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# Case 5 : Let's Agree to Agree: Management Techniques in Calibrating Oral Health Screening Systems

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## CASE 5

### Let's Agree To Agree: Management Techniques in Calibrating Oral Health Screening Systems<sup>1</sup>

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#### BACKGROUND

In 2014, Lisa Montebello, a Registered Dental Hygienist and Master of Public Health candidate at the Interfaculty Program in Public Health, Western University, was working during her practicum with Dr. Mark Gracey, Oral Health Manager of the Middlesex-London Health Unit (MLHU), in London, Ontario, Canada. Her objective was to formulate a clinical calibration assessment and a recommendation report. Clinical calibration is a comparison of agreement between clinicians, or against a verified standard, to achieve a clinical gold standard. In this case, the agreement between clinicians related to the presence or absence of urgent or non-urgent cavities, and also whether or not two or more cavities were present. Also, Dr. Gracey was responsible for following the Ontario Public Health Standards (OPHS) protocols for ensuring that all Grade 2 children in the London area were receiving equitable access to oral health care services through oral health screenings. There were over 120 schools with five Registered Dental Hygienists (RDHs), along with seven Dental Assistants (DAs) on the preventive Oral Health Team providing this service. After a calibration slide review session the year before, it was found that the RDHs were rating the oral health care needs of children inconsistently, posing a dilemma for both Dr. Gracey and Lisa, as vulnerable children with urgent dental care needs may have been missed as a result. There was also no standardized recommended statistical analysis in place to analyze the data from the calibration session. Lisa needed to come up with a best practice guideline for clinical calibration, including statistical analysis recommendations, for the MLHU to ensure that no child would be overlooked due to inconsistent measurement outputs. Lisa had just eight weeks to observe and assess the entire current calibration system in place, and to formulate a report for the oral health team at the MLHU.

#### OPHS MANDATE

According to the Ontario Public Health Standards (OPHS) document, which is published regularly by the Minister of Health and Long-Term Care under the authority of the Health Protection and Promotion Act (HPPA), protocols are set out to standardize the oral screening and surveillance programs carried out within the Province of Ontario (Ministry of Health and Long-Term Care, 2013; Ministry of Health Promotion, 2010). Information collected includes the number of teeth decayed (d or D), missing (M), filled (F), as well as any child who is in need of urgent care (U) or non-urgent care (NU) (see Exhibit 1). The data gathered during the process is then entered into the Ministry of Health Promotion's Oral Health Information Support System

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<sup>1</sup> The case description, while based on a real experience, is adapted for learning purposes.

(OHISS) (MOHLTC, 2013). OPHS requires that all Grade 2 students in the province are screened, and the school's intensity level is then dictated using the screening results of the Grade 2 population (MOHLTC, 2013). This is done by calculating the number of students who had two or more caries ( $d+D \geq 2$ ) present, which is then divided by the total number of Grade 2 students who were screened (MOHLTC, 2013). According to OPHS, schools that are high intensity have ( $d+D \geq 2$ ) which falls at 14% or more, and medium intensity schools have a result of 9.5-14% (MOHLTC, 2013). Depending on the screening results, protocols are then set forth with further screening, for example, of junior kindergarten (JK), senior kindergarten (SK), and grades 4, 6, and 8 students in the schools deemed as high risk (MOHLTC, 2013).

This protocol is important to ensure children who are at high risk of dental caries have their needs met. Although most families are insured for dental care through private insurance, children of families who do not have dental coverage may then be eligible for a number of programs within Ontario such as the Children In Need of Treatment (CINOT) program, which provides preventive, surgical, and restorative treatment (MOHP, 2010). In addition, it is important that RDHs working in public health units are well calibrated in their screening methods to ensure that no child in need is overlooked and goes without necessary treatment.

### **MLHU HISTORY**

There are 36 public health units in Ontario (see Exhibit 2; MOHLTC, 2014). The MLHU is located in London, Ontario, and serves both city and rural regions. The screening program is implemented in over 120 elementary schools within the service region. Presently, the MLHU preventive oral health team members who oversee the school-based screening program consists of a dental consultant, an oral health manager, 5 RDHs, and 5 DAs. Although the oral health manager and dental consultant with the MLHU have backgrounds in dentistry, this is not the case in all health units. Often in those units, registered nurses take on the position of oral health manager. Exhibit 3 describes the general health unit job descriptions of key players at the MLHU.

In 2004, a dental benchmark research project was carried out by an Ontario public health unit in participation with nine other Ontario public health units (Beynon, Sangster-Bouck, Sanderson, He, & Lueske, 2004). Results of the project showed that calibration training was provided by nine out of the ten participating public health units. This training included clinical (hands-on) calibration sessions, or calibration using slides of varying degrees of dental cavities, as well as a review in policies and procedures (Beynon et. al., 2004). The oral health screening system is essential for increasing equitable access to dental care for vulnerable children (Beynon et. al., 2004). In the benchmark report, procedural variation across health units was noted. These included variables such as dental instruments and equipment used, including the examining lights (Beynon et. al., 2004). Historically, no research has been done in the MLHU on the calibration of the current oral health screening system, which includes the screeners, the environment, and statistical analysis of the clinical calibration session.

### **CURRENT CALIBRATION PROCEDURES AT MLHU**

Each September, in Toronto, Ontario, the Ontario Association of Public Health Dentistry (OAPHD) conducts a non-mandatory calibration slide review session for dental professionals. During this session, dental professionals are shown a series of slides depicting non-urgent and urgent cavity cases with related questions. They then use "clicker" devices to select an answer, and the cumulative results are shown on the screen with percentages of each selection displayed. The session leader then gives an explanation of the answer. There is no formal post-question group discussion to allow for a consensus to be reached.

In 2013, the MLHU Oral Health Department conducted an in-house calibration session using slides as well. During this session, slides were shown, and answers were then written on paper and submitted. The data was then analyzed using percent agreement which was measured against the gold standard examiner who, in this case, was the dental consultant. In relation to statistical analysis of calibration for the assessment of dental caries, Lisa knew the literature was quite limited. Aside from the informal analysis performed the previous year, she was not sure if there was a best practice guideline in this particular area of interest, and she was eager to find out.

### **FIELD OBSERVATIONS**

By her second day at the MLHU, Lisa knew she wanted to learn more about the screening system, not only through observation, but also by gathering information from the RDHs and DAs themselves. Since she did not have the time to conduct a formal survey, Lisa decided she would take the time to travel with the RDHs and DAs to and from the schools, to ask questions and get feedback from the oral health team members. Immediately, Lisa found the team members felt very positive about the calibration project and actively wanted to contribute. Each member had valuable input into the process and ideas about what could be improved. Lisa observed the environment in which they screened, noted the way the RDH and DA team conducted the screenings, and reviewed the screening system itself as set out by the OPHS.

### **Environment**

The environments in which the dental screenings were carried out varied substantially. The room used depended on availability that day, and school officials such as the principal or head administrative staff were responsible for assisting the RDHs and providing a room. Some examples of the screening rooms observed included a health room, a staff kitchen, a cafeteria, a kindergarten classroom that wasn't being used that day, and a resource room. The RDHs shared that sometimes they are placed on the stage in the gym.

With the variability in the types of rooms used, there was variance in the amount of illumination of each room. For example, the health or resource rooms tended to be spacious and well-lit with natural light from the windows. On the other hand, one kitchen used for the dental screening was dimly lit and quite narrow and crowded.

Another environmental factor was noise levels. In instances where the RDHs had been placed on a stage in a gym, the sound of bouncing balls or children playing was loud enough that some examiners or assistants were distracted. Rooms that were particularly noisy made it difficult for the Dental Assistant to hear what was being dictated in relation to number of cavities or degree of urgency. When full classes were brought down and the teacher did not stay to supervise, the kids would get a bit rambunctious and loud making it difficult for the RDH or Assistant to hear each other.

Standardized equipment was available and placed into five portable examiner bags. All RDHs had access to two rechargeable hand-held lights, a standing light, a portable chair, one laptop which was carried on-person at all times, sterilized sets of dental mirrors and explorers, hand sanitizers, and enzymatic spray.

The dental equipment was couriered when the screening school was located within the city limits of London. When the screening school was located in the county, the Dental Assistants

and Dental Hygienists were responsible for transporting the equipment themselves in their vehicles.

### **Screeners**

The RDHs followed the same screening protocols. These included keeping the laptop with them at all times and following proper infection control procedures. RDHs differed in their preference, for example, in the number of children brought down to the screening area. Some preferred just five at a time, and others preferred the entire class brought down at once. Most often, it was up to the teacher of the class and what they preferred to do.

Lighting was another difference in screener preference that was noted. The majority of RDHs used the hand-held LED lights only, while others used the LED lights along with the standing dental light. Depending on the room being used, the standing light greatly enhanced the illumination available for screening procedures, as well as illumination of the oral cavity.

### **Screening System as set by OPHS**

The Oral Health Team at the MLHU followed the protocols set out by the OPHS in regards to the screening system and data collection procedures. These protocols are mandated by the Ministry of Health and Long-Term Care and therefore must be followed and not altered (MOHLTC, 2013). The observed data collection, consistent reporting using OHISS, and screening procedures carried out, indicated that all RDHs followed these standards. Data collected and entered into OHISS included the number of decayed, missing, or filled teeth (DMFT or dmft), and whether no care was required (NCR). If caries were present, it was recorded as either the child needing urgent care (CUC) or non-urgent care (NU) (MOHLTC, 2013; MHP, 2009). For care required to be deemed urgent, the child must have met the Children In Need of Treatment (CINOT) eligibility criteria which includes any of the following: pain, infection, haemorrhage, trauma, pathology, large open caries, periodontal disease, crucial primary teeth, need for emergency care and essential (the condition would escalate shortly) (MOHLTC, 2009).

### **EMERGING THEMES**

- The RDHs had little control over what room they were assigned. It depended on the availability of rooms on the day of screening.
- Most RDHs did not use the standing screening light, but rather the hand-held light. Reasons for this included children complaining that the light was in their eyes and the fact that the large light was cumbersome to transport to the county schools. Some RDHs expressed that they would be more likely to use the light if it was couriered to the county schools and present upon their arrival.
- The majority of RDHs felt that they wanted to expand the calibration session to include a group discussion immediately afterwards. This was noted as having a high level of importance.
- RDHs felt that sometimes it was very difficult to screen in areas that were cramped, dimly lit, or noisy.
- RDHs all expressed wanting to receive and discuss a general report of the calibration results.
- Many of the slides used in previous calibration sessions in Toronto were either too small or unclear, and did not include enough client history.
- The RDHs conveyed a positive attitude towards a hands-on calibration session and the calibration project in general.

With the previously noted inconsistent examiner results, and variation in screening procedures, Lisa, who had been an RDH herself for the past 12 years, understood the importance of having agreement between clinicians. She had been involved in calibration training sessions with the local college where she had worked as a clinical instructor. Given Lisa's field observations, she had her work cut out for her. She wanted to make sure to incorporate everyone's input into her final recommendations. How should she go about doing this? What incentives could she recommend for the dental team to ensure participant buy-in? What were the repercussions of the dilemma at the MLHU? How would she determine the best statistical analysis to apply to the gathered data from the calibration session? She had many questions in relation on how to proceed.

**EXHIBIT 1**  
**Urgent and Non-Urgent Photo Samples**

**Urgent**

Pain is present



Source: MLHU, 2015.

**Non-Urgent**

No pain or caries present, condition is dental fluorosis



Source: MLHU, 2015.

**EXHIBIT 2**  
**Map of Ontario Health Units Map**



Source: Association of Local Public Health Agencies, n.d.

**EXHIBIT 3  
General Health Unit Job Descriptions (Key Players)**

**Dental Consultant (Public Health Dentist)**

- Expertise of a Public Health Dentist Hired by a Public Health Unit

In many cases a Public Health Dentist will be designated as the manager of all of the dental programs and services for his or her health unit with budgetary and full human resource responsibility for the dental programs and services provided by the board of health. The Public Health Dentist may be on the Executive Committee or report directly to the Medical Officer of Health and may have managers reporting to him or her.

In other cases, a board of health may hire a dedicated Dental Consultant to perform some or all of the following activities, with additional roles added based on local need:

1. Employing dental epidemiology and emerging evidence in the literature to ensure that the health unit is conducting evidence-informed practice;
2. Responding to emerging dental issues (e.g., responding to public and professional enquiries regarding communal water fluoridation);
3. Participating in strategic planning activities for the department and the organization;
4. Monitoring dental budgets and providing advice to the Medical Officer of Health and/or Business Administrator on reasons for any budget variances;
5. Preparing board of health reports on oral health status as required;
6. Integrating dental program messaging into other program areas (e.g., Tobacco cessation, Healthy Babies Health Children (HBHC), pre-natal and parenting classes, well-baby visits, communications campaigns, etc.);
7. Conducting program planning, monitoring, and evaluation;
8. Interpreting and tracking trends in OHISS data (CINOT, CINOT Expansion, Screening, Surveillance) and other data;
9. Reviewing predetermination requests for the CINOT program and the CINOT Expansion, discussing results with the treating dentist as required;
10. Authorizing over-rides in OHISS for the CINOT program and the CINOT Expansion;
11. Providing review and approval or non-approval of claims that have not passed validation;
12. Maintaining a relationship with the local dental community;
13. Participating in Provincial committees regarding ongoing research and development of best practices and program development;
14. Providing advice about confidentiality of personal health information and sharing of information as it relates to the OHISS database and dental records;
15. Communicating with federal, provincial, municipal and other representatives on inter-jurisdictional health issues such as tripartite and other agreements to help ensure the best possible public health services to individuals residing in the health unit catchment area;
16. Ensuring dental programs meet basic public health criteria relating to needs assessment, surveillance, prevention, health promotion, health protection, and emergency preparedness;
17. Providing input into hiring, and ongoing performance management of dental staff, dental staff job descriptions, staff development, etc.;

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18. Ensuring that fluoride levels are monitored in areas where fluoride is added to drinking water in accordance with the *Protocol for the Monitoring of Community Water Fluoride Levels*;
19. Calibrating the screening teams annually and at other times as required;
20. Providing and supporting ongoing staff training and development as appropriate;
21. Ensuring that the contents and maintenance of the dental emergency kit (for dental clinics) is completed and staff is trained on appropriate usage; and,
22. Belonging to, and participating in, the Ontario Association of Public Health Dentistry (OAPHD) and other provincial associations as appropriate.

Source: OAPHD, 2012.

### **Oral Health Manager**

#### **Managerial Responsibilities Related to Staff Supervision**

1. Operational planning, implementation and evaluation of the designated Ontario Public Health Programs and Health Unit Strategic Directions at the team level and/or agency level based upon best practices;
2. Promoting Health Unit programs and services outside the Health Unit; liaising with external stakeholders, community partners, etc. create and sustain meaningful community partnership to further program work;
3. Managing workload – dividing work according to skill sets, scheduling, holding regular meetings to confirm priorities and timelines, receiving reports on work done, discussing problems, giving feedback and support, reviewing and evaluating programs and services, setting new goals, and preparing board reports;
4. Supporting staff development and performance management – conducting regular performance appraisals of staff members, identifying professional development opportunities, determining learning needs, providing feedback, assisting staff in developing personal development and work goals;
5. Keeping all staff informed of what is happening in public health locally, provincially, nationally, and internationally and apprising staff of key local resources and supports;
6. Providing staff support – responding to staff concerns, resolving personnel issues, acting as a conduit for staff to address health unit-wide issues, and supporting staff in dealing with conflicts and concerns with external clients;
7. Reviewing and updating team and work procedures as changes occur – contributing to the development of new policies and procedures for the service area or organization and establishing mechanisms on his or her team for continuous monitoring of organizational processes;
8. Providing leadership in communication and managing change, keeping individuals and teams informed in a variety of ways (face-to-face individually or in teams, voicemail, email, notices, etc.), receiving communications from senior management and interpreting them for staff in their particular circumstances, updating staff on all matters outlined in #6 and #7 for new or transferred staff;
9. Overseeing staff changes – conducting final performance reviews and references, assigning temporary work arrangements, participating in the recruitment process including input into preferred qualifications, selection panel, interview, and other assessment tools;
10. Providing orientation and on-the-job training for new or transferred staff joining the team:
  - a. Application of Administrative Policies, Service Area policies and team policies, including Privacy and Confidentiality;
  - b. Orientation to public health for new staff;

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- c. Procedures associated with team and individual work;
  - d. Health and safety – identification of risks for staff members, instruction and documentation regarding safe practices to avoid or mitigate the risk and reduce potential harm, where to find information, Fire Safety procedures;
  - e. Ergonomics at work – workstation setup, safe lifting/carrying practices, equipment availability and use, where to find related information;
  - f. Incident reporting –procedures, including WSIB forms and the role of the Occupational Health and Safety Committee;
  - g. Customer service approach, including accessibility under AODA related to programs and services provided; and,
  - h. Records Management.
11. Creating and maintaining a positive team culture. In addition, orienting staff to culture of the service area and the Health Unit (Code of Conduct, Service Area Principles, professional practice guidelines, best practices);
  12. Taking responsibility for identifying and addressing disciplinary issues, communicating issues, progressive discipline in consultation with HR, follow-up with staff, documenting, and consulting with Director regarding discipline decision; and,
  13. Assisting in establishment of program budgets, approving expenditures and monitoring progress, ensuring programs stay within approved budget.

Source: MLHU Board of Health Report, 2012.

### **Dental Assistant**

The Dental Assistant is responsible for contributing to the MLHU clinical and preventive dental health programs that are offered in the community.

### **Dental Assistant Duties**

In Dental Services there is generally a Preventive Dental Team and a Clinic Team (Treatment). In some instances, some of the following duties may be performed primarily by one of these teams. However, the Dental Assistant may be directed to assist in either Team.

1. Providing all chairside and reception duties that may reasonably be expected of a Certified Dental Assistant;
2. Greeting patients upon arrival, obtaining medical and dental history, and ensuring proper documentation;
3. Creating a chart and entering all information on computer for the patient;
4. Preparing and submitting accounts for payment, assisting patients from other dental offices in completing proper forms, and explaining how CINOT, Healthy Smiles Ontario, Ontario Works referrals are carried out;
5. Scheduling appointments so that each day is productive and a variety of treatments are included in the day's activities;
6. Answering dental health inquiries from patients, students, individuals seeking information, dental offices in the community, and Health Unit staff;
7. Contacting families of identified individuals to notify them of dental conditions and confirming appointments with patients including recall and screening appointments;
8. Organizing referral appointments for patients to dental specialists' offices;
9. Ordering all supplies for the clinic, ensuring that sufficient supplies and instruments are on hand at all times, and restocking supplies when they arrive.

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10. Maintaining and servicing equipment including sterilizers, dental compressor and vacuum, x-ray developer, and dental carts, handling and disposing of contaminated dental sharps;
11. Working in an environment with a constant exposure to blood and saliva often with high speed intraoral devices producing aerosols;
12. Disinfecting, sterilizing, and cleaning equipment, instruments, work, and office areas according to universal procedures using appropriate disinfectants and sterilizing solutions;
13. Exposing and developing radiographs (x-rays);
14. Assisting Dentists and Dental Hygienists with patient care;
15. Providing preventive dental health instruction to groups and individuals;
16. Inputting and retrieving data to and from dental and other software packages;
17. Packing and transporting portable dental chair, instruments, teaching aids and handouts to and from schools and long-term care facilities and other work sites;
18. Setting up temporary dental clinics off-site using transported equipment;
19. Preparing lists and schedules of students or residents to be seen at the clinic;
20. Arranging with teachers and schools to send children at specific times for screening;
21. Recording pertinent data provided by Hygienist during screening procedures;
22. Disinfecting and packing instruments and taking down mobile clinics for return to head office;
23. Providing instruction to junior kindergarten, kindergarten, and all designated grade levels on dental health;
24. Organizing class lists, developing follow-up lists, and entering relevant data into computer and retrieving when necessary; and,
25. Managing young, uncooperative, and fearful clients who may also have limited language skills.

Source: MLHU, 2013.

### **Registered Dental Hygienist**

Responsibilities include clinical duties for adults and children and provision of oral health assessment and oral health education programs in school classrooms and in the community.

#### **RDH Duties**

1. Conducting oral health assessment for school children and clinic clients;
2. Documenting existing conditions requiring treatment and contacting parents to inform them of needed treatment;
3. Providing oral health education and maintaining dental records;
4. Preparing examination sites by transporting equipment and supplies to and from sites;
5. Maintaining standards of practice, with particular attention to dental disinfection and sterilization procedures;
6. Participating in community dental education activities;
7. Providing adult services under Ontario Works (Smile Clean Program);
8. Providing all clinical services that a Dental Hygienist is legally permitted to carry out including providing topical fluorides, placement of sealants, dental prophylaxis, and scaling; and,
9. Answering dental health inquiries from a wide variety of sources.

Source: MLHU, 2013.

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## INSTRUCTOR GUIDANCE

### Let's Agree to Agree: Management Techniques in Calibrating Oral Health Screening Systems<sup>1</sup>

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#### BACKGROUND

In 2014, Lisa Montebello, a Registered Dental Hygienist and Master of Public Health candidate at the Interfaculty program in Public Health, Western University, was working during her practicum with Dr. Mark Gracey, Oral Health Manager of the Middlesex-London Health Unit (MLHU), in London, Ontario, Canada. Her objective was to formulate a clinical calibration assessment and recommendation report. Clinical calibration is a comparison of agreement between clinicians, or against a verified standard, to achieve a clinical gold standard. Dr. Gracey was responsible for following the Ontario Public Health Standards (OPHS) protocols to ensure that all Grade 2 children in the Middlesex-London area were receiving equitable access to oral health care services through oral health screenings. There were over 120 schools with five registered dental hygienists (RDHs), along with five dental assistants (DAs) providing this service through the school screening program. After a calibration review slide session the year before, it was found that the RDHs were rating the oral health care needs of children inconsistently. This posed a dilemma for both Dr. Gracey and Lisa, as vulnerable children with urgent dental care needs may be missed as a result. There was also no standardized recommended statistical analysis in place at MLHU to analyze the data from the calibration sessions. Lisa needed to come up with a best practice guideline for clinical calibration, including statistical analysis recommendations, so that the MLHU could ensure that no child was overlooked due to inconsistent measurement outputs. Lisa had just 8 weeks to observe and assess the entire current calibration system in place, and to formulate a report for the oral health team at the MLHU.

#### OBJECTIVES

1. Effectively engage with stakeholders within oral health programs to determine differences in approaches to screening systems and any outside influences.
2. Assess current calibration methods and procedures used in school-based oral health screening programs, including the screeners, the procedure, and environment.
3. Develop a best practice guideline in a public health setting, such as a school-based oral health screening program.
4. Determine and analyze stakeholder values.
5. Adapt to challenges and motivate others.
6. Evaluate recommendation outcomes.

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<sup>1</sup> The case description, while based on a real experience, is adapted for learning purposes.

### **DISCUSSION QUESTIONS**

1. What are the dilemmas currently being faced by Lisa and Dr. Gracey of the MLHU? What are the repercussions of these dilemmas?
2. What steps could Dr. Gracey and Lisa take in approaching staff and determining why the analysis shows an inconsistency in the oral screening process?
3. Who are the key stakeholders in this case? What are the possible differing levels of interest or values of the stakeholders?
4. What process is required to determine best practices in clinician calibration for oral health providers?
5. What steps should be taken to implement the best practice recommendations?
6. How can you ensure that all stakeholder views are incorporated in deciding which changes to make in the calibration session?
7. What incentives could be given to employees to ensure “buy-in”?
8. What possible challenges might Dr. Gracey or Lisa face with implementing this project?
9. How would you evaluate the outcomes of the best practice guideline recommendations made by Lisa?

### **KEYWORDS**

Oral health; screening; best-practice; guidelines.