

Oral Health Program for Adults with Intellectual and/or Developmental Disabilities: Results of a Pilot Study

Objective 21-3: "Increase the proportion of adults who have never had a permanent tooth extracted because of dental caries or periodontal disease.." – *Healthy People 2010*

In the fall of 1999, RTC: Rural researchers assessed the amount of limitation associated with 45 secondary conditions experienced by adults receiving services from Montana Developmental Disabilities Programs (DDP). Dental and oral hygiene problems were among the ten most common and limiting secondary conditions (*Rural Disability and Rehabilitation Research Progress Report #29*). This report describes a low-cost behavioral intervention targeting this secondary condition and evaluation results from a pilot study.

Background: The Surgeon General's *National Blueprint to Improve the Health of Persons with Mental Retardation* highlighted disparities in access to services, reimbursement, and in availability of trained practitioners. This focus on health disparities experienced by persons with disabilities is echoed by the National Institute of Dental and Craniofacial Research's *National Call to Action to Promote Oral Health*.

To address the needs of adult Montanans with I/DD, we considered several key issues- dental professional shortages, economic barriers, and lack of knowledge. First, rural areas have a shortage of dentists and dental hygienists. In 2002, seven of Montana's 56 counties had no dental professionals, eleven had no dentist, and 19 had no dental hygienist. Second, most adults with I/DD rely on Medicaid. In five counties no dental professional accepted Medicaid, and 14 counties had only one

Medicaid provider. Federal and state fiscal constraints are driving reallocation of Medicaid and other health and human services funding. Dental services are rarely reimbursed adequately and are frequently targeted for funding cuts. In 2002, only 18 Montana counties had low-income dental clinics. Third, few dental professionals are trained to meet some of the unique challenges of working with this population (Wolff, Waldman, Milano, Perlman, 2004; Casamassimo, Seale, Ruehs, 2004). In 2002, eight pediatric dentists (in five urban communities) served the entire state.

Given these issues, RTC: Rural researchers developed and evaluated a behavioral program that used available systems of social support. The pilot study evaluated the effects of consistent brushing and individual support on the oral health of adults with I/DD. The focus was on low-cost, self-management and prevention strategies for establishing oral health behaviors in this population.

Participants: We selected twelve adults with I/DD who received supported living services. Each participant could independently brush his/her teeth and understand simple instructions. A dentist examined each potential participant and determined that five individuals were ineligible due to missing teeth or untreated decay. One participant withdrew from the study. Two other individuals were recruited for a total of eight participants.

Method: Each participant identified a support person to provide reinforcement. Participant-Support teams were randomly assigned one of three novel brushes (double-headed brush, rotary brush, or sonic brush) to use on one side of the mouth. A regular brush was used as a control on the opposite side.

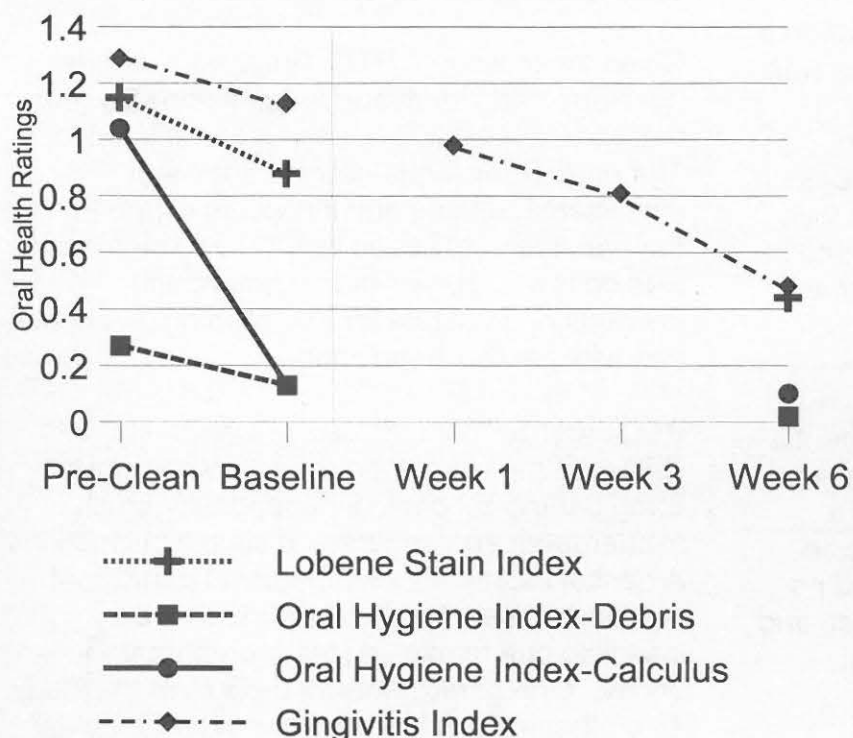
Several screening tools assessed participants' oral health: the *Simplified Oral Hygiene Index for Debris and Calculus* (OHI-D, OHI-C), the *Lobene Stain Index* (LSI), and the *Gingivitis Index* (GI). A dental hygienist, unaware of the specific intervention, used each tool to screen participants prior to teeth cleaning. Screening was repeated at the start of the study (one week after cleaning). The GI also was performed after weeks 1 and 3. At the study's end (week 6) the same hygienist again performed all screens.

Participants' health and secondary conditions were surveyed at the beginning and end of the study. Brushing behavior and self-efficacy also were surveyed prior to the study, after week 3 and after week 6. To negate the effect of right-

or left-handedness, the side of the mouth used for the novel or regular brush was randomly assigned within each group (double-headed, sonic, and rotary). Participant-Support teams learned to use the toothbrushes correctly, and participants received laminated cards to mount by their mirrors showing on which side each brush should be used, how much toothpaste to apply, and proper brushing technique. Each participant received a tube of toothpaste (brand obscured for neutrality) and was verbally prompted in how much to use. Participants brushed all tooth surfaces in each quadrant of their mouths for 30 seconds each. Each support person provided one daily prompt plus bi-weekly verbal reinforcement, and logged the type of support given and the time involved.

Results: There were significant changes on all screening tools from the study's beginning to its completion (LSS, $p=.007$; OHI debris $p=.095$; GI, $p=.000$). Total changes in screening results, (based on high vs. low scores at study initiation), were -1.7 and -.70 respectively.

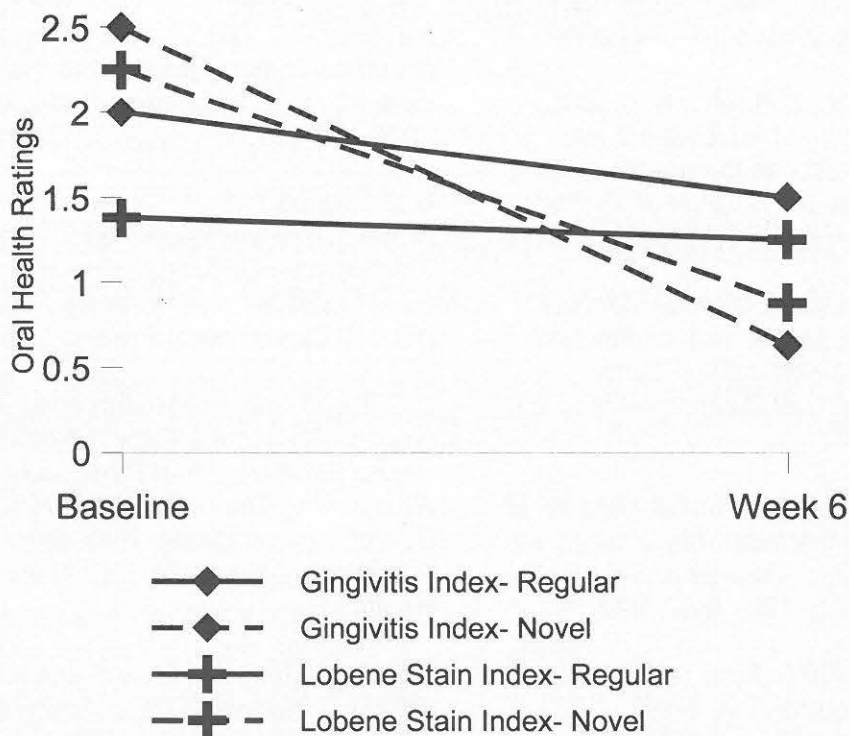
Figure 1. Changes in Oral Status Aggregated across Regular and Assigned Brush Conditions



Each group had only two or three participants, so we cannot statistically assess the effect of brush type on oral health screens. However, all novel brushes seemed more effective than regular brushes at reducing gingivitis and plaque. Participants initially preferred mechanical brushes, but had no clear preference at study's end.

Support persons spent an average of 36.2 minutes (range 2.1–167 mins.) each week providing supports such as telephone calls (37.9%), observation (28.7%), and face-to-face prompts (26.8%). Based on state direct service staff wages (\$8.40 avg., range \$7.11- \$9.71), supports would cost approximately \$5.04 (range \$.29-\$23.38) per month. Participants initially were neutral about reinforcement, but positive at the study's end.

Figure 2. Changes in Oral Health Indices in Novel vs. Manual Brush Conditions



Conclusions:

- Routine brushing twice daily for 2 minutes in all parts of the mouth reduces plaque, gingivitis, and debris.
- Participants' brush preferences vary, with no strong preference for mechanical over manual brushes once the novelty is past.
- Maintaining a routine brushing schedule requires minimal support time and cost.
- Five of the eight participants responded to a six-month post-intervention call and were brushing at least twice daily without prompts.

Public Health Implications: Although good oral health behavior is a goal of individual plans for Individuals with I/DD, little is known about effective types of brushes and brushing behavior. These results suggest that, with clear instructions and minimal support, adults with I/DD will improve and maintain good dental hygiene. Many public health settings could use these methods to support ongoing behavior change and possibly reduce the need for more expensive oral care.

Next Steps: The Montana Disability and Health Program (MTDH) is a partnership between The University of Montana Rural Institute and the Montana Department of Public Health and Human Services. MTDH plans to work with interested Montana *People First* chapters to implement this oral health program more broadly and further evaluate its effectiveness.

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