Oral Health Surveillance Plan 2011 – 2020
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Indian Health Service Division of Oral Health

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Summary of 2010-15 Surveillance Activities

The IHS Division of Oral Health has conducted five surveys since the inception of this oral health surveillance plan in 2010. Each survey used the Basic Screening Survey (BSS) instrument as the tool to conduct community-based, clinic-based, and school-based surveys. More than 36,000 American Indians/Alaska Natives (AI/ANs) participated in the first four years of the survey, a number expected to rise to over 50,000 after the completion of the 2015 survey of AI/ANs ages 35 and over.

The original time frames and methodologies had to be changed as each survey was being planned (see tables 2-4, pages 5-7 of the original plan). Surveillance of 1-5 year-old AI/AN children was expected to be done in 2010, 2013, and again in 2015 in conjunction with the IHS Early Childhood Caries Collaborative. Unfortunately, the long delay in approving the 2010 survey report for release (it was not released until 2014) caused us to need to drop the 2013 survey of this age group due to an expected low participation rate by programs. Instead, a second survey of this age group was completed at the end of 2014. The sampling design for both the 2010 and 2014 surveys remained the same, a systematic probability proportional to size (PPS) cluster design (a discussion of methodology will follow). The total number of children screened in 2010 was 8,461, which at the time made this the largest sampling size of any survey conducted on this age group. In 2014, however, even more children received screenings – 11,873.

For 6-9 year-old AI/AN children, no changes were made to the original plan. Surveillance was successfully conducted in 2011 and 2012 using a sample of schools funded by the Bureau of Indian Education (BIE) and schools with a large enrollment (>50%) of AI/AN children. This survey resulted in 15,611 children being screened in first through third grade, 12,511 of which were in the 6-9 year-old age group.

For 13-15 year-old AI/AN adolescents, the survey was moved from 2015 to 2013 because of the void left in 2013 from the removal of the 0-5 year-old BSS. The original plan was to survey this age group exclusively in the community/school setting (see table 2, page 5); however, the plan was changed to also include dental clinic patients because of a fear of not having a large enough sample. A total of 3,930 13-15 year-old AI/AN youth were screened, 1,897 in a school setting (sixth through eighth grade) and 2,033 in a clinic setting. So far in this surveillance program, this is the only group that has been screened in two different settings. Interestingly, there did seem to be some significant differences between the two different screening settings: the percentage of youth who were screened in the clinical setting with caries experience (80%)

and untreated decay (53%) was far higher than those screened in the school setting (66% caries experience, 38% untreated decay).

Currently, in 2015, surveillance for AI/AN adults ages 35 to 44, 45 to 54, and 55 and over is being conducted. In the original plan this surveillance was to occur using the IHS Electronic Dental Record (EDR), Dentrix. However, upon discovering that the Oral Health Status Report set up in Dentrix did not meet the requirements needed to conduct an accurate national statistical analysis – only aggregate clinic data could be generated in the report – we used the BSS form in this age group to conduct surveillance. We expect to have a sample size of over 14,000 upon completion of this survey.

Issues of Concern

Survey Participation Rates. The participation rate for IHS, Tribal, and Urban (I/T/U) dental programs for the first five years of surveillance has become an issue. Lower-than-expected participation has been the result of surveillance "fatigue" (some programs have complained that they seem to be randomly selected over and over for surveys, especially in smaller Areas) or some other issue. The 2010 survey randomly selected 56 programs and had a participation rate of 76.8%, although 10 of the programs that refused to participated were replaced by 10 other selected programs and 10 programs that volunteered to participate. The 2011-12 survey randomly selected 241 schools to participate, and 186 participated for a participation rate of 77.2%. The 2013 survey randomly selected 55 programs to participate, and the participation rate was 83.6% for clinic surveys (46/55) but only 56.4% (31/55) for school surveys. The 2014 survey randomly selected 56 programs and had a very high participation rate – 94.6% (53/56) – that did not include an additional 28 programs that volunteered to participate.

Clinic-Based vs. Community Based Surveys. A second issue of concern is the readiness and validity of a clinic-based survey. Until data can be mined from the EDR at the individual patient level rather than at the clinic aggregate level, the EDR oral health status survey will not be able to be used at the national level. With regard to validity, the only survey that has been done in both a clinical and community-based (school) setting, the 2013 survey of 13-15 year-olds, demonstrated a statistically significant difference between the two methodologies. While this difference was always suspected in younger age groups, we don't know what the relevance or differences might be between a community-based and clinic-based sample of adults might be.

Release of Area-Specific Data. In the 2010 (1-5 year-old), 2011-12 (6-9 year-old), and 2013 (13-15 year-old) surveys, the final report (2010) or data briefs (2011-12, 2013) contained both national aggregate and Area by Area results. However, after completion of the 2014 survey, senior leadership in IHS made the decision to only report national aggregate data in the final

data brief. The main reason for this decision seemed to be the concern of some Areas that the release of Area-specific data may paint an unfavorable picture of their Area. The release of Area-specific data, and participating clinic-specific data, is important to show local programs their disease burden for certain populations compared to their IHS Area, national IHS data, and general U.S. population data from NHANES or other sources, as disparities in oral health status can help guide program planning and help secure funding for prevention projects targeting those specific age groups.

Training vs. Calibration. One acknowledged flaw in the Basic Screening Surveys conducted to date is that all of the examiners received training but were not calibrated, increasing the likelihood of inter-examiner error. Logistically, it was impossible to bring together hundreds of examiners each year to a central location to provide training and multiple rounds of calibration. However, in the future, if a smaller sample size is used resulting in a smaller number of programs participating, it may be possible to select a handful of potential examiners, bring them to a central location, provide detailed training and calibration, thereby mitigating inter-examiner error issues.

Sample Size. Sample sizes for the different surveys have varied based upon the estimated user population of each Area for the affected age group, from a size of 4,800 for 1-5 year-olds in 2010 to a size of more than 14,000 in 2015. The sampling methodology used thus far has been a systematic probability proportional to size cluster design. Moving forward, generally if approximately 60 programs are selected for each survey, we will need a sample size of about 7,500, but this will be dependent again on the official IHS user population for each age group and may range from 4,800 to 14,000. However, if we do a random sample of patients and don't report Area-specific data, the sample size may be reduced to about 1,200.

Recommendations

1. To mitigate survey fatigue by participating IHS, Tribal and Urban dental programs in future surveys, the IHS Division of Oral Health recommends conducting large surveys only once every 10 years for each age group, with intermittent smaller sample size surveys once every 5 years.
2. Since the one survey conducted in both the clinic and community settings (2013, 13-15 year-olds) showed significant differences in disease prevalence and burden between the two groups, the IHS Division of Oral Health recommends that over the next five years surveys use both methodologies, both to show differences between clinic patients and community patients and to try to establish a proportionate relationship between the two that can be used in future surveys that may only be clinic-based.
3. To mitigate concerns by some Areas about the release of Area-specific information, the IHS Division of Oral Health proposes to have future data briefs consist of only national

aggregate information, but still release Area-specific data to Area Directors, Area Dental Officers, and Dental Support Centers and still release clinic-specific data to participating programs every 10 years when Area-by-Area results are analyzed.

4. The IHS Division of Oral Health recommends training and calibrating survey examiners whenever possible, i.e., when smaller sample sizes are used to collect only national IHS data.

Revised Timeline & Methodology

The below timeline provides details of the above recommendations: every 5 years the IHS Division of Oral Health will conduct smaller surveys (potentially with trained and calibrated examiners) that provide only national aggregate results for each age group, and every 10 years the IHS Division of Oral Health will conduct larger sample surveys (with only trained examiners) that provide IHS national and Area-specific results, although Area results will not be part of the official IHS Data Brief released publicly but instead will be released only to each IHS Area.

- 2016-17: Oral Health Survey of 6-9 year-old AI/AN Children
  - *Time period since last survey of this age group*: 5 years (2011-12)
  - *Methodology*: random sample of patients, IHS aggregate information only
  - *Estimated Sample Size*: 1,200 – 1,500
  - *Survey Setting*: Clinic and Community (Schools)
  - *Survey Tool*: Basic Screening Survey paper form
  - *Area-Specific Information Available*: No
- 2018: Oral Health Survey of 13-15 year-old AI/AN Youth
  - *Time period since last survey of this age group*: 5 years (2013)
  - *Methodology*: random sample of patients, IHS aggregate information only
  - *Estimated Sample Size*: 1,200 – 1,500
  - *Survey Setting*: Clinic and Community (Schools)
  - *Survey Tool*: Basic Screening Survey paper form + IHS Electronic Dental Record
  - *Area-Specific Information Available*: No
- 2019: Oral Health Survey of 1-5 year-old AI/AN Preschool Children
  - *Time period since last survey of this age group*: 5 years (2014)
  - *Methodology*: random sample of patients, IHS aggregate information only
  - *Estimated Sample Size*: 1,200 – 1,500
  - *Survey Setting*: Clinic and Community (Head Start, Daycare)
  - *Survey Tool*: Basic Screening Survey paper form + IHS Electronic Dental Record
  - *Area-Specific Information Available*: No

- 2020: Oral Health Survey of AI/AN Adults 35 Years and Over
  - *Time period since last survey of this age group*: 5 years (2015)
  - *Methodology*: random sample of patients, IHS aggregate information only
  - *Estimated Sample Size*: 1,200 – 1,500
  - *Survey Setting*: Clinic only
  - *Survey Tool*: IHS Electronic Dental Record
  - *Area-Specific Information Available*: No
- 2021-22: Oral Health Survey of 6-9 year-old AI/AN Children
  - *Time period since last survey of this age group*: 5 years (2016-17)
  - *Methodology*: probability proportionate to size, each IHS Area
  - *Estimated Sample Size*: 4,800 – 7,500
  - *Survey Setting*: Clinic and Community (Schools)
  - *Survey Tool*: Basic Screening Survey paper form + IHS Electronic Dental Record
  - *Area-Specific Information Available*: Yes, but released only to each Area
- 2023: Oral Health Survey of 13-15 year-old AI/AN Youth
  - *Time period since last survey of this age group*: 5 years (2018)
  - *Methodology*: probability proportionate to size, each IHS Area
  - *Estimated Sample Size*: 4,800 – 7,500
  - *Survey Setting*: Clinic and Community (Schools)
  - *Survey Tool*: Basic Screening Survey paper form + IHS Electronic Dental Record
  - *Area-Specific Information Available*: Yes, but released only to each Area
- 2024: Oral Health Survey of 1-5 year-old AI/AN Preschool Children
  - *Time period since last survey of this age group*: 5 years (2019)
  - *Methodology*: probability proportionate to size, each IHS Area
  - *Estimated Sample Size*: 4,800 – 7,500
  - *Survey Setting*: Clinic and Community (Head Start, Daycare)
  - *Survey Tool*: Basic Screening Survey paper form + IHS Electronic Dental Record
  - *Area-Specific Information Available*: Yes, but released only to each Area
- 2025: Oral Health Survey of AI/AN Adults 35 Years and Over
  - *Time period since last survey of this age group*: 5 years (2020)
  - *Methodology*: probability proportionate to size, each IHS Area
  - *Estimated Sample Size*: 4,800 – 7,500
  - *Survey Setting*: Clinic and Community (Schools)
  - *Survey Tool*: IHS Electronic Dental Record
  - *Area-Specific Information Available*: Yes, but released only to each Area

This plan will be reviewed again in 2020 and adjusted based on issues that arise over the next five years.