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| PainChek Ltd  An ON program CASE STUDY | |
|  | | PainChek Ltd  An ON program CASE STUDY |
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| Box  1 Executive summary | |
| Key findings  The PainChek Ltd project has produced the following results to date:   * The PainChek® app and supporting systems, used to assess and monitor pain in people unable to articulate this information * Performance of the app has been validated against the Abbey Pain Scale * The app has gained TGA approval and CE Mark * As at December 2019 the app was being used in more than sixty aged care facilities, with the ability to interface with facility patient care management systems * A new app is now under development for use with children.   Role played by ON Program   * Helped the project team to identify suitable new Directors (who had to be convinced to join the company) and gave them opportunities to build relations with these new Directors who had the opportunity to see the team pitch * Gave the team access to potential investors on the east coast of Australia * Helped them too refine their business strategy with the help of questions and comments from other ON Program participants and mentors * Encouraged project team members to test the product with potential customers * Gave the team more information that helped them to firm up the business model for the app, moving to a subscription model rather than one-off sales of an app * Fine-tuned team pitching skills around the need for their product (The need to sell the Why!) * Raised awareness of their product in and beyond their participation in the ON Program, through pitches to potential investors and brokers * The ON Program also provided $25,000 in cash and $0.19 million in-kind.   The NPV of the benefits generated by PainChek® due to its participation in the ON Program is $1.4 billion. The benefit cost ratio is 1,446. | |
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This case study uses the evaluation framework outlined in the CSIRO Impact Evaluation Guide. The results of applying that framework to the PainChek Ltd (PainChek®) case study are summarised in Figure 1.1.

## Purpose and audience for case study

This case study describes the economic, environmental and social benefits arising from the PainChek® project.

This evaluation is being undertaken to assess the positive impacts arising from the PainChek® project’s participation in ‘ON, powered by CSIRO’ – the national science and technology accelerator. This case study can be read as a standalone report or aggregated with other case studies to substantiate the impact and value of the ON Program activities as a whole relative to the funds invested in these activities.

The information in this case study is provided for accountability, communication and continual improvement purposes. Audiences for this report may include Members of Parliament, Government Departments, the ON Program, CSIRO and the general public.

### The ON Program

CSIRO’s ON Program was established in 2015 as a four year program by CSIRO to help accelerate the impact of science research into market (the program ends in June 2020).

The initiative was expanded through funding from NISA to service more broadly Australia’s publicly funded researchers and their industry partners. The aim of the initiative is to more quickly translate great science and technology research into positive impact to help address some of the economic, environmental and social challenges facing the Australian and global community.

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| Figure 1.1 PainChek® Case Study – Impact Framework Diagram |
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| **INPUTS** |  | **ACTIVITIES** |  | **OUTPUTS** |  | **OUTCOMES** |  | **IMPACTS** |
|  |  |  |  |  |  |  |  |  |
| * support from the ON Program * Funding from Alzheimer’s Australia * Investment through capital raising * In-kind inputs from Curtin University staff |  | * Research and development * Prototype development and testing * Validation against Abbey Pain Scale * Creation of PainChek Ltd * TGA approval and CE Mark |  | * App now being used in over sixty aged care facilities * Software to facilitate record keeping of pain treatment based on use of the app |  | * Successful transition from university research to commercial product * US patent awarded |  | * Improved pain detection and management * Improved record keeping via integration with aged care facility management systems * Exports and domestic sales of PainChek® app * Expected quality of life improvements for patients with dementia and pre-verbal children including infants |

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| Source: ACIL ALLEN |
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There are a number of elements to the Program, including two facilitated programs, ON Prime and ON Accelerate. These two elements are designed to complement each other.

ON Prime is an open and collaborative program for existing science projects as well as new technologies and projects that are still in development. ON Prime helps research teams to ensure that they are working on the right problem, it provides frameworks to create and test assumptions about their idea and provide recommendations towards next steps. ON Prime can be considered as an entry level program, in effect it can be seen as a precursor to participation in the ON Accelerate Program.

ON Accelerate is designed for teams that have made significant progress with their idea and their target market(s). This may be in the form of contracts for paid or unpaid trials, or at the most advanced stage, recurring sales with both new and existing customers. This implies that teams will have a working prototype of their product or service and have secured any appropriate intellectual property rights. It is expected that teams applying for ON Accelerate would have conducted significant engagement with their potential customers and be able to demonstrate what they learned throughout, including what the total addressable market is and what competition exists.

For ON Accelerate, shortlisted applicants are invited to participate in a two-day Selection Bootcamp event where teams will be provided with training and coaching simulating the accelerator experience. At the conclusion of the selection boot camp, the teams will pitch to a panel of external judges for a spot in the Accelerator. Projects that are at Investment Readiness Level (IRL) Stage 3 can apply directly for ON Accelerate without going through Prime or Bootcamp.

Following a team’s passage through the ON Prime or ON Accelerate Program they are eligible to apply for ON Runway support. That funding is designed to help teams to further progress their project. The support provided can be spent on a range of services, for example, regulatory certification, marketing, bookkeeping or investor agreements.

The program is expected to exceed its targets for participation. It is predicted that it will have reached 515 teams with over 1,850 people by the time it concludes on 30 June 2020.

## Background

### Pain recognition

Pain Australia reports that chronic pain affects 20 per cent of Australians, and one in three people over 65. In 2003, it was reported that almost one in five surveyed Europeans had moderate or severe chronic pain.[[1]](#footnote-1) In Europe, chronic pain and associated conditions represents billions in national healthcare and socioeconomic costs, and accounts for between 3 and 10 per cent of gross domestic product. Chronic pain is a complex health issue. While it is the individual that suffers the disabling symptoms, the burden of the condition extends across the whole of society.[[2]](#footnote-2)

Research indicates that one of the major reasons pain is undertreated, is that it is under-detected. The PainChek® app objectively assesses pain. In particular, it has been designed to assess pain accurately in non-communicative people such as the very young who have not yet learned to talk, or in those who have lost the ability to communicate effectively such as persons with advanced dementia.

###### Dementia

Globally, dementia is one of the major causes of disability and dependency among the aging population and has physical, psychological, social and economic impact on people living with dementia and their caregivers, families and society. The deterioration in memory and thinking caused by dementia can lead to the inability to perform everyday activities. Middle stage dementia can cause difficulty with communication and late stage dementia can involve near total dependence. There is no cure for dementia and no current treatment to alter its progressive nature.

The PainChek® app for dementia aims to improve the quality of life for persons living with dementia, by accurately detecting and quantifying their pain, thus facilitating the effective treatment of that pain. It also has the potential to save time and money by providing a quick, accurate, objective and reliable means to detect and measure pain for residential aged care facilities, hospitals, healthcare professionals and home carers.

###### Young children

PainChek® is developing an app for children covering the age groups of 0-1 year, 1-3 years and children older than 3 years. Sources of pain in very young children can include rashes, teething, middle ear infections, and, once they become mobile, cuts and abrasions. Gastrointestinal disorders, headache and musculoskeletal disorders are common causes of chronic pain amongst children. Currently, diagnosis of pain in pre-verbal children requires consultation with a health care professional, as this age group lacks the language ability to describe their pain. Such assessments are not always accurate. For instance, parents often rely on intuitions, assumptions, and personal beliefs in order to assess their child’s pain rather than objective, accurate and adaptable assessment.

### Company history

The Curtin University team incorporated Electronic Pain Assessment Technologies Pty Ltd in October 2014. In September 2016 this company was bought out by ASX-listed MinQuest Ltd to form a new company named ePAT Technologies Ltd and raise $4.7 million. A further $3.75 million was raised in September 2017. On 15 December 2017, ePAT Technologies Ltd announced it was changing its name to PainChek Ltd.

On 29 April 2019, the then Commonwealth Minister for Senior Australians and Aged Care, the Hon Key Wyatt AM announced that the Government would invest $5 million to facilitate the implementation of the PainChek® app in Australian residential care centres. The funding makes provision for a universal PainChek® access license for the more than 1,000 Residential Aged Care Providers in Australia and their 100,000 residents living with dementia for a one-year period.

Use of PainChek® at the McLean Care Residential Home in Inverell (see Box 1.1) commenced in April 2018. The benefits identified at this location include:

* PainChek® became the standard tool for assessing pain and evaluating pain management strategies in residents with dementia.
* Significant improvement in pain management and residents’ behaviours, together with significant reduction in psychotropic prescription and administration as a result of PainChek® assessments.
* An increase in staff awareness of pain management, and increased staff confidence when dealing with pain in residents with cognitive impairment or dementia.
* Ease of access and administration - with easier access to stored assessments and electronic charts, there has been increased and more effective input from GPs.

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| Box 1.1 TRansforming Pain Management: McLean Care Residential Home, inverell |
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| Situated in the NSW Northern Tablelands, the McLean Care® Residential Care facility is a 160-bed home located in Inverell. The facilities at Inverell offer many options to suit the individual needs of those seeking aged care help. Specifically, the Hector Wing at Inverell provides a 17-bed state-of-the-art, purpose-driven facility for seniors who are living with dementia. This is strongly supported by their 24-hour dedicated dementia care team. Eight residents living in the Hector Wing were all on a course of regular psychotropic medication for their behaviours. PainChek® was subsequently introduced with the aim of more accurately assessing and recording residents’ pain levels, so that pain relief is adjusted, and psychotropic medications are reduced, which would also result in improvement in their behaviours.  Thorough education and training in pain assessment facilitated the widespread use of PainChek® by staff across the facility, which has now become the standard tool for evaluating pain management strategies in residents with dementia.  Regular, scheduled use of PainChek® supported effective pain management for residents. Residents’ behaviours have been recognised as a response to pain as a result of using PainChek®. Significant reductions in psychotropic medications were evident among all residents, as a result of effective pain relief. This has also produced significant improvement in residents’ behaviours.  PainChek® assessments and reporting enabled the staff to more accurately treat each resident. The usage, accuracy and positive outcomes of PainChek® assessments have increased staff awareness about pain and pain signs (e.g. agitation and aggression) in residents with dementia, and enhanced their confidence in dealing with residents’ pain. These benefits have also improved communication with registered nurses and GPs.  PainChek® functionalities (such as, the pain assessment log and pain chart) allow better tracking of residents’ pain over time. The ease of administration and electronic reporting of PainChek® (for example, access to stored assessments) enabled greater and quicker accessibility of pain scores to GPs to allow timely and more accurate medication adjustments. |
| Source: PainChek Ltd |

## Impact Pathway

### Project Inputs

The total investment in research, development and commercialisation by the PainChek® project to the end of 2017 has been about $2 million in cash and in-kind contributions (see Table 1.1). In-kind contributions were made by Curtin University staff. R&D expenditure for the Financial Year 2016-17 was reported to be $821,427.[[3]](#footnote-3)

Table 1.1 Support for the project by calendar year

| Contributor / type of support | | 2013 ($ m) | 2014 ($ m) | 2015 ($ m) | 2016 ($ m) | 2017 ($ m) | 2018 ($ m) | Total ($ m) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cash** |  |  |  |  |  |  |  |
| Alzheimer’s Australia scholarship | 0.015 | 0.03 | 0.02 | 0.01 |  |  | **0.075** |
| Alzheimer’s Australia grant | 0.05 |  |  |  |  |  | **0.050** |
| Private investors |  | 0.34 |  |  |  |  | **0.340** |
| ON Program |  |  |  | 0.025 |  |  | **0.025** |
| ePAT/PainChek |  |  |  | 0.274 | 1.095 | 1.095 | **2.464** |
| **Subtotal** |  |  |  |  |  |  | **2.954** |
| **In-kind** |  |  |  |  |  |  |  |
| Curtin University | 0.015 | 0.035 | 0.035 | 0.06 | 0.005 |  | **0.150** |
| On Program |  |  |  |  | 0.189 |  | **0.189** |
| **Total** | **0.08** | **0.565** | **0.055** | **0.369** | **1.289** | **1.095** | **3.293** |

Note: ACIL Allen has assumed that PainChek’s expenditure in calendar year 2018 was the same as in 2017.

For the purposes of this case study, it has been assumed that:

* One third of the R&D expenditure reported in 2016-17 was spent in 2016 and two thirds in the first six months of 2017, and
* R&D expenditure in the six-month period July to December 2017 was the same as in the first six months of 2017.

### Project activities

Prof Jeff Hughes, Mustafa Atee, Rohan McDougall and Roger Plumb from Curtin University participated in the ON Program during the period April to July 2016.

###### Role of the ON Program

For the Curtin University team, participation in the ON Program helped with business planning, development of presentation skills, raising capital, recruiting a Board and understanding the challenges facing start-up companies. The PainChek® team graduated from the ON Program in July 2016.

### Project outputs

PainChek®’s technology incorporates a revolutionary app for smartphones or tablets. The app uses facial recognition software to facilitate and improve pain assessment and monitoring in people who are unable to communicate. The initial application will be for use by health professionals and carers dealing with persons living with dementia.

A prototype app was developed at Curtin and successfully trialled in three aged care facilities in 2015-16. These trials validated the use of the app against the commonly used Abbey Pain Scale and involved residents with moderate to severe dementia.

The technology uses the cameras of smart devices to capture short videos (3-10 seconds) which are analysed in real time to detect facial micro-expressions that are indicative of the presence of pain. These data are combined with other non-facial pain cues captured through the app to automatically calculate a pain severity score. The app provides objective and reproducible evidence of the presence of pain.

In July 2017 the app received TGA registration and CE Mark for assessment and monitoring of pain in people who cannot verbalise.

#### Publications

Some examples of publications associated with the PainChek® technology are listed below:

* Atee M, Parsons R, Hoti K, Hughes JD. Pain assessment in dementia: Evaluation of a point-of-care technological solution. Journal of Alzheimer Disease 2017; 60: 137–150.
* Atee M, Parsons R, Hoti K, Hughes J. A novel pain assessment tool incorporating automated facial analysis: interrater reliability in advanced dementia. Clinical Interventions in Aging 2018; 13: 1245-58.
* Atee M, Hoti K, Hughes J. Psychometric Evaluation of the Electronic Pain Assessment Tool: An Innovative Instrument for Individuals with Moderate-to-Severe Dementia. Dementia and Geriatric Cognitive Disorders 2017; 44:256-267.
* Hoti K, Atee M, Hughes JD. Clinimetric properties of the electronic Pain Assessment Tool (ePAT) for aged care residents with moderate to severe dementia. Journal of Pain Research 2018; 11:1037-1044.
* Atee M, Hoti K, Hughes JD. A technical note on the PainChek® system: a web portal and mobile medical device for assessing pain in people with dementia. Front Aging Neurosci. 2018; 10: 117.
* MinQuest Limited prospectus 25 August 2016 accessed on 18 December 2017 at [https://www.epattechnologies.com/wp-content/uploads/2016/10/Prospectus-dated-25-August-2016-909am.pdf](https://www.epattechnologies.com/wp-content/uploads/2016/10/Prospectus-dated-25-August-2016-909am.pdf%20). (MinQuest was subsequently renamed ePAT Technologies Ltd and, more recently, PainChek Ltd)

#### Patents

Hughes J, Hoti K, Atee MAW 2016, A pain assessment method and system US Patent US20170156661A1 (see <https://patents.google.com/patent/US20170156661A1/en> )

#### Awards

The PainChek® technology has been recognised in the following ways:

* Semi-finalist (twice) in the OzAPP Awards for the most innovative start-up companies in the Asia Pacific region, in 2014 and 2015
* Finalist in the Western Australian Information Technology and Telecommunications Alliance (WITTA) Awards, 2015
* Finalist in the Aging2.0 Age Tech Expo Global Start-up Showcase, San Francisco 2015
* Chosen to represent Western Australia as a finalist in the Australian Information Industries Association (AIIA) National Awards, Best Student Project of the Year award, 2016
* Finalist in the WA Innovator of the Year Awards, Emerging Innovation Category, 2016
* UK Tech Rocketship Award, 2018
* Prestigious Good Design Award® Gold Winner, 2018 in the Social Impact category in recognition for outstanding design and innovation
* Finalist in the Government of Western Australia Premier’s Science Awards, ExxonMobil Student Scientist of the Year, 2019

#### Innovation / commercialisation

The innovation in this project lies in the smart device software (the app) and in the way the measurements made by the app have been correlated with the established Abbey Pain Scale. Further innovation in ‘back-end’ supporting systems which provide record keeping and allow the data to be used for quality assurance purposes. These supporting systems will integrate with existing case management systems in aged care facilities.

### Project Outcomes

The project outcomes attributable in whole or part to the ON Program are:

* Directors appointed
* ePAT Technologies Ltd successfully launched on the Australian Securities Exchange (renamed PainChek Ltd in October 2017)
* Successful capital raising
* Recruitment of a Managing Director
* Regulatory approval

###### Role of the ON Program

For the Curtin University team, participation in the ON Program:

* Helped them to identify suitable new Directors (who had to be convinced to join the company) and gave them opportunities to build relations with these new Directors who had the opportunity to see the team pitch
* Gave them access to potential investors on the east coast of Australia
* Helped them to refine their business strategy with the help of questions and comments from other ON Program participants and mentors
* Encouraged them to test the product with potential customers
* Gave them more information that helped them to firm up the business model for the app, moving to a subscription model rather than one-off sales of an app
* Fine-tuned their pitching skills around the need for their product (The need to sell the Why!)
* Raising awareness of their product in and beyond their participation in the ON Program, through pitches to potential investors and brokers

The ON Program provided $25,000 in cash and in-kind support estimated at $0.19 million.

### Adoption

The PainChek® app is currently in use for patients living with dementia at over sixty aged care homes in Australia.

The Australian Institute of Health and Welfare has estimated that there were 342,800 Australians living with dementia in 2015. Worldwide, the World Health Organisation estimates that there are 47.5 million people with dementia and expects the number of people with dementia and the associated spending on dementia to continue to grow at a significant rate. It is estimated that up to 85 per cent of people with dementia suffer pain at some time, and 50 per cent experience pain regularly.[[4]](#footnote-4)

###### Role of the ON Program

The ON Program has accelerated the commercialisation of the PainChek® technology.

### Impacts

The benefits from the development of this technology will accrue to PainChek Ltd, to the patients that benefit from its use through improved pain management and to the operators of aged care and other facilities who will be able to demonstrate that they are better able to meet the needs of their clients. PainChek® technology is expected to provide both societal and economic benefits. If no cure is found for dementia, PainChek® technology is likely to be a major contributor to reducing the cost of the disease.

On the basis that half of Australia’s dementia patients experience pain regularly, the PainChek® app had potentially 171,400 beneficiaries in 2017. This number is expected to grow over time as a result of Australia’s ageing population.

###### Role of the ON Program

The ON Program enabled the outputs of this project to reach the market more quickly than would otherwise have been the case. Progress from an initial term sheet to listing on the ASX was relatively fast. This has helped to commercialise the PainChek® product more quickly than would otherwise have been the case.

## Clarifying the Impacts

### Counterfactual

In the absence of the ON Program, we have assumed that this project would have been delayed in getting a successful product into the market by two years.

### Attribution

ACIL Allen has attributed the benefits of PainChek® getting to market sooner than would otherwise have been the case as being 100 per cent due to the ON Program.

## Evaluating the Impacts

### Cost-Benefit Analysis

* + - 1. **Costs**

The ON-related cost incurred by PainChek® was $25,000 in 2016. In addition, $189,000 of the cost of overheads of the ON Program has been apportioned to PainChek®. It is assumed that PainChek®’s R&D costs would have been the same with or without participation in the ON Program.

#### Health benefits for people living with dementia

ACIL Allen has estimated the health benefits that PainChek® will confer on Australians living with dementia. The National Centre for Social and Economic Modelling (NATSEM) at the University of Canberra has also estimated the prevalence of dementia in Australia. NATSEM found that there were 408,833 persons with dementia in Australia in 2016. This was projected to grow to 425,416 in 2018, 536,164 in 2025 and 1,100,890 in 2056 (implying an annual growth rate in prevalence of 3.02 per cent between 2016 and 2018, 3.36 per cent between 2018 and 2025, and 2.35 per cent between 2025 and 2056.

The prevalence estimates for dementia in Australia produced by AIHW are somewhat lower than the NATSEM estimates, at 297,997 in 2011, 342,800 in 2015 and 354,000 in 2016. According to AIHW, the Years Lost to Disability (YLD) in Australia due to dementia was 70,658 Disability-Adjusted Life Years (DALYs) in 2011.

ACIL Allen’s assumed projected prevalence of dementia in Australia based on these studies is provided in Figure 1.2.

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| Figure 1.2 Projected prevalence of dementia in Australia, 2016 to 2027 |
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| Source: ACIL Allen interpolation of NATSEM projections for 2018, 2025 and 2056 |
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The projected YLD due to dementia in Australia, based on the AIHW and NATSEM data, is shown in Figure 1.3.

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| Figure 1.3 Projected years lost to disabilitty due to dementia (DALYS), 2016 to 2027 |
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| SOURCE: ACIL ALLEN CALCULATIONS BASED ON AIHW AND NATSEM DATA |
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The proportion of people with dementia in Australia who are expected to benefit from PainChek® between 2018 and 2027 as it is rolled out to an increasing number of aged care facilities across Australia is shown in Figure 1.4. It is also assumed that the benefits of PainChek® to the wider Australian community ceases after 2027 due to the introduction of a similar product to the market in that year in the counterfactual.

People with dementia who have been assessed with PainChek® are likely to experience a decrease in pain and suffering due to improved pain management following the assessment. It is assumed that there will be a 5 per cent reduction in YLD for people living with dementia who have been assessed with PainChek®.

To place a monetary value of the YLD due to dementia in Australia, a Value of Statistical Life Year (VSLY) of $191,900 has been used. This is based on the recommended VSLY in the Best Practice Regulation Guidance Note published by the Office of Best Practice Regulation, adjusted for inflation since the publication of that document. The VSLY is a valuation of one year of perfect health for an individual.

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| Figure 1.4 Proportion of Australian PEOPLE LIVING WITH dementia projected to benefit from PainChek®, 2018 to 2027 |
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| Source: ACIL Allen interpolation of NATSEM projections for 2018, 2025 and 2056 |
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Based on the data and assumptions discussed above, ACIL Allen’s projection of the health benefits of PainChek® for Australians living with dementia between 2018 and 2027 is shown in Figure 1.5. These result in an NPV of the benefits of PainChek® due to its participation in the ON Program of $1.4 billion.

### Sensitivity analysis

In the central case of the benefits analysis, it is assumed that use of PainChek® reduces the YLD of a person with dementia experiencing moderate pain and suffering by 5 per cent. If it reduces the YLD by 8 per cent, the present value of total health benefits rises to $2.2 billion in 2019 dollars. Conversely, if it reduces the YLD by only 2 per cent, the present value of total health benefits decreases to $550 million in 2019 dollars

In the central case of the benefits analysis, it is assumed that the proportion of Australians living with dementia who will benefit from PainChek® with the ON Program rises from 1 per cent in 2018 to 60 per cent in 2027. If the proportion impacted is 20 per cent higher, the present value of total health benefits rises to $1.7 billion million in 2019 dollars. If the proportion impacted decreases by 20 per cent, the present value of total health benefits decreases to $1.0 billion in 2019 dollars.

In the central case of the benefits analysis, a real discount rate of 7 per cent was used. Under a 4 per cent real discount rate, the present value of total benefits will increase to $1.7billion in 2019 dollars. Conversely, a 10 per cent real discount rate will decrease the present value of total benefits to $1.1billion in 2019 dollars.

It should be noted the revenues generated by PainChek® in the Australian market are not considered as benefits of the ON Program. Rather, these revenues are a transfer from Australians with dementia to the company behind PainChek®. Moreover, the company’s export revenues have not been included in the analysis due to uncertainty about their magnitude.

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| Figure 1.5 Projected health benefits of PainChek® for Australians living with dementia, 2018 to 2027 (2018 dollars) |
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| Source: ACIL Allen interpolation of NATSEM projections for 2018, 2025 and 2056 |
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#### Assessment of benefits against costs

***The present value of the total health benefits of PainChek® for Australians living with dementia with moderate to severe pain between 2018 and 2027 is estimated to be $1.4 billion in 2019 dollars under a 7 per cent real discount rate. The benefit cost ratio is 1,446.***

In addition to the health benefits that will be enjoyed by older Australians, PainChek® will also benefit the Australian economy (in terms of value-added and employment) through exports to markets such as the UK, US, Singapore and New Zealand.

### Potential future impacts

As noted above, this analysis does not take into account any public benefits that might arise from the use of PainChek® for assessing pain levels in young children. These benefits could be significant.

PainChek is currently being used in aged care for the assessment of pain in people with dementia who cannot verbalise their pain and principally by nursing staff and personal care assistants. This provides opportunities for increase the both the users and settings of use. PainChek has developed a share care model where the intent is that the family carer would undertake regular monitoring of their loved one’s pain and share the results in real-time with the home care provider. It will soon release a consumer version of the app which will allow family carers who wish to be better able to assess their loved ones’ pain, who are not reliant on a home care provider to do so.

In the primary care space use by other health care professionals such as general practitioners, nurse practitioners and physiotherapists is expected to grow. People with disability who are unable to verbalise their pain are another vulnerable population where carers have expressed interest in the use of PainChek. With tertiary care (hospitals) pain assessment of people who cannot self-report pain is a major issue, with many assessments made on the basis of clinical judgement rather than use of a standardise tool. This presents a significant opportunity for PainChek which provides point-of-care pain assessment and documentation. Further, poor pain management in people with dementia is one of the contributors to complications, such as delirium, which lead to extended hospital stays. Better pain assessment is known to improve pain management.

###### Role of the ON Program

The ON Program has helped PainChek® with the development of its business and to more rapidly progress the commercialisation of its research.

1. Breivik H, Collett B, Ventafridda V, Cohen R and Gallacher D 2006, Survey of chronic pain in Europe: prevalence, impact on daily life, and treatment, Eur J Pain, 10(4) 287 [↑](#footnote-ref-1)
2. MinQuest Limited prospectus 25 August 2016 accessed on 18 December 2017 at <https://www.epattechnologies.com/wp-content/uploads/2016/10/Prospectus-dated-25-August-2016-909am.pdf> [↑](#footnote-ref-2)
3. ePAT Technologies Ltd 2017, Annual Report, page 3, accessed on 18 December 2017 at <https://www.epattechnologies.com/wp-content/uploads/2017/10/ePAT-Annual-Report-30-June-2017.pdf> [↑](#footnote-ref-3)
4. MinQuest Limited prospectus 25 August 2016 accessed on 18 December 2017 [at https://www.epattechnologies.com/wp-content/uploads/2016/10/Prospectus-dated-25-August-2016-909am.pdf](file:///C:\Users\jsoderbaum\AppData\Local\Temp\notesED24E3\at%20https:\www.epattechnologies.com\wp-content\uploads\2016\10\Prospectus-dated-25-August-2016-909am.pdf). [↑](#footnote-ref-4)