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*Improving the quality of life for people in pain through novel,
cost effective pain assessment tools*

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EPAT TECHNOLOGIES MARKET UPDATE

ePAT Dementia App Validation and Implementation Studies:

ePAT Technologies has completed a pilot implementation study at Brightwater's Aged Care Home in Inglewood, Western Australia. The study was designed to assess the feasibility of using ePAT to assess and monitor pain in the aged care setting. The study conducted involved 36 residents and 18 staff, with 580 pain assessments completed during an 8 week period. The results of the trial are now being analysed and are due for release during February 2017.

Brightwater CEO Jennifer Lawrence says the trial has been a great opportunity to "walk the talk" in terms of Brightwater's commitment to innovation and the use of technology for the benefit of clients and residents.

"If a person with dementia is in pain, sometimes the only way they may be able to express it to our staff or family members is through agitation, so the trial has given us another 'tool in the toolbox' in terms of being able to promote wellbeing and comfort," Ms Lawrence said.

"We know that even without words or actions people's faces often tell us so much, so combined with the other information collected in the app, it made perfect sense to us to factor that into a pain assessment," she said.

The pilot is the first of a number of implementation studies planned for 2017, including a multicenter study involving 10 aged care homes in Victoria with a leading aged care provider.

Brightwater was also involved in the now completed multi-centre validation study along with Bethanie and Juniper aged care homes in which ePAT was compared to the paper based Abbey Pain Scale. These studies were undertaken to assess ePAT's ability to assess pain as it was designed to do (i.e. it's validity) and to do so in reproducible manner (i.e. it's reliability). These studies involved 40 residents with moderate to severe dementia within the three residential aged care homes in Perth, Western Australia. A total of 353 matched pair pain assessments were undertaken. These data demonstrated a strong correlation between Abbey pain Scale Scores and ePAT score ($r = 0.88$, where perfect correlation = 1.00) demonstrating the validity of the tool. Whilst, good reliability was also demonstrated based on a weighted Kappa scores (overall $\kappa = 0.74$).

Philip Daffas, ePAT CEO commented, “The validation and implementation data sets are key requirements for CE mark and TGA approval. We have engaged with regulatory specialists in Australia and Europe and are in the process of completing the technical files and other documentation required to apply for CE mark and TGA approval as a class 1 medical device during 2017.”

ePAT Childrens’ App:

The development of the Children’s App has commenced with our technology partners nViso. A number of different facial assessment models for the children’s App have been evaluated during the past quarter and a preferred model selected for the development. In addition the recruitment of a range of children within a suitable clinical environment to build the audiovisual library and within the selected age groups (0-1 year, 1-3 years, 3-10 years and 10-12 years) has been commenced.

Summary:

We remain on track with our key milestones for both the adult Dementia App and the Children’s App. In addition we have strong supportive data and customer feedback from our clinical work to support our regulatory approach. We are on target for the initial Dementia product launch in Q3 2017 and the team is focused and working diligently to achieve all the key milestones required to achieve the end goal.

In addition, the ePAT App continues to be recognized by independent organizations. In the past week ePAT received significant publicity accompanying the launch of the CSIRO Innovation fund and Mustafa Atee, one of the ePAT inventors, was the recipient of a “disruptor” award at the Australian Computer Society awards. Mustafa’s work on developing the ePAT App was recognized as *“a driver of productivity, innovation and business - able to deliver real, tangible outcomes”*

About ePAT:

ePAT Technologies Limited is an Australian based company which is developing mobile medical applications that are intended to provide pain assessment for individuals that are unable to communicate verbally with their carers.

The ePAT business:

The ePAT business has evolved from research undertaken by Curtin University in Western Australia over the past 3 years. ePAT now owns the intellectual property resulting from Curtin University’s research on the ePAT Apps.

ePAT’s technology, a mobile application (**ePAT App**), uses cameras in smartphones and tablets to capture a brief video of the person, which is analysed in real time using facial recognition software to detect the presence of facial micro-expressions that are indicative of the presence of pain.

This data is then combined with other indicators of pain, such as vocalisations, behaviours and movements captured through the ePAT App to calculate a pain severity score.

Due to its ease of use and its reproducibility, it is intended that the ePAT App will be able to be used in the first instance to detect and measure a person's pain, and then further measurements can be used to monitor the effectiveness of pain management provided to the person.

The ePAT App is being developed and will be rolled out globally in two phases: first, the ePAT App for Dementia for persons who have lost the ability to communicate with their carers, and the second, the ePAT App for Children who have not yet learnt to speak.

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