



Saliva Tracker™

Medication and symptom tracker for children with cerebral palsy, intellectual disability, developmental delay and epilepsy

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The opportunity

Saliva Tracker is a mobile application (iOS and Android) for parents/carers of children with dribbling/drooling problems. **Saliva Tracker** assists parents/carers keep track of how their child is progressing on their prescribed medication for dribbling and alerts the relevant health professional when symptoms are worsening. **Saliva Tracker** collects information via the Saliva Tracker questionnaire (developed by the Royal Children's Hospital Melbourne (RCH) specialist Saliva Control Clinic).

Every 15 hours, an Australian child is born with cerebral palsy (CP). In Australia, a total of about 35,000 people live with this condition and globally, approximately 17 million people have CP. The prevalence of drooling is 40% in this population group. Drooling also occurs in people with intellectual disability and other more unusual neurological conditions. The cost of CP in Australia is estimated to be \$1.47 billion per year.

Dribbling is a substantial problem for children with CP. The secretions damage books and clothing and are odorous. Drooling is a significant factor impeding successful integration for individuals with disabilities into home, school and community life.

There are a number of treatment options for drooling but all have significant limitations. Regardless of which treatment is used, monitoring of the effectiveness is required. This is particularly important for medications which have a range of side effects.

MCRI is the largest child health research institute in Australia with more than 20 researchers working in CP. MCRI is a Centre for Research Excellence in Cerebral Palsy (CRE-CP), a five year project funded by the National Health and Medical Research Council that aims to improve the health and well-being of all people affected by CP and their families. MCRI is also sponsoring and carrying out the first Australian clinical trial of stem cell infusion from cord blood as a possible treatment for CP.

To date, **Saliva Tracker** has been built for clinical use within the Department of Developmental Medicine at the RCH and for research purposes at the Murdoch Children's Research Institute (MCRI) only. However, with minor adaptations it could be used by other specialist clinics and extended to adults. **Saliva Tracker** is currently free for RCH patients and MCRI study participants. Multiple new features could be

added to this platform to make it a commercial product.

Saliva Tracker has been built in collaboration with Curve Tomorrow, an innovation and technology company that has been working with the MCRI for 5 years. Curve Tomorrow has extensive experience in product development and commercialisation with an emphasis on user oriented design thinking. Curve Tomorrow has also successfully worked with MCRI on turning research and ideas into immersive commercial products.

The technology

There are no "gold standard" methods to measure dribbling as it varies so greatly dependent on ambient temperature, recent food and fluid intake, hydration and emotional state. The best method is parent and / or teacher and / or carer report who can rate dribbling according to frequency and severity at frequent intervals over limited periods of time. Paper forms are a clumsy way to make recordings and are often not to be completed or shared with the clinician. Regular computer access is also problematic for some individuals. Telephone calls made by a research assistant or nurse can be intrusive of family time and are very time-consuming for hospital staff. Phone calls are not an efficient way of gathering data on large populations of individuals.

Our market survey of 17 families attending the RCH Saliva Control Clinic confirmed a preference for an easy to use mobile application rather than a phone call or other type of reporting device.

The key features of **Saliva Tracker** are:

- The proprietary Saliva Tracker questionnaire presented to the user (guardian/carer/teacher) at week 1, 1 month, 3 months and 6 months at a time convenient to user. Questionnaire takes approx. 2-5 minutes to complete.
- Reminder/notification functionality included to improve compliance and user can set preferred timings of reminders.
- An email report is sent to the relevant health professional (in this instance RCH Saliva Control Clinic) with questionnaire results, which flag changes in condition and highlight any potential side-effects.

- Future features include visual reporting of a child's progress with saliva control for the user.



Applications and market

There is currently no saliva control application available for this specific use-case. The total CP population in need of a tool like this is 6.8 million. This figure does not include the high numbers of children and adults with various other conditions who experience dribbling and may require medication.

Saliva Tracker collects more accurate and regular information on treatment progress to ultimately improve the information presented to a clinician ahead of appointments that could subsequently positively impact the quality of care of these patients.

Saliva Tracker is of particular relevance to specialist saliva control clinics or companies interested in treatment feedback in real-time.

Further information

Saliva Tracker is currently available for download. See:

<https://itunes.apple.com/au/app/saliva-tracker/id1112419910?mt=8>

<https://play.google.com/store/apps/details?id=au.edu.mcricri.salivatracker>

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