

# Dunedin Multidisciplinary Health & Development Study Concept Paper Form



<b>Provisional Paper Title:</b> The cost of meeting unmet need for dental care in New Zealand
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<b>P.I. Sponsor:</b> Associate Prof Jonathan Broadbent
<b>Today's Date:</b> Jan 2020

## **Objective of the study:**

To estimate the cost of meeting the unmet need for restorative dental care in New Zealand.

## **Data analysis methods:**

We will determine the unmet need for dental care treatment using data from all dental examinations.

- Dental caries data in the Dunedin Study is collected at the tooth surface level. This means we can calculate the number of teeth requiring 1, 2, or 3+ surface restorations in order to address untreated dental caries.
  - We will generate a count (ranging from 0-32 for the permanent dentition of teeth requiring no dental treatment, small (1 surface) restorations, moderate (2 surface) restorations, or large (3+ surface) restorations. This will include surfaces coded as having untreated caries and restored tooth surfaces affected by recurrent caries.
  - Teeth recorded as having 4 or 5 surfaces with untreated caries will be considered to be in need of extraction. Surfaces will be considered as above.
  - Anterior teeth that are missing or in need of extraction will be considered as in need of replacement by a removable partial denture.
  - Study members with at least 3 posterior teeth missing or in need of extraction in a given arch (maxillary or mandibular) will be considered to be in need of a removable partial denture to replace

these teeth.

- Periodontal disease treatment need will not be considered in these analyses. This is owing to the complicated ongoing nature of periodontal therapy, the success of which is dependent on patient factors such as oral hygiene and smoking, meaning estimates would not be valid.
- We will develop a 'treatment plan' for each Study member to estimate the types and amount of treatment needed in order to address their oral conditions (e.g. the number of one-surface restorations required or for routine periodontal maintenance).
- We will link estimates of treatment need with data on dental service fees, thus estimating the cost of treating each Study member. Data on dental fees are routinely published by the NZ Dental Association, and are freely available to the research team. We will use data from the most recent 2018 fee survey (New Zealand Dental Association 2018).
- We will analyze all data in Stata/IC 15. We will summarize the number of New Zealanders experiencing unmet need in NZ. Primary analyses will estimate the cost of meeting this unmet need in 2018 dollar terms. We will use regression modelling to explore the association between unmet need - and costs of addressing it - by social-demographic variables, including socioeconomic status, income levels, ethnicity and gender and other explanatory variables, e.g. dental hygiene.

#### **Variables needed at which ages:**

- Number of tooth surfaces affected by dental caries, by tooth, at each age. The dental team will generate the required variables on tooth surfaces affected by untreated dental caries.
- Missing teeth
- New variables estimating cost of unmet treatment need for dental caries.
- Sociodemographic variables.

#### **Significance of the Study (for theory, research methods or clinical practice):**

Estimating the cost of unmet need, particularly among young adults in NZ, is highly relevant for oral care policy. Young adults are often on a low income and are the least likely to access oral care. In the Ministry of Health's 2006 Strategic Vision for Oral Health in New Zealand the need for examination of dental services for low-income adults was highlighted as part of Action Area 6: Develop Oral Health Policy. In over a decade since that Strategic Vision was published, relatively little work has occurred in this area, and much of the commentary is based on anecdote.

**References:**

New Zealand Dental Association. (2018). "2018 Fee Survey." from [https://www.nzda.org.nz/assets/files/Public/Resources/Fee\\_Survey\\_2018.pdf](https://www.nzda.org.nz/assets/files/Public/Resources/Fee_Survey_2018.pdf).

## Data Security Agreement

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Today's Date	

**Please keep one copy for your records and return one to the PI Sponsor**

Please initial your agreement: (customize as necessary)

x	I am current on Human Subjects Training [CITI <a href="http://www.citiprogram.org">www.citiprogram.org</a> ] or equivalent.
x	My project is covered by the Dunedin Study's ethics approval OR I have /will obtain ethical approval from my home institution (please specify).
x	<p>I will treat all data as "restricted" and store in a secure fashion. My computer or laptop is:</p> <ul style="list-style-type: none"> <li>• encrypted (recommended programs are FileVault2 for Macs, and BitLocker for Windows machines)</li> <li>• password-protected</li> <li>• configured to lock-out after 15 minutes of inactivity AND</li> <li>• has an antivirus client installed as well as being patched regularly.</li> </ul>
x	I will not "sync" the data to a mobile device.
x	In the event that my laptop with data on it is lost, stolen or hacked, I will immediately contact my PI Sponsor or Study Director, Richie Poulton ( <a href="mailto:richie.poulton@otago.ac.nz">richie.poulton@otago.ac.nz</a> ).
x	I will not share the data with anyone, including my students or other collaborators not specifically listed on this concept paper.
x	<p>I will not post data online or submit the data file to a journal for them to post.</p> <p><i>Some journals are now requesting the data file as part of the manuscript submission process. The Dunedin Study Members have not given informed consent for unrestricted open access, so we have a managed-access process. Speak to your PI Sponsor or Richie Poulton for strategies for achieving compliance with data-sharing policies of journals.</i></p>
x	<p>I will delete all data files from my computer after the project is complete. Collaborators and trainees may not take a data file away from the office.</p> <p>The data remains the property of the Study and cannot be used for further analyses without an approved concept paper for new analyses.</p>

Signature: 