



THE AUSTRALIAN
E•HEALTH
RESEARCH CENTRE

Pain ROADMAP

A Mobile Platform to support
activity pacing for chronic pain

Dr David Ireland





Chronic Pain: Persisting more than 3 months

- Effects 20% of Australians

*The Cost of pain in Australia: A Painful Reality, Deloitte Access Economics,
March 2019*



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- Social isolation, fatigue and sleep disturbances
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- Desire but fear of tampering off medications
- Quality of life does improve when managed

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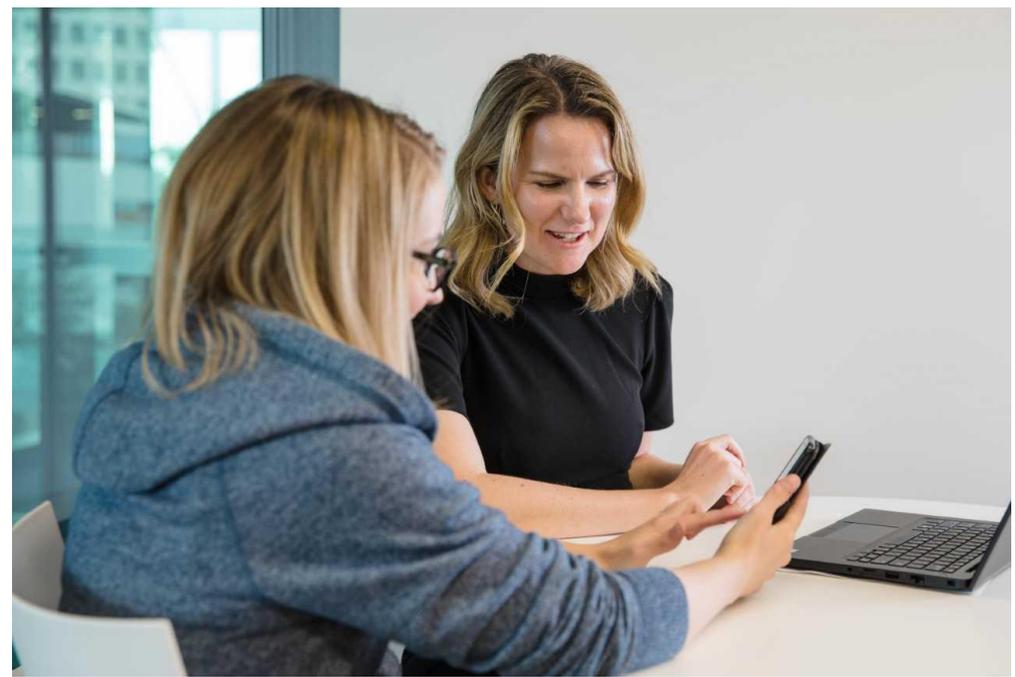
Activity Pacing

- Reschedule daily activities so not to aggravate pain
- ***Doing too much (or too little)*** is a significant factor
- But what activities are the problem?
- How can we capture this information?



Pain ROADMAP

- **R**ediscover
- **O**ccupation &
- **A**chieve &
- **D**evelop through a
- **M**onitoring
- **A**pp for
- **P**ain





Mobile Application

The screenshot shows a mobile application interface for an 'Activity Logger'. At the top, there is a dark blue header bar with the text 'Activity Logger' and a three-dot menu icon on the right. Below the header, the name 'david' is displayed in orange. To the right of the name is a blue circular button with a white plus sign. Below this, the date 'Tue 05/02/2019' is shown in orange. To the left of the date is a yellow square with a black letter 'T'. To the right of the date is a vertical bar chart with a grey top section and a yellow bottom section. Below the date, the following statistics are listed: 'Activites: 1', 'Medications: 0', and 'Average Pain: 0.0'. At the bottom left of the screen, the text 'Version: 0.9-2' is visible.

Activity Logger

david

Tue 05/02/2019

Activites: 1

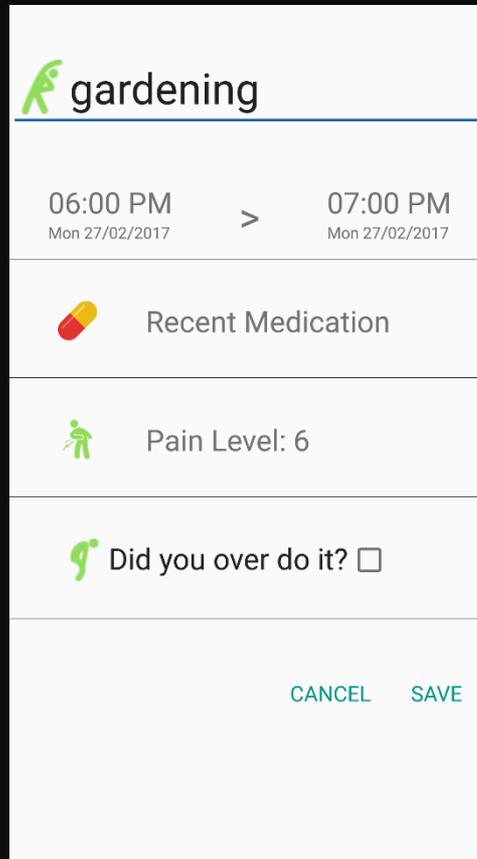
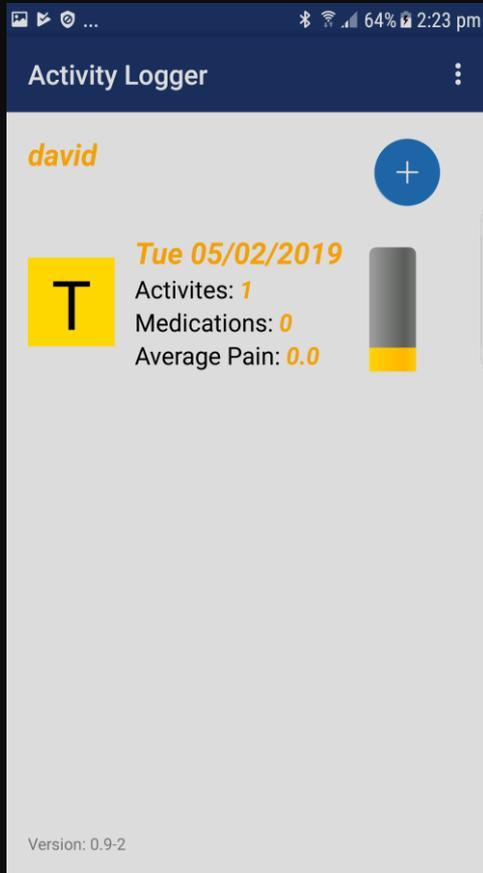
Medications: 0

Average Pain: 0.0

Version: 0.9-2



Mobile Application



- Activity
- Time
- Medications
- Pain
- Over did it?
- *What about privacy?*



Mobile Application

Activity Logger

david

T **Tue 05/02/2019**

Activites: **1**

Medications: **0**

Average Pain: **0.0**

Version: 0.9-2

gardening

06:00 PM > 07:00 PM
Mon 27/02/2017 > Mon 27/02/2017

Recent Medication

Pain Level: 6

Did you over do it?

CANCEL SAVE

Closing in 57 Seconds

5

No pain 1 Discomforting 2 Distressing 3 Intense 4 Utterly horrible 5 Unimaginable/unbearable

0 1 2 3 4 5 6 7 8 9 10

Very mild Tolerable Very distressing Very intense Excruciating unbearable

1 2 3 4 5 6 7 8 9 0

Done



Wearable

- Actigraph accelerometer placed around the waist
- Asked to wear except for showering & swimming
- Measures gross movements
- Independent data stream





Clinical Portal

- *Generates daily graphs to identify activity periods*
- Contains no identifiable data
- Daily and weekly summary of:
 - Opioids & PRN medication
 - Pain intensity & variation
 - % Time rest, productive & leisure activities



Three Month Protocol

- Participants were asked to set goals
- 3 x home monitoring periods
- 3 x clinic visits for data review & rescheduling advice
- 2 x tele-consultations

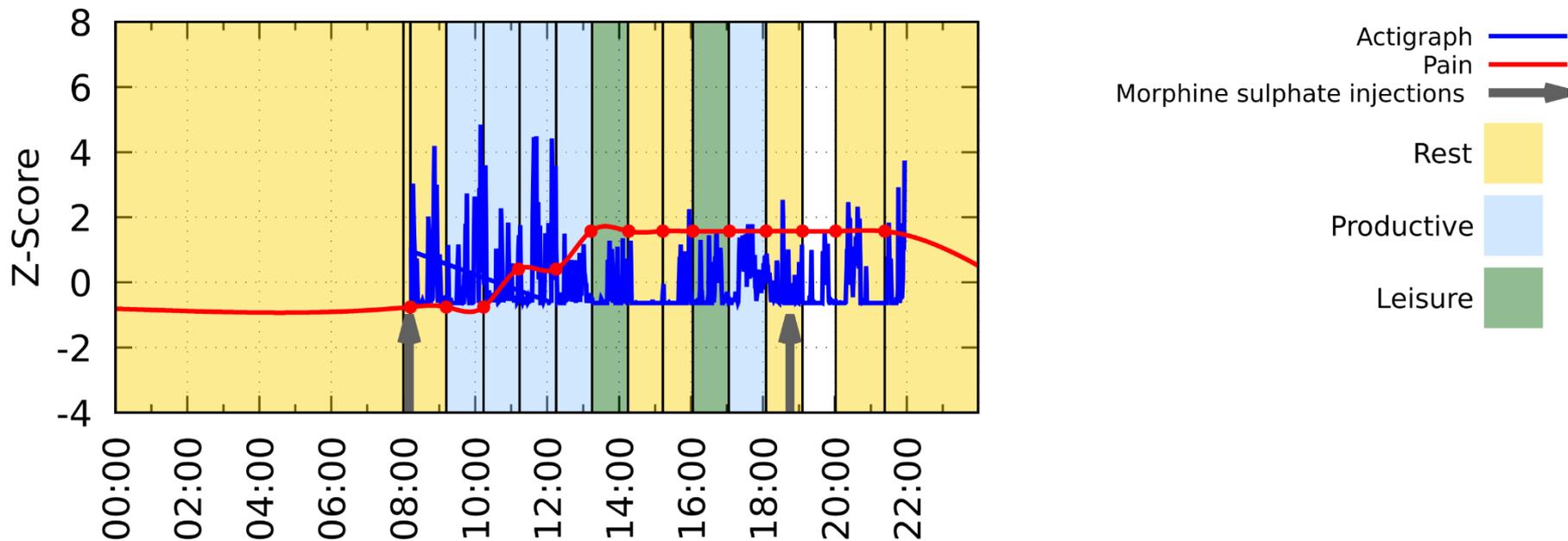


Pilot Summary

- Recruited 20 individuals with chronic pain
- Individuals has pain impacting gross motor
- Previous struggled with centre based treatment
- 4 dropouts to personal circumstances
- Good compliance: only 4 repeats



Data from 1st Monitoring Session





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- Observed over activity periods decreased from 2.5 to 0.25 ($p < 0.001$)



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- 5 (of 7) individuals ceased PRN medication
- Decreased opioid intake by 20% on average
- 2 individuals went back to work fulfilling a planned goal





Current & Future Work

- Multi-site implementation
- Paediatric version using gamification
- 50% children with communication challenges have undiagnosed pain



Thank you

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Australia's National Science Agency

