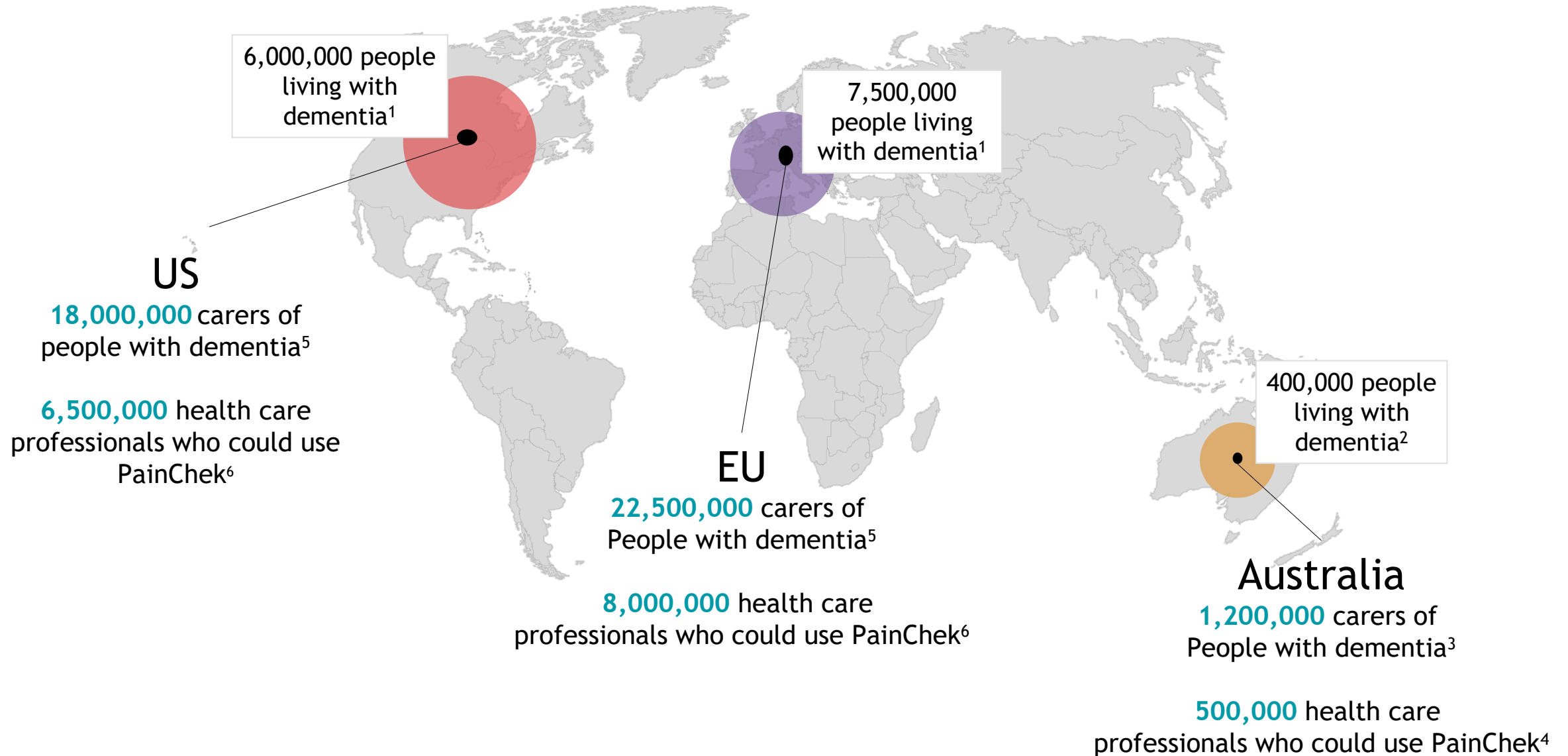
Our Initial Target Markets

Carers of non-communicative people with pain:

- Dementia sufferers
- Pre-verbal children



PainChek® Initial Market Opportunity - Carers of people living with Dementia



¹ World Alzheimer Report 2016

² Alzheimer's Australia key facts and statistics 2017

^{3,4} Australian health care statistics

⁵ Estimated based on Australian dementia data ratios

⁶ Estimated based on Australian population ratios

New Market Opportunity: pre-verbal children's App

- Children's App developed with facial recognition capability
- Clinical trial sites identified - in negotiation with major Australian children's hospital
- Trials scheduled to commence Q4 2108
- Product launch scheduled for 2019

Carers of pre-verbal children

Mums & Dads
Grandparents
Health care professionals
Nannies
Babysitters
Day care workers

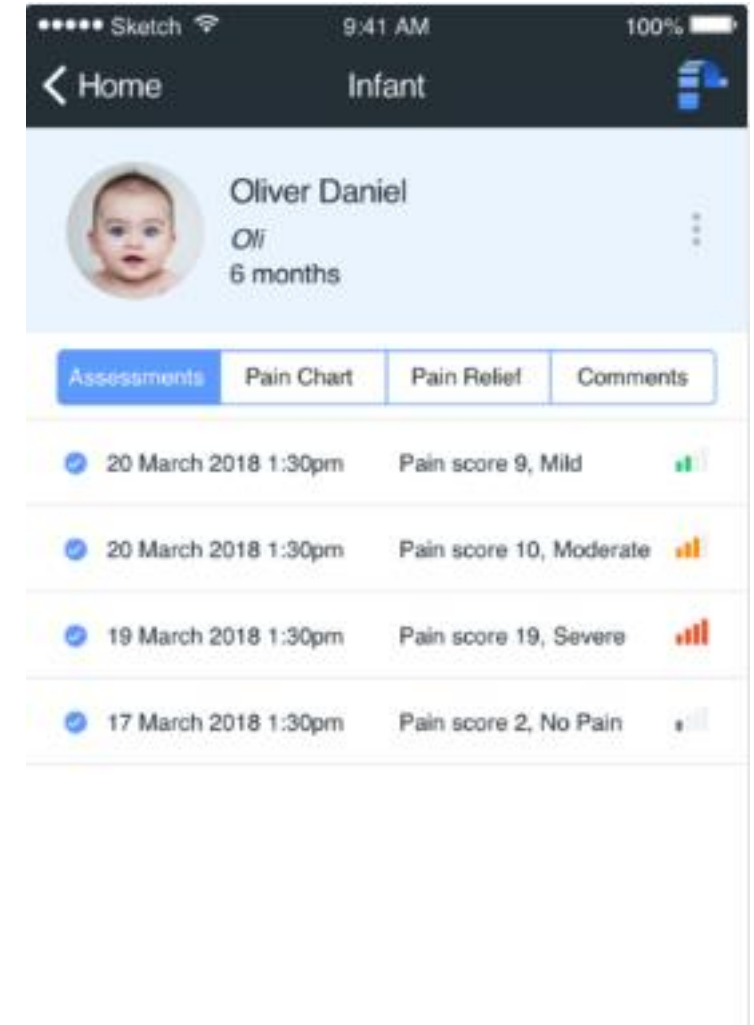
~ 130 million¹
Births per year in world

~ 1.25 million²
0-3 year olds in Australia

~ total of 400 million
0-3 year olds worldwide

¹ <http://www.ecology.com/birth-death-rates>

² ABS 2016





Philip Daffas
CEO & Managing Director, MBA, BSc

Philip is a highly accomplished global business leader and people manager with an international career spanning more than 25 years with leading blue-chip healthcare corporates. Philip has held senior global leadership positions with Cochlear and Roche in Europe, US and Australia.



Prof. Jeff Hughes
Chief Scientific Officer PhD, MPS

Jeff is a professor in the School of Pharmacy, Curtin University in Western Australia. Jeff served as the Head of the School of Pharmacy of Curtin University, from March 2009 to May 2014. Jeff is one of the team who developed the PainChek™ concept.



Mustafa Atee
Research Scientist MPS, PhD (candidate)

Mustafa is a clinical, community and academic pharmacist and he has managed a number of community pharmacies in Western Australia. The PainChek™ concept was born out of his PhD research. His PhD research has been supported by both a grant and an academic scholarship from Alzheimer's Australia.



Scott Robertson
Chief Technology Officer, MBA, B.Eng.
(Comp. Systems)

Scott has over 25 years' experience designing, deploying and managing enterprise software systems. He mostly worked in private enterprises, where adapting to changing client needs, markets directions and government regulations were paramount to commercial success.



David Allsopp
Head of Business Development ANZ

David has more than 15 years' experience in the account management, relationship management and business development space. Ten of those spent in the aged care sector with market leaders Healthstrong and Mirus. He is renowned for establishing trusting, transparent and long-standing relationships in the healthcare space.



Dawn Kerr
Senior Clinical Specialist

Dawn has 16 years' nursing experience. She completed her nurse training at West of Scotland University in Glasgow, where she graduated with a BSc in Adult Nursing. Dawn has an extensive knowledge in the area of pain management nursing. Patient orientated in providing care, Dawn believes pain management is of paramount importance in any care facility.

THE TEAM

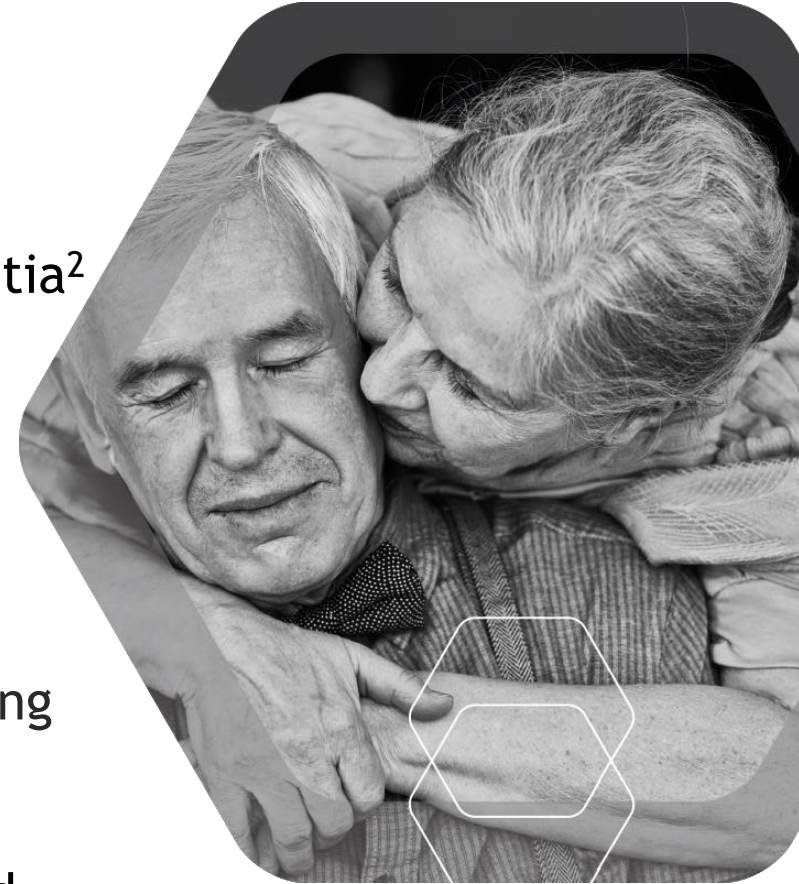
THE CHALLENGE OF MANAGING PAIN FOR PEOPLE WITH DEMENTIA

Pain is common

- Up to 80% of people in aged care experience chronic pain¹
- More than 50% of people in Australian aged care have dementia²
- 47 Million globally living with Dementia³ growing at 3% p.a.

But pain often goes undetected and untreated¹

- Pain is difficult to assess
- Tools to assess pain are often not used or use subjective rating scales
- Adverse impact on quality of care, operational efficiency and compliance



¹ Aged Care Awareness

² Australian Govt. Dept. of Health data at 30 June 2015

³ World Alzheimer's report 2016

CLINICAL BENEFITS OF ACCURATELY IDENTIFYING PAIN

Accurately identifying pain can

- Improve quality of life
- Reduce rates and severity of behaviours
- Reduce rates of incorrectly prescribed antipsychotics
- Improve staff retention



Evolution of Pain Assessments in Dementia

Table 1 Common pain behaviors in cognitively impaired elderly persons according to the AGS Panel on persistent pain in older persons³⁸

1. Facial expressions	Slight frown; sad, frightened face Grimacing, wrinkled forehead Closed or tightened eyes Any distorted expression Rapid blinking
2. Verbalizations, vocalizations	Sighing, moaning, groaning Grunting, chanting, calling out Noisy breathing Asking for help Verbally abusive
3. Body movements	Rigid, tense body posture, guarding Fidgeting Increased pacing, rocking Restricted movement Gait or mobility changes
4. Changes in interpersonal interactions	Aggressive, combative, resisting care Decreased social interactions Socially inappropriate, disruptive Withdrawn
5. Changes in activity patterns or routines	Refusing food, appetite change Increase in rest periods Sleep, rest pattern changes Sudden cessation of common routines Increased wandering
6. Mental status changes	Crying or tears Increased confusion Irritability or distress

2002

AGS

2003

Pain Assessment IN Advanced Dementia

	0	1	2	Score
Breathing Independent of vocalization	Normal	Occasional labored breathing. Short period of hyperventilation	Noisy labored breathing. Long period of hyperventilation. Cheyne-Stokes respirations	
Negative Vocalization	None	Occasional moan or groan. Low level speech with a negative or disapproving quality	Repeated troubled crying out. Loud moaning or groaning. Crying	
Facial expression	Smiling, or inexpressive	Sad, Frightened, Frown	Facial grimacing	
Body Language	Relaxed	Tense, Distressed pacing, Fidgeting	Rigid, Fists clenched, Knees pulled up. Pulling or pushing away. Striking out	
Consolability	No need to console	Distraught or reassured by touch	Unable to console, distraught or reassure	
TOTAL				

This material prepared by the Genetics Research Education Clinical Center, is provided by the Jones Foundation for Medical Care, the Medscape Quality Improvement Organization for free, was prepared by Medscape, under contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health & Human Services. The contents presented do not necessarily reflect CMS policy.

Abbey Pain Scale

For measurement of pain in people with dementia who cannot verbalise

<p>Q1. Vocalisation (eg whimpering, growling, crying)</p> <p>Absent 0 Mild 1 Moderate 2 Severe 3</p>			
<p>Q2. Facial expression (eg looking tense, frowning, grimacing, looking frightened)</p> <p>Absent 0 Mild 1 Moderate 2 Severe 3</p>			
<p>Q3. Change in body language (eg flinching, rocking, guarding part of body, withdrawal)</p> <p>Absent 0 Mild 1 Moderate 2 Severe 3</p>			
<p>Q4. Behavioural change (eg 'confusion', refusing to eat, alteration in usual pattern)</p> <p>Absent 0 Mild 1 Moderate 2 Severe 3</p>			
<p>Q5. Physiological changes (eg temp, pulse > 2 SD above normal limits, perspiring, flushing, pallor)</p> <p>Absent 0 Mild 1 Moderate 2 Severe 3</p>			
<p>Q6. Physical changes (eg skin tears, pressure sores, arthritis, contractures)</p> <p>Absent 0 Mild 1 Moderate 2 Severe 3</p>			

Total pain score

Tick the box that matches the total pain score

0-2	3-7	7-13	14+
No pain	Mild	Moderate	Severe

Tick the box that matches the type of pain

Chronic	Acute	Acute on chronic
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2004

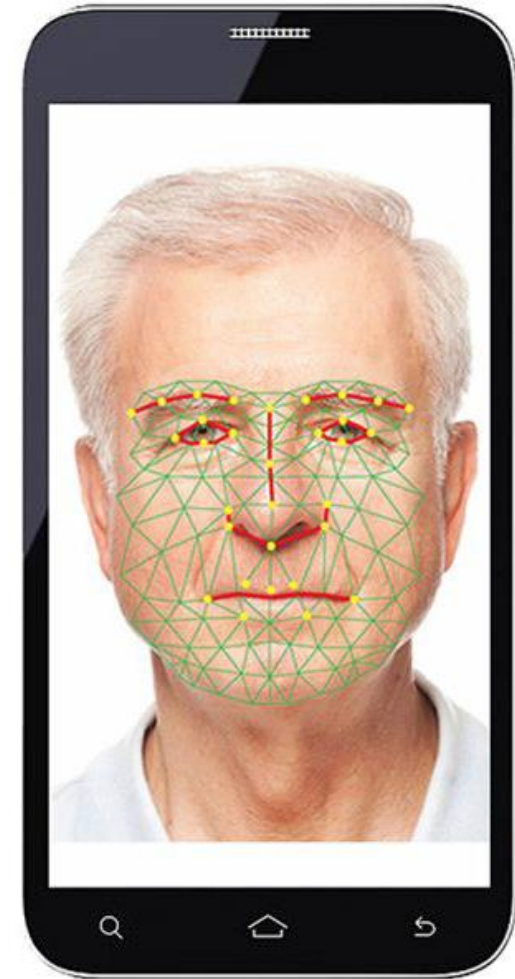
PainChek™

2017



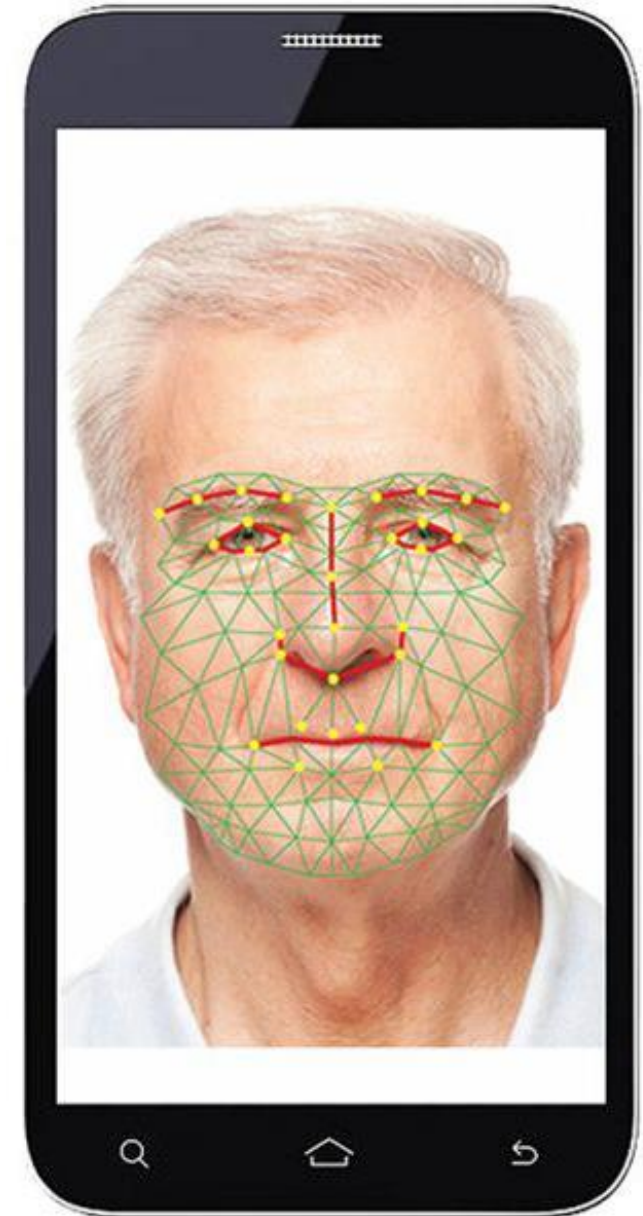
The PainChek® solution

- A secure, validated, **medical device** in the form of a mobile app
- Uses existing smartphone and tablet hardware¹
- Artificial Intelligence (AI) technology to analyze facial expressions indicative of pain in real time



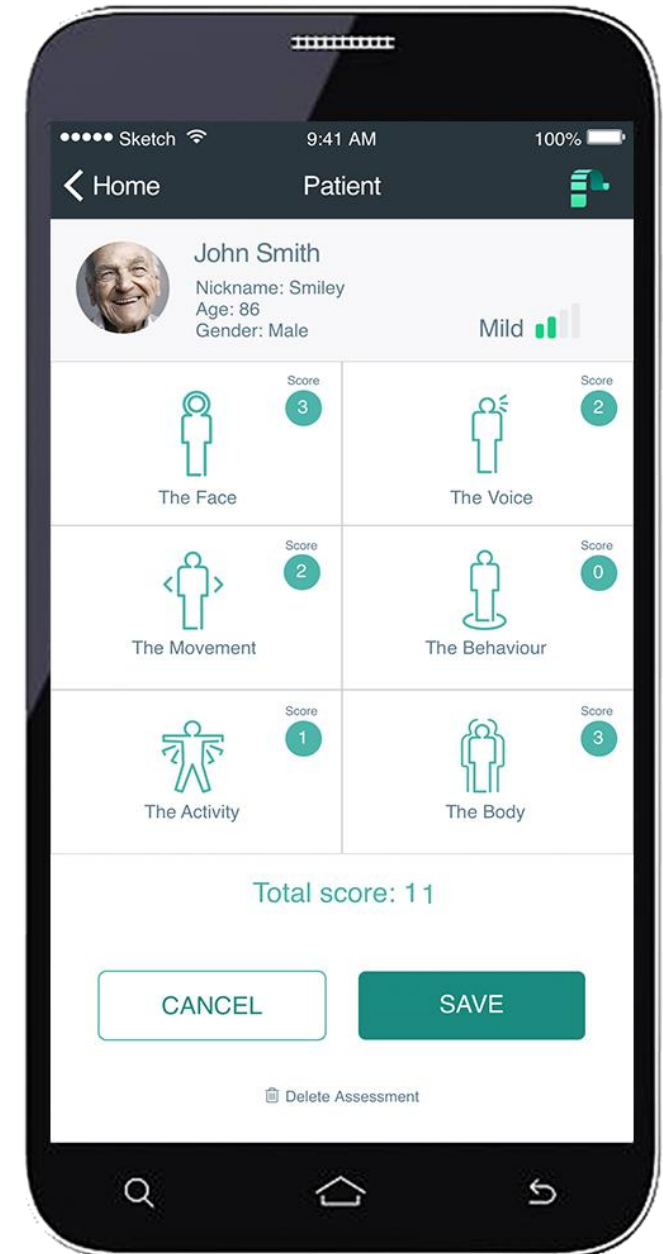
¹ Edge devices (smartphones and tablets) are being adopted extensively within Aged Care and Primary Care health services to capture patient medical records and resident data

Helping carers **identify** the
presence of pain when it
isn't obvious...



Helping carers identify the
presence of pain when it
isn't obvious...

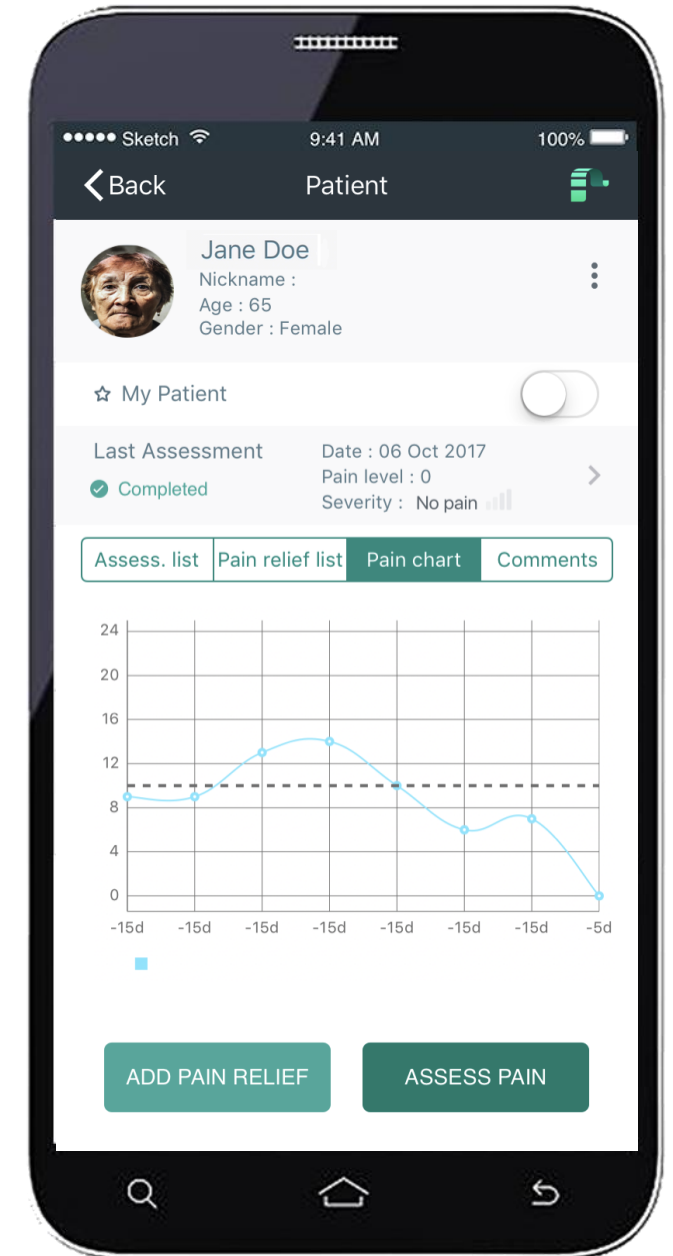
...quantifying the severity
of pain when it is.....



Helping carers identify the
presence of pain when it
isn't obvious...

...quantifying the severity
of pain when it is.....

and monitoring the
effectiveness of
interventions



PainChek® Case Study 1

- 84 year old male
- Referred with physical aggression during care
- Pain suspected to be impacting on behaviour
- PainChek™ indicated severe pain & GP prescribed pain relief therapy
- **Result:** Significant reduction in physical aggression

Case Study 2

- 72 year old female
- Referred with agitated behaviour, restless at night
- Pain suspected to be impacting on behaviour
- PainChek indicated moderate pain & care plan updated to include regular analgesia
- **Result:** Rapid change in behaviour and family satisfaction



PainChek® provides Carers with the information needed to change treatment

PAINCHEK® BENEFITS IMPACTS ALL KEY STAKEHOLDERS

Clinical Utility

- Improve quality of life
- Reduce rates and severity of behavioural and psychological symptoms
- Reduce rates of incorrectly prescribed antipsychotics

Cost Benefit

- Point of Care testing
- Automated documentation
- Eliminate double handling of data
- Reduce labour time to focus on care

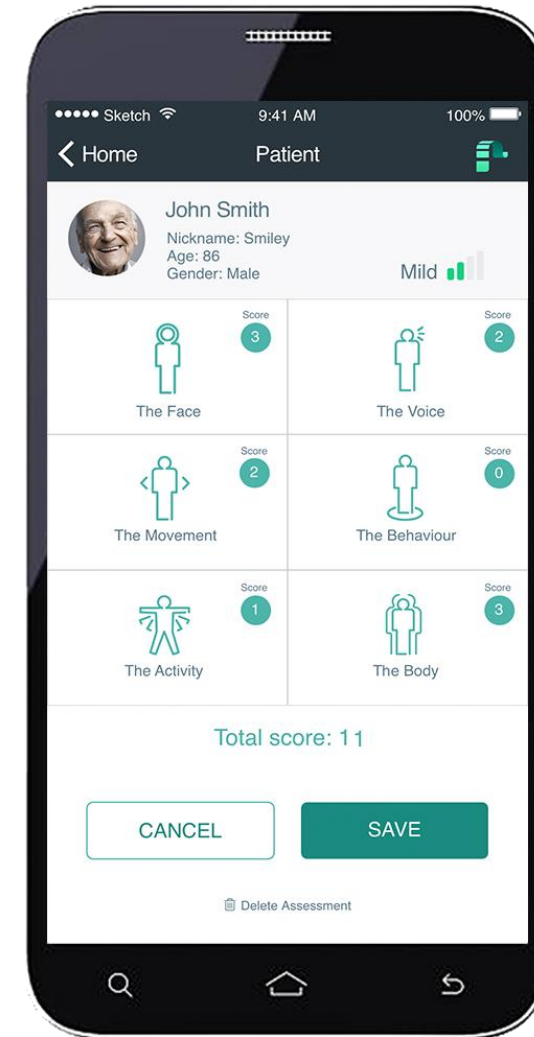
Quality & Funding

- Addresses pain assessment requirements for accreditation standard 2.8
- Accurate and validated tool as evidence base for Aged Care Funding Instrument (ACFI) including ADLs & CHC items 3, 4a, 4b

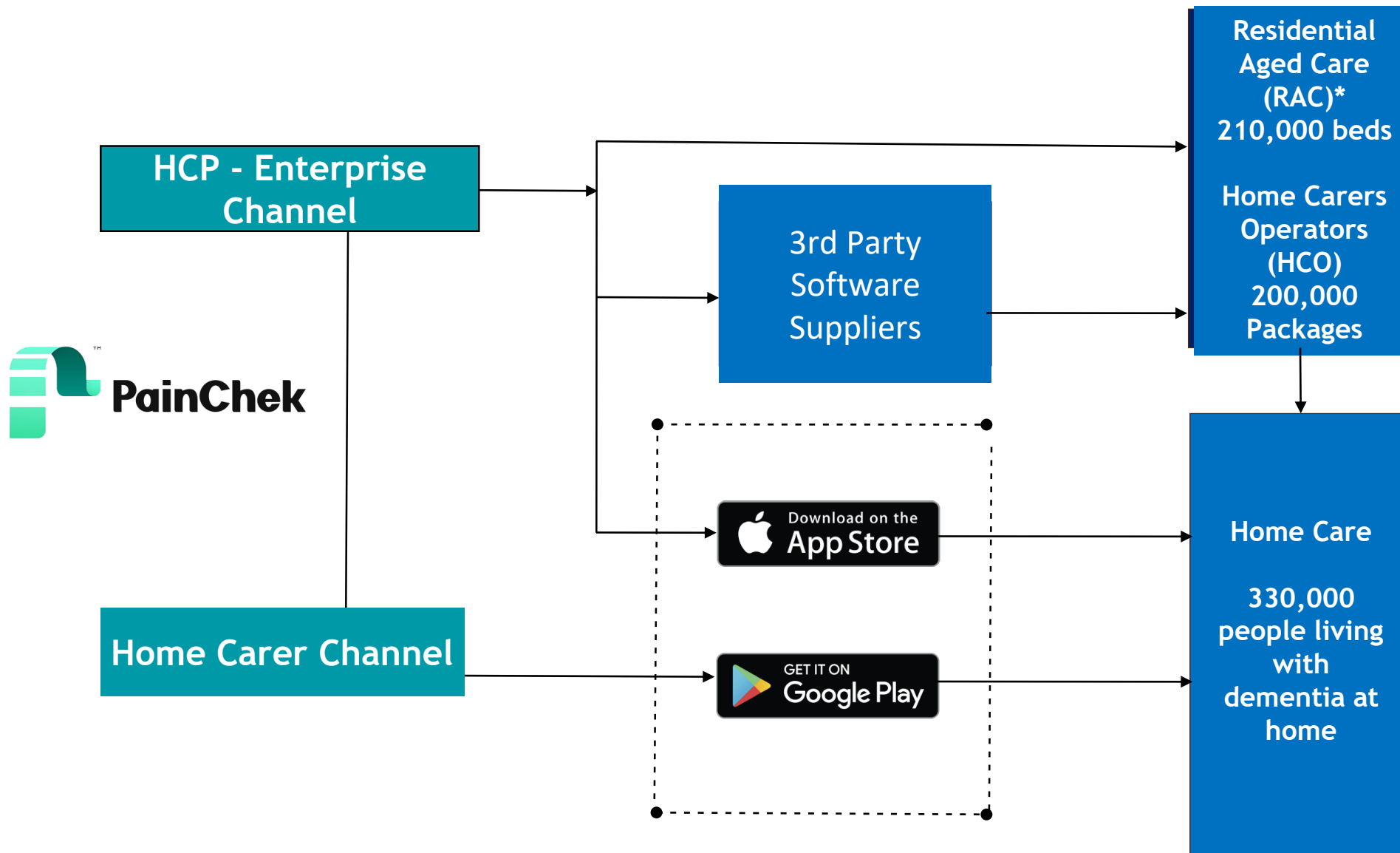


The PainChek® Dementia App

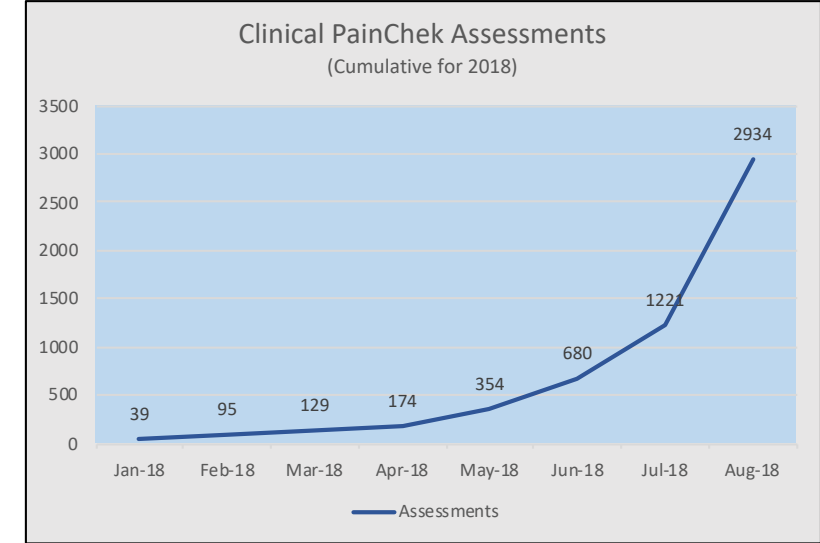
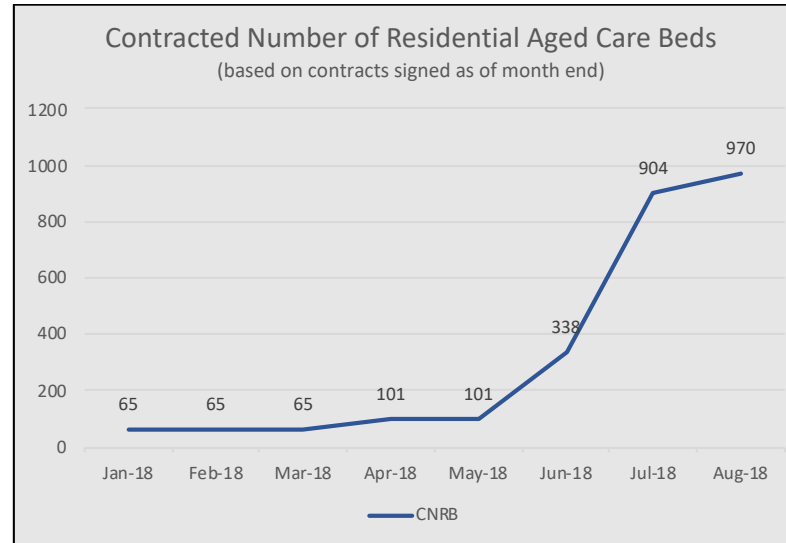
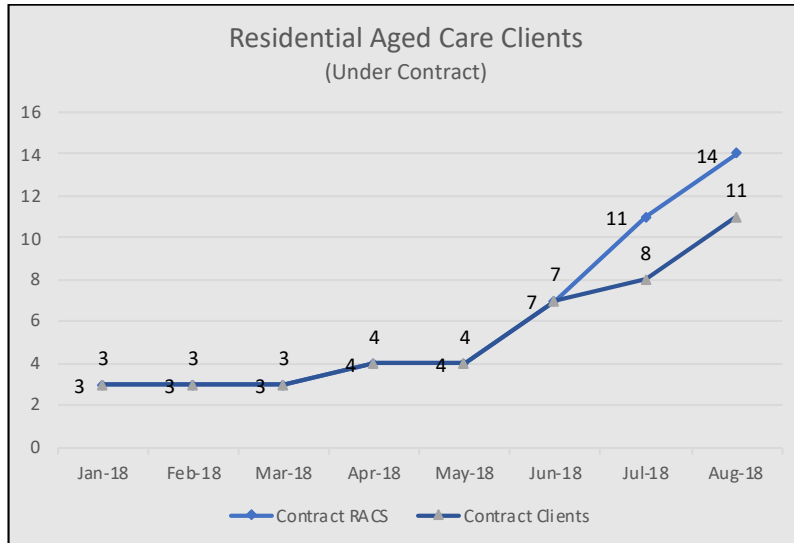
- **Automated facial pain analysis:**
 - 3 second video of patient face
 - recognises 9 micro-facial expressions that indicate pain
- **Digital questionnaire checklist:**
 - guide the carer in other pain assessment factors e.g. movement, vocalization
 - leading questions with Yes/No decisions
- **Automated pain assessment score:**
 - based on 42 test points
- **Documented electronically via cloud backend:**
 - pain trend line and monitoring of treatment
 - integrated into patient medical records



PainChek® Dementia App market entry strategy - Australia



PainChek® gaining strong market momentum*



*Additional new contracts between 1st to 7th September 2018: 2 RAC clients, 3 RAC' facilities and approx. 300 additional beds

Currently engaged with trials and pre-contract negotiations with a significant number of Australian RAC providers

Revenue Model: The PainChek monthly Average Revenue per Licensed Bed (ARLB) across the RAC customers based on the agreements signed to date is \$5 per month, and the Average Revenue per Active Resident (ARAR) is in the range of \$10 per month based on actual resident usage.

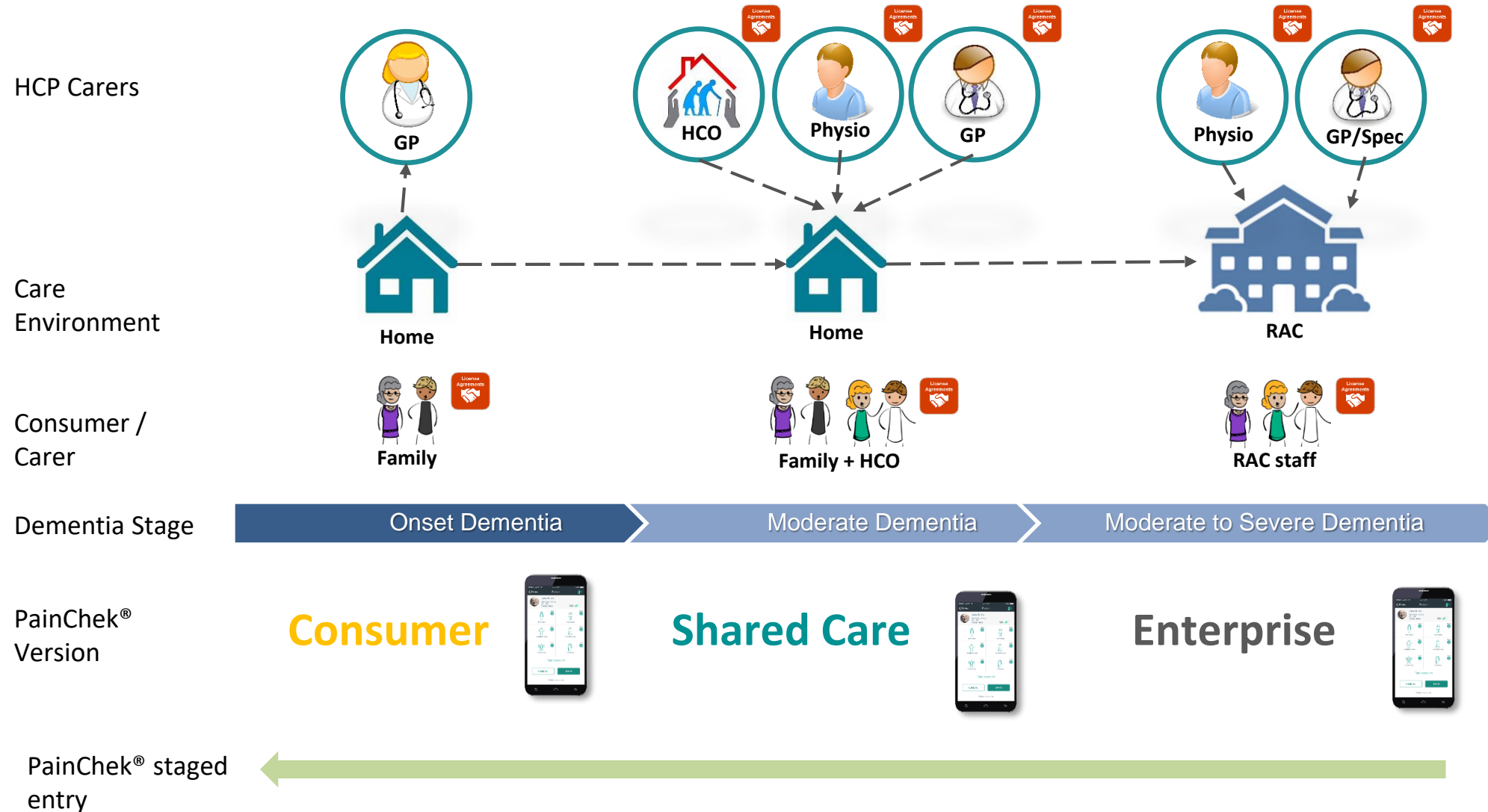
CURRENT CLIENTS INCLUDE




(nationwide)



PainChek® portfolio transcends the Dementia Journey




Dementia Training Australia : PainChek® on line Carer training videos



Johnny

PainChek® Online Training:


A Hands on Guide to Intelligent Pain Assessment

 1h est. time


This learning resource has been developed through collaboration between PainChek® and Dementia Training Australia (DTA). DTA is not associated with PainChek® in any other way.

DTA recognises the considerable detrimental effects that undertreated pain may have on people living with dementia, and supports the widespread use of validated pain assessments (such as the Abbey Pain Scale and the PainChek® app) in dementia care.

LESSON 01




Behaviours of Pain

 20 min


Discover the many different ways in which pain may be expressed, and how these can be used to identify pain in people living with dementia.

START

LESSON 02




Undertaking Pain Assessments with PainChek®

 20 min


Learn how to set up and use the PainChek® app through an interactive case study.

START

LESSON 03



Using PainChek® Confidently and Competently

 20 min

Learn how to set up and use the PainChek® app through an interactive case study.

START

PainChek® *Shared Care* capability - facilitates integrated pain management



- Majority of people living with Dementia live at home (approx. 300,000 in Australia)
- Consumer Directive Care (CDC) initiative: Governments globally drive towards home care:
- PainChek™ “Shared Care” App version scheduled for Q3 2018
- PainChek Direct to Home Carer option to follow in 2019



PainChek® global market entry strategy:

current regulatory clearance provides access for up to 40% of the global market



PainChek® Key Milestones



Dementia App

Q4 2017

First commercial sales achieved in Q3 & Q4 2017

Q1 2018 Built Australian commercial team to execute on sales
IOS and Android Apps completed

Q1-2 2018
Established sales pipeline and pilot trials in Residential Aged Care settings
DSA nationwide roll out & integration

Q2 FDA de Novo classification
Q2/Q3 Australian Pilots transitioning to commercial agreements

Q3/Q4 2018: Consumer “Shared Care” App

2019/20

Consolidation of Australian business model
Expansion into European and International mkts
FDA De Novo clearance & commercialization

Pre-Verbal Children Apps

Q4 2017

Completion of children video library, data model and algorithm – on track

Q1-2 2018
Development of App

Q3-Q4 2018
Clinical studies and validation work

Q3 -Q4 2018
Finalise App and build regulatory file for approvals
Commence clinical trial with Australian children’s hospital

Q1 2019
Target for regulatory approval in Australia and EU followed by market launch

2020
Target for FDA clearance as 510K

PainChek Ltd Board

- John Murray, Chair

- 25 years in tech VC, multiple board roles including aged care



- Philip Daffas, MD

- Senior global healthcare executive : Global market experience with Roche Diagnostics and Cochlear



- Ross Harricks, NED

- Senior global medical device exec with Nucleus and healthcare NED



- Adam Davey, NED

- Corporate finance executive with extensive capital markets experience



Financial Update

- Current shares on issue: 837,634,587
- Market cap undiluted at 5c = \$42m
- Market Cap fully diluted at 5c = \$51m
- Unlisted Options on issue: 178,167,730
- Fully diluted capital: 1,015,802,317
- Cash at bank: 30 June 2018: \$3.6m

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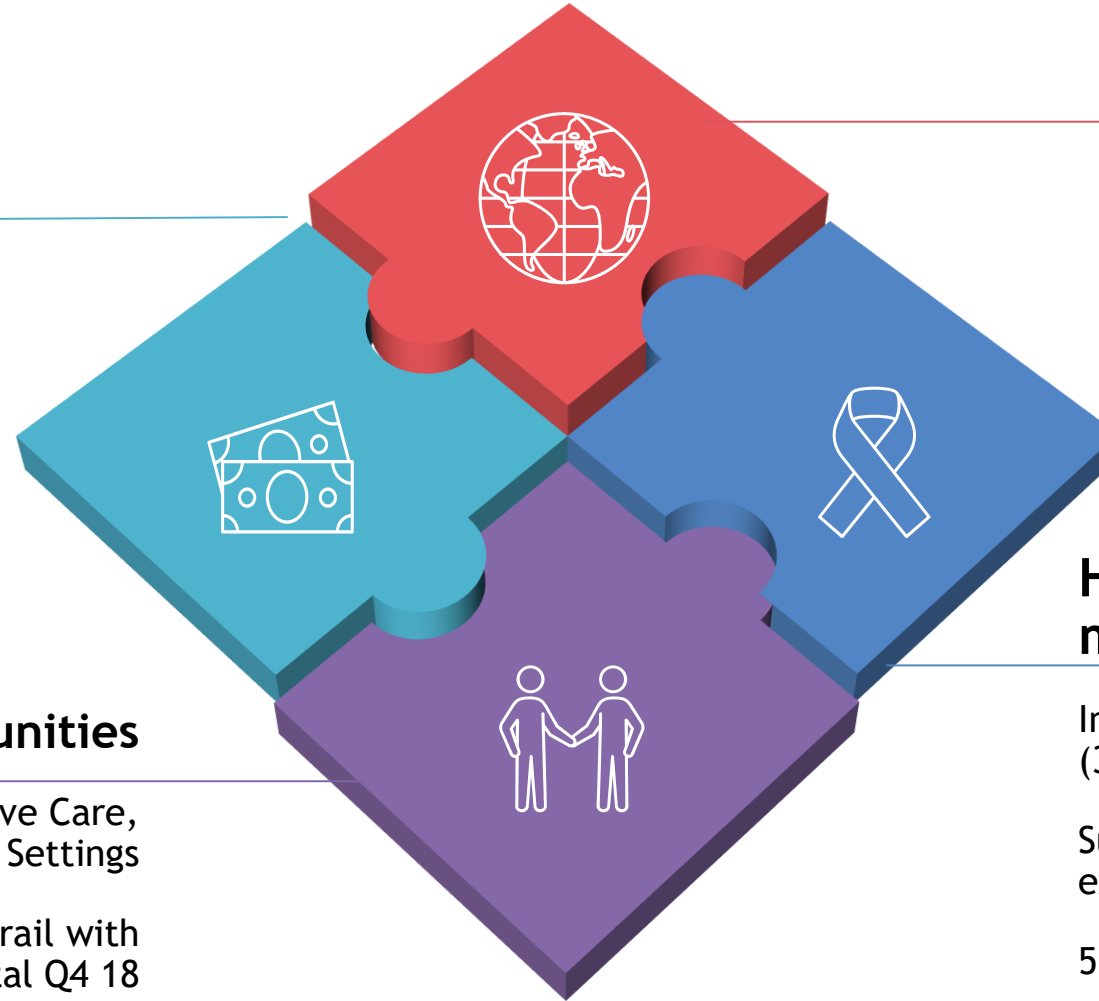
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