Saskatchewan Health Authority

EVALUATION OF THE BETTER ORAL HEALTH IN LONG TERM CARE PROGRAM

A 12-MONTH EVALUATION OF THE ORAL HEALTH STATUS OF RESIDENTS IN TWO SASKATCHEWAN LONG TERM CARE HOMES, FOLLOWING THE IMPLEMENTATION OF THE *BETTER ORAL HEALTH IN LONG TERM CARE* PROGRAM

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Executive Summary

This report concludes a 12 month evaluation of the oral health status of residents in two Saskatchewan Long Term Care (LTC) homes following the implementation of Better Oral Health in Long Term Care (BOH in LTC) Program

Older people are a rapidly growing proportion of Canada's population. In 2016, Saskatchewan had an estimated total population of 1,098,355, 15.52% (n= 170,430) of whom were seniors (65 years and over). By 2026, almost one in five people of Saskatchewan (20.7%), and by 2036, 23.3% of residents of Saskatchewan are expected to be 65 years or over. In 2016, Saskatchewan had the highest percentage of people of 85 years and over. The proportion of people 85 years and older living in LTC homes increases with age. In 2016, the total number of residential-based continuing care homes in Saskatchewan was 155, with 12,718 residents (average age 83 years old, 90% seniors, and 55% individuals 85 years and above).[1,2,3,4,5,6]

Given the amount of the elderly in LTC homes and the extent of chronic diseases among this group, it is reasonable to conclude many need some level of support with their daily care including oral care. Oral care is an integral part of personal care, yet it is inadequate in LTC residents. Research shows that oral health in LTC homes is poor globally.

However, ample evidence shows providing daily oral care and/or oral treatment in LTC homes significantly improves residents oral health status, enhances quality of life, reduces the risk of aspiration pneumonia morbidity and mortality, and leads to better control of diabetes and CVD.[7,8,9,10]

In 2011, the members of the Saskatchewan Oral Health Coalition (SOHC) identified oral health care in LTC as the top priority to move forward with. The SOHC is a group whose common goal is to improve oral health of Saskatchewan residents, particularly among vulnerable populations.

The SOHC is made up of community agencies, First Nations communities, health region programs, various health professionals, and interested groups and individuals.

Since 2011, SOHC and the Saskatchewan Oral Health Professions (SOHP) have collaborated to build capacity related to oral health in LTC, and to engage the community. The SOHP is a group that represents legislated oral health professions. After significant research, the Better Oral Health in Residential Care model developed originally in Australia was selected as the gold standard for the Saskatchewan Seniors' Oral Health and LTC Strategy.[(11)] In 2011, the SOHP and SOHC endorsed the use and adaptation of this program. With the endorsement by the SOHP and SOHC, a licensing agreement was signed between Saskatoon Health Region (SHR) and Australia. The license allowed for modifications and adaptations. From 2011-2013, SOHP representatives worked to modify the training resources to Canadian/Saskatchewan standards. In 2013, the resource was retitled *Better Oral Health in Long Term Care – Best Practice Standards for Saskatchewan* (*BOH in LTC* Program).

In 2016-2017 *BOH in LTC* Program was fully implemented at two LTC homes (Sherbrooke Community Centre and Sunnyside Adventist Care Centre) in SHR by the Long Term Care Oral Health Coordinator (LTC-OHC). The LTC-OHC provided educational training sessions to Managers, Registered Nurses (RNs) and Continuing Care Aides (CCAs) through a 3-hour learning module, a 3-hour hands-on session and pre and post tests. CCAs were identified by the home Manager as "oral health champions" to implement the program and train the other CCAs in their neighbourhood (unit or floor they respectively worked on). Training included educating the trainer so the staff could train the other staff in the area they were working in.

Initial oral health assessment of 252 LTC residents was conducted using a colour- coded OHAT by SHR LTC-OHC /trained RN. Nine aspects of the residents' mouth (exterior of face, lips, tongue, gums, oral cleanliness, teeth, denture, saliva, and dental pain) were examined using visual approach with a mouth mirror and flashlight. Based on the results from the resident's oral health, daily oral care plan was developed through a team approach (between LTC-OHC, RN, CCA) for each resident. Then, the care plan was posted on their mirror – as a mirror cling. CCAs delivered daily oral care as to whether the residents need assistance with oral care or just

reminding. Basic oral hygiene supplies were charged to each resident as part of their monthly charge for personal supplies. RNs followed up with checking the daily oral care that CCAs provided and completed consents for referrals to a dentist. Fee-for-services dentistry was provided on-site by an oral health care team (e.g. dentist, hygienist) or at the residents' private practice dental office.

After 6 and 12 months, oral health of the LTC residents was re-assessed to evaluate the effectiveness of *BOH in LTC* program. In November 2017, *Oral Health Status of Saskatchewan Long Term Care Residents: An Evaluation Following the Implementation of the Better Oral Health in Long Term Care Program* was published by Saskatoon Health Region, where 177 LTC residents participated in the study.

This report evaluated the impact of *BOH in LTC* program on the oral health of the residents after 12 months. Of 252 residents who were part of the initial assessment, 144 residents (57.14%) participated in the 12 month follow-up assessment as 108 (42.86%) were not followed up due to death, moving to another home, or refusal to be assessed.

Hence, oral health status of 144 residents, 76 females (52.78%) and 68 males (47.22%) with mean age of 75.58 years (with 73.61% seniors and 43.75% residents 85 years and older) were analyzed over 12 months. Of 144 residents, 51 (35.42%) LTC residents were edentulous and 93 (64.58%) were dentate. There were 61 (42.36%) residents who wore a removable denture (upper and/or lower complete, or partial denture).

Among dentate residents, 23.65% had a removable denture of some form; and the majority of edentulous residents (80.39%) had a complete denture in one or both arches. A total of 20 out of 30 residents who were referred to an oral health professional (e.g. dentist, denturist), acquired comprehensive examination or treatment. In total, 49 staff (including Director of Care, Managers, CCAs, RNs) received training by the OHC-LTC.

The oral health status of residents before and after program implementation was analyzed using McNemar test. The OHAT scores for 7 aspects (*Lips, Tongue, Gums and Oral Tissue, Saliva, Teeth, Denture and Oral Cleanliness*) significantly improved following 12 months ($p<0.05$). For all the 9 OHAT measures, the percentage of healthy residents considerably improved over time.

Almost one-third more residents had healthy lips, tongue, gums, teeth, dentures and oral cleanliness in the 12 month assessment compared to the initial observation. The highest *percentage changes* of healthy residents were observed in *Teeth* (70.56%) and *Oral Cleanliness* (67.23%) measures.

Residents who participated in the *BOH in LTC* Program showed an improvement in their oral health status. The result also signifies the multidisciplinary approach and the role of LTC-OHC, who works collaboratively with the LTC team, in improving the oral health care. Interdisciplinary training and collaborative efforts among the oral health professionals, other health professionals and caregivers are necessary in improving the oral health for this elderly population, which would improve not just oral health, but overall systemic health as well, thereby improving quality of life.

Introduction:

Monitoring of oral health and evaluation of oral health program are essential functions of public health. Reporting the oral health trends of the community and the effects of interventions provides accountability for the funds spent.

In 2016-2017, the Better Oral Care (BOH) program in LTC Program was fully implemented at two LTC homes (Sherbrooke Community Centre and Sunnyside Adventist Care Centre) in Saskatoon, SHR. The program was adapted at three neighbourhoods of Sherbrooke Community Centre and all three neighbourhoods at the Sunnyside Adventist Care Centre **[Table 1]**.

After the implementation of BOH program in two LTC homes in Saskatchewan, two evaluation studies were carried out at 6 and 12 months to evaluate the effectiveness of BOH on the oral health status of the LTC residents. The total residents who were part of initial assessment were 252. However, as some of the residents deceased or moved out of LTC, there was loss to follow-up in the future assessments. The number of participants in the 6 months and 12 months follow-up evaluation studies were 177 and 144 respectively. Refer to Table 1 for details about the number of residents by neighbourhoods. In November 2017, the first evaluation report of the 6 months follow-up was published by Saskatoon Health Region.

Table 1: Sherbrooke Community Centre and Sunnyside Adventist Care Centre – Number of Residents and Neighbourhoods

LTC home	Total number of residents	Total number of neighbourhoods	Neighbourhoods assessed	Total number of residents at initial assessment	Total number of residents at follow up assessment (6 months)	Total number of residents at follow up assessment (12 months)
Sherbrooke Community Centre	263	7	• Kinsmen Village (Houses 1 to 7) • Veteran's Village (Houses 8 to 11) • 4th Floor	148	115	93
Sunnyside Adventist Care Centre	104	3	• Diefenbaker • Prairie land • Riverview	104	62	51
			Total	**252**	**177**	**144**

The purpose of this report is to evaluate the impact of *BOH in LTC* program on the oral health of the LTC residents after 12 months. The evaluation was conducted by analysis of data collected through initial and 12 month follow-up assessment of LTC residents, using descriptive and statistical analysis followed by interpretation to conclude and recommend actions.

Methods and Materials

Training LTC Staff

In total, 49 staff (including Director of Care, Managers, CCAs, RNs) received training by a LTC-OHC **[Table 2]**.

Table 2: Numbers of Staff Trained for the *BOH in LTC* Program

LTC Home	Number of Staff Trained
Sherbrooke Community Centre	**39** • 1 Leadership Manager of Learning and Growth/ Training and development • 7 Neighbourhood Team Mangers • 9 Registered Nurses • 22 Continuing Care Aides
Sunnyside Adventist Care Centre	**10** • 1 Director of care • 1 Leadership Director of Education and Safety • 1 Resident Care Coordinator • 2 Registered Nurses • 5 Continuing Care Aides
Total	**49**

A full day of training (or two half days) was booked at the LTC homes. SHR LTC- OHC invited RNs, Manager(s), and CCAs to training. These CCAs were identified by the Manager to implement the program and would be the oral health champions in their neighbourhood to train the other CCAs.

RNs and CCAs received professional training by a LTC-OHC. The training process was as follows:

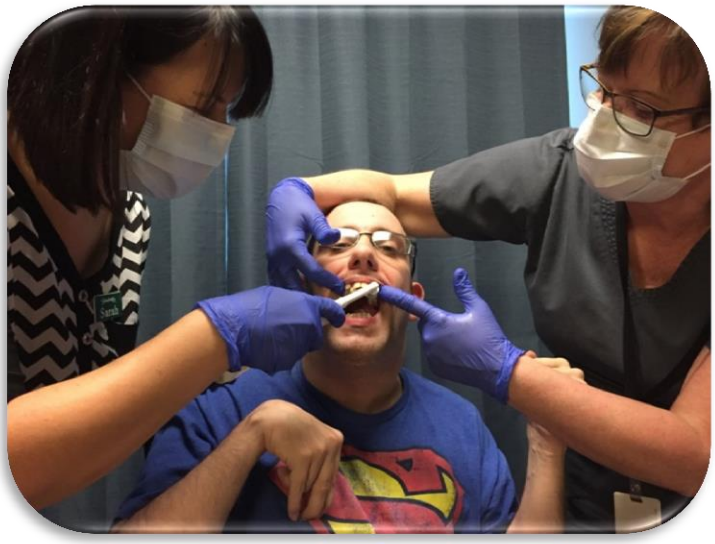
• Participating staff were given a pre-quiz- questions about oral health before the teaching began, to assess their understanding of oral health.

• PowerPoint presentations (three modules) and a video (one 3-hour learning module) were used as training resources.

- 1st Module- Daily Oral Care. Some hands-on demonstrations were provided as well.
- 2nd Module - Good Oral Health and What to Look for in the Mouth. Some hands-on demonstrations were provided as well.
- Videos “Mouth Care Without a Battle” or “Dental Rescue” (created by the Australian program) were shown.
- 3rd Module- information in the first 2 modules were put into context. Change in resident’s behaviours, health changes due to medications, different situations with the residents were also discussed.
- The participating staff were given a post-quiz- questions (the same questions as pre-quiz questions). Then explanation for each question was provided.

• 3-hour hands-on training was provided, so LTC staff could have the opportunity to identify various oral health problems. The training took place in the comfortable surroundings of the resident’s own rooms. The LTC-OHC provided the OHAT, and the Daily Oral Care mirror clings for the residents’ rooms.

• The poster *Purpose of Mouth is to Keep the Mouth and Body Healthy* **[Appendix 1]** was posted in their staff rooms, along with the *Lift the Lip* pamphlet **[Appendix 2].**



The LTC-OHC returned to these two homes to assist staff with their OHATs over the weeks following the initial training day. She visited their weekly huddles and encouraged the staff with the positive impact they have had on the improvement of the residents' quality of life through the implementation of *BOH in LTC* Program. She also attended their huddles to encourage staff and to train new staff that joined the LTC home.

Mentoring in LTC homes happened on a weekly basis through visits, emails and phone calls, until staff felt comfortable with the training they received. LTC-OHC also ensured that the trained staff have an understanding of why it is so important for the residents to have a clean mouth daily. The communication between LTC-OHC and staff in these two homes, also took place through a mail box labeled "DENTAL". Staff filled out forms and placed them in the mail box to be reviewed/assessed by the LTC-OHC through regular visits. The LTC-OHC reported monthly to the Manager of Oral Health Program, Population and Public Health, SHR.

Initial Oral Health Assessment

At the time of initial oral health assessment, Sherbrooke Community Centre had 263 residents, consisting of seven neighbourhoods. The oral health status of residents in Kinsmen Village neighbourhood (Houses 1 to 7), Veteran's Village (Houses 8-11), and the fourth floor was assessed. In Sunnyside Adventist Care Centre, 104 residents lived in three neighbourhoods. The oral health of residents in all three neighbourhoods (Riverview, Diefenbaker, and Prairie land) was assessed **[Table 1]**. In 2016-2017, 252 residents in these LTC homes were initially assessed.

The oral health assessments were provided at no cost to the resident under the *BOH in LTC* Program. Oral health assessments were done for the residents in the comfortable surroundings of their own rooms. This was conducted by a LTC-OHC or a RN who has received the training from the LTC- OHC. The oral health assessments were conducted by using a visual approach with a flash light, in a position best suited to the residents individual needs (e.g. in a wheel chair) with care and attention to their medical conditions. Oral health assessment was provided using Oral Health Status Tool (OHAT). In this modified colour-coded OHAT **[Appendix 3]**, the following aspects of the residents' face/mouth were examined: exterior of face, lips, tongue,

gum and tissues, oral cleanliness, teeth, denture(s), saliva, and dental pain. Each of these nine categories was graded as Healthy (green), Changes (yellow), or Unhealthy (red) **[Table 3]**. If any one of the categories was assessed as 'unhealthy', the resident was referred to an oral health professional for a detailed oral examination. If the resident was assessed as 'healthy' or 'changes', the oral condition was managed by the caregiver using the OHCP (which was individualized for each resident).

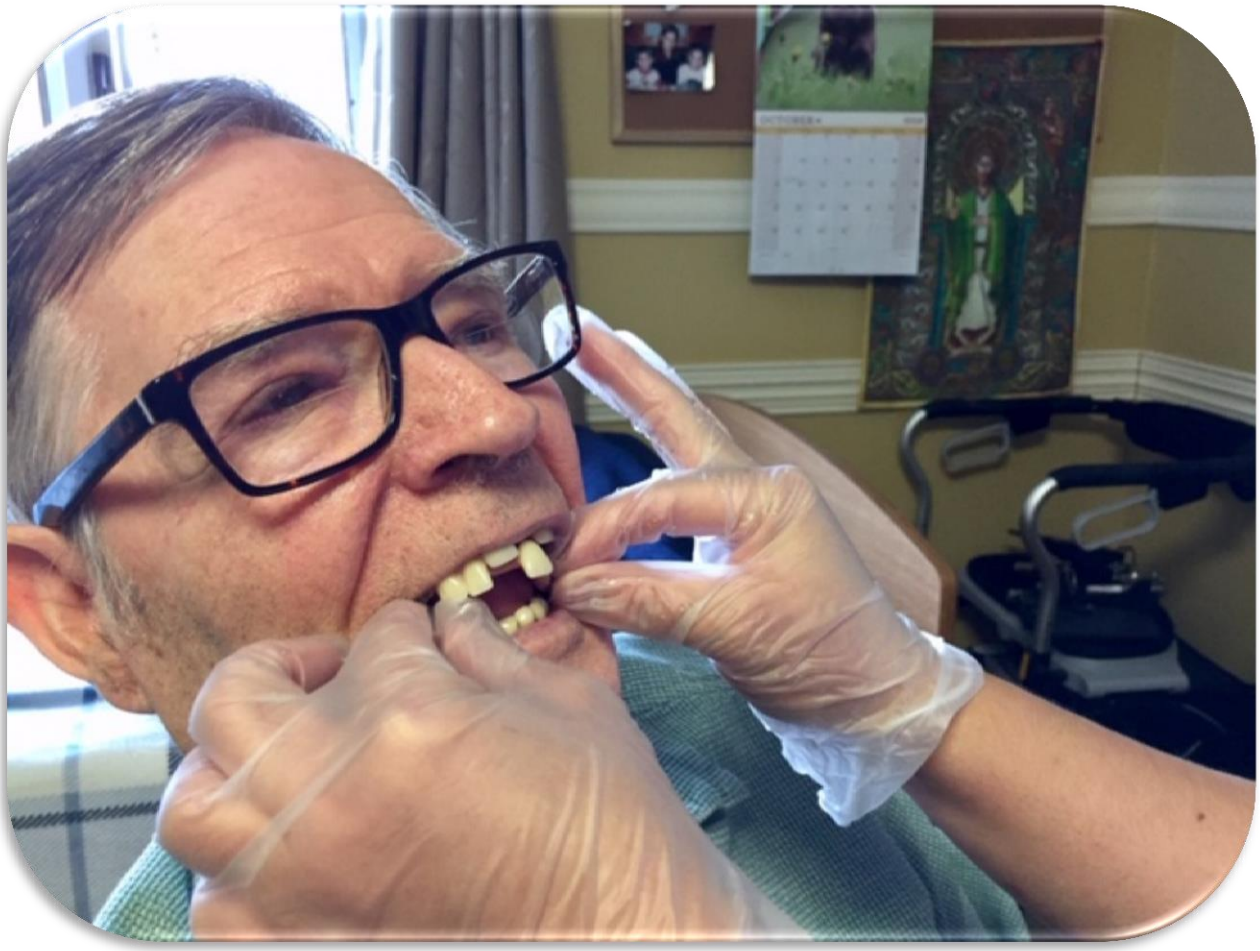


Table 3: OHAT Scores

OHAT Measures	Healthy	Changes	Unhealthy
Exterior of Face	Both sides of face/neck are symmetrical, no lumps or bumps, swallowing normal, lips open and close	Asymmetrical changes to face/neck, presence of lumps or bumps, swallowing challenging, lips do not open or close	Asymmetrical changes to face/neck, presence of lumps or bumps, painful swallowing, lips do not open and close
Lips	Smooth, pink, moist	Dry, chapped or red at corners	Swelling or lump, red/white/ulcerated bleeding/ulcerated at corners
Tongue	Normal moist, roughness, pink	Patchy, fissured, red, coated	Patch that is red and/or white/ulcerated, swollen
Gums and Oral Tissue	Moist, pink, smooth, no bleeding	Dry, shiny, rough, red, swollen, sore, one ulcer/sore spot, sore under dentures	Swollen, bleeding, ulcers, white/red patches, generalized redness under dentures
Saliva	Moist tissues watery and free flowing	Dry, sticky tissues, little saliva present, resident thinks they have a dry mouth	Tissues parched and red, very little/no saliva present, saliva is thick, resident thinks they have a dry mouth
Natural Teeth	No decayed or broken teeth or roots	1-3 decayed or broken teeth/roots, or teeth very worn down, mobile	4 or more decayed or broken teeth/roots or fewer than 4 teeth, or very worn down teeth, mobile
Dentures	No broken areas or teeth, worn regularly, and named	1 broken area or tooth, or worn 1-2 hours per day only or not named	1 or more broken areas or teeth, denture missing/not worn, need adhesive or not named
Oral Cleanliness	Clean and no food particles or tartar in mouth or on dentures	Food tartar, plaque 1-2 areas of mouth, or on small area of dentures	Food particles, tartar, plaque most areas of mouth or on most of dentures
Dental Pain	No verbal behavioural signs or physical signs of dental pain	Verbal &/or behavioural signs of pain such as pulling at face, chewing lips, not eating, responsive behaviour	Physical pain signs (swelling of check or gum, broken teeth, ulcers), as well as verbal &/or behavioural signs (pulling at face, not eating, responsive behaviour)

Oral Daily Care Plan

The oral daily care plan was made through a team approach (between LTC- OHC, RN, CCAs). Based on the residents' ability level (i.e. independent, needs reminding, supervised, fully assisted) it was decided as to whether they required full assistance with oral care, or gentle reminding or fully assistance. It was also determined at this time whether a resident needed toothpaste or an oral antibacterial gel (Perivex). Then the Oral Health Care Plan (OHCP), was

posted on the residents mirror to make it readily available to each CCA for providing care for each resident who received an oral health assessment **[Appendix 4]**. Daily mouth care was adjusted to meet the individual needs of each resident.

Daily Oral Care Delivery

CCAs delivered daily oral care based on the oral daily care plan. In Sherbrooke Community Centre, in neighbourhoods Kinsmen Village and Veteran's Village there were 2 CCAs for an 8 hour shift caring for 9 residents. On the fourth floor, there were 2 CCAs in an 8 hour shift caring for the needs of 20 residents. The same CCA performed daily oral care.

Based on the pilot program at the Parkridge Centre in Saskatoon, basic oral hygiene supplies were included in the $21.75 charged to residents for personal care items each month. Costs range from $1.74/month for residents with natural dentition requiring no assistance, to $2.69/month for residents needing assistance or experiencing swallowing/expectorating difficulties.

For residents requiring assistance or if they had swallowing/expectorating difficulties, the following oral hygiene products were supplied:

- Perivex (antibacterial non-foaming tooth gel, instead of fluoridated toothpaste)
- Two toothbrushes GUM; one to be used for propping (two brush technique)
- End-Tuft toothbrushes GUM (for cleaning between the teeth)
- Collis Curve toothbrushes (for cleaning all three sides of teeth at the same time for residents who require this specialized brush).

For edentulous residents, the following oral hygiene products were supplied:

- Perivex (antibacterial non-foaming tooth gel)
- Toothbrushes GUM
- Polident tablet (for cleaning dentures)

For residents with natural dentition who did not require assistance, the following oral hygiene products were supplied:

- Fluoridated toothpaste
- Toothbrushes GUM
- End-Tuft toothbrushes GUM (for cleaning between the teeth)

For residents with dry mouth, a mouth moisturizer such as Biotène or Xyliments for stimulating saliva production was prescribed. In addition, sips of water (throughout the day) and Perivex for moisturizing dry and cracked lips was encouraged (up to six times a day, if needed). For ill-fitting dentures, denture adhesives such as Poligrip or Fixodent were used.

CCAs:

- Wore gloves, glasses and a mask to prevent cross-contamination.
- Removed dentures before brushing.
- Encouraged residents to brush their own teeth and supported care where needed. They always brushed with a soft tooth brush.

- If resident could not spit or had trouble swallowing, tooth paste was replaced with Perivex- using only a dab on the tooth brush while brushing.
- Always chose a comfortable location for brushing- in the bathroom, if possible.
- Brushed around the mouth in sequence to cover all parts of the teeth (the outer, inner and chewing surfaces). Also, brushed the tongue.
- Engaged the resident in the process - let them know what they were doing as they did it.
- Replaced toothbrushes every three months, when worn or following a cold or flu.
- Always stored toothbrushes upright in a container.

Residents:

- Brushed natural teeth twice a day; especially before bedtime.
- Used a soft toothbrush with a pea-sized amount of fluoride toothpaste.
- Could use an electric or adaptive toothbrush- this could help residents with dexterity problems.
- Cleaned between teeth with floss or an interproximal brush to remove plaque and food debris.
- Were informed not to brush dentures with regular toothpaste.
- Asked to visit the dentist regularly.

The RNs followed up with checking the daily oral care that the CCA's provide for the residents and completed the referrals to a dentist/denturist as needed. Referrals were made for more comprehensive examination, broken ill-fitting dentures, fillings, or debridments. Consents for referrals, were completed by RNs and or LTC-OHC. For unlabelled dentures, denture identification (denture labeling) was performed by staff within the home a dental therapist or the LTC-OHC who received training from the dental therapist.

Oral Exam/Treatment

Fee-for-service dentistry was provided either on-site by dental team (e.g. dentist, hygienist) or by a resident's private practice dentist/denturist. If a resident received Social Services, Veteran Affairs or private dental insurance the dental fees were direct billed to those insurance companies, the patient did not have to pay up font first. For residents with financial barriers,

the LTC-OHC followed up with Social Services to apply for assistance. Residents with their own private practice dentists were transported to the office by a family member or a taxi.

The oral service included exams, X-rays, scaling and fluoride varnish, fillings, extractions, root canals, crowns, denture repair, full dentures, partial dentures, and night guards.

At the Sherbrooke Community Centre, the oral services were provided on-site at the Sherbrooke Community Centre Dental Clinic. At the Sunnyside Adventist Care Centre, portable equipment was used to provide oral treatment for consenting residents. A dentist would bring portable equipment and the dental team was given space to work in storage rooms, meeting rooms, beauty salons or the residents' rooms. Varsity Dental Group (dentists, dental assistants, dental hygienists) provided oral health services at both LTC homes. The dental hygienists performed oral hygiene services (scaling and fluoride varnish), and the dentist with his dental assistant performed oral treatments.

With regard to oral hygiene services, fluoride varnish was applied after the scaling was completed. Some residents were seen a 3, 4 or 6 month intervals, whereas for some (e.g. First Nations and those with Social Services) fluoride varnish was applied once each year. This was because the insurance company would only cover this charge once every 12 months.

Forms

Forms used in the study were developed by the College of Dentistry, University of Saskatchewan, the Manager of Saskatoon Health Region - Population and Public Health Oral Health Program, and the LTC-OHC.

The forms include: **[Appendix 5]**

- **Annual Dental Examination Consent** - The form is completed by the residents or family or power of attorney before the dentist sees a resident for the first time as new client. The form can be completed for a one signing time.
- **Medical History Form for Dental Examination/Treatment** - The form is completed by the residents or family or power of attorney before the dentist sees a resident for the

first time as new client. Medical questions on this form need to be completed by the RN's and LPN's.

- **Daily Record of Treatment** - This form is used for routine visits and is dated by the dentist or dental hygienist and OHC-LTC.
- **Consent for Financial Responsibility for Dental Treatment** - This form will be completed by the dentist and then be signed by the residents or family before the dental work is started.
- **Consent for Dental Treatment** - This form is to be completed by the dentist and then be signed by the residents or family when there is a change in treatment plan.

Follow-up Oral Health Assessments

Follow-up evaluation studies were conducted after six and twelve months where the oral health status of the residents were re-assessed **[Table 1]**. This report compares the initial observation of oral health status of residents with the 12 month follow-up assessment.

Analytical Methods:

Descriptive and statistical analysis were carried out to compare the oral health of residents before and 12 month after *BOH in LTC* program.

Descriptive Analysis; Proportions, counts, average and range were used to present the distribution and health status related to identified oral health measures. *Percentage change* was reported and calculated by

$$\frac{\text{12 month \% - Initial assessment \%}}{\text{Initial assessment \%}} \times 100\%$$

Statistical Analysis; The oral health status of residents before and after program implementation was analyzed using McNemar test (SPSS Statistics 22). P-value <0.05 was significant.

McNemar test, also called symmetry McNemar chi-square test, is used on paired nominal data with a dichotomous trait, in an attempt to understand the relationship between each pair (before/after) and the trait of interest (OHAT scores). For the purpose of conducting this test, 2x2 tables were developed where residents with changes or unhealthy grading for OHAT scores were used as one category and it was compared to the residents categorized as healthy. Following is the 2x2 table that was created from 3x2 table for the purpose of conducting this statistical test to produce p-values and odds ratios.

	12 month Follow-up		
Initial Assessment	Healthy	Changes/Unhealthy	
Healthy	a	b	a+b
Changes/Unhealthy	c	d	c+d
	a+c	b+d	

Hence, McNemar test assessed the impact of *BOH in LTC* program on the oral health status by examining the number of changes /unhealthy resident who became healthy after the program compared to vice versa.

The p-value indicated that there is statistically significant impact of intervention on residents' oral health and odds ratio was used as a measure of association.

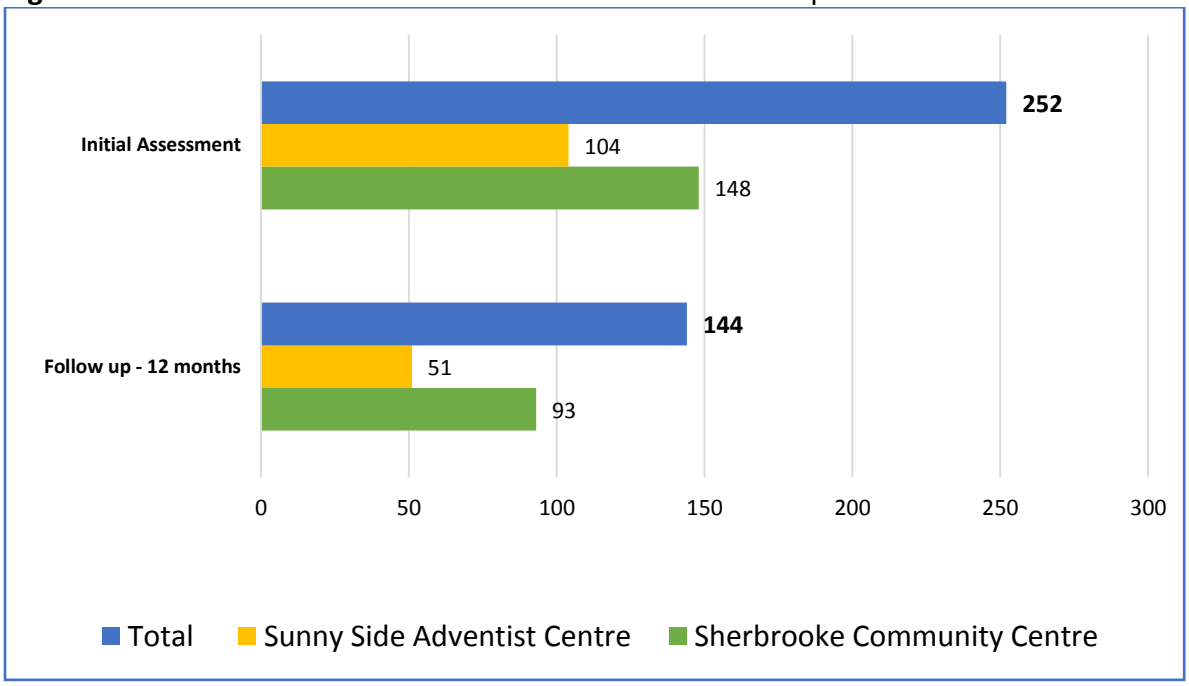
Results

The following result section compares the oral health status of the residents at the initial assessment with the follow-up assessment at 12 months. Total number of 144 residents, who were part of 12 months follow-up, were assessed over time to observe the difference in oral health pre and post *BOH in LTC* program.

Number of Participants

Initially, the oral health status of 252 residents was assessed. However, 108 individuals (42.86%) were not followed up due to death, moving to another home, or refusal to be assessed. The data analysis included 144 participants **[Figure 1]**.

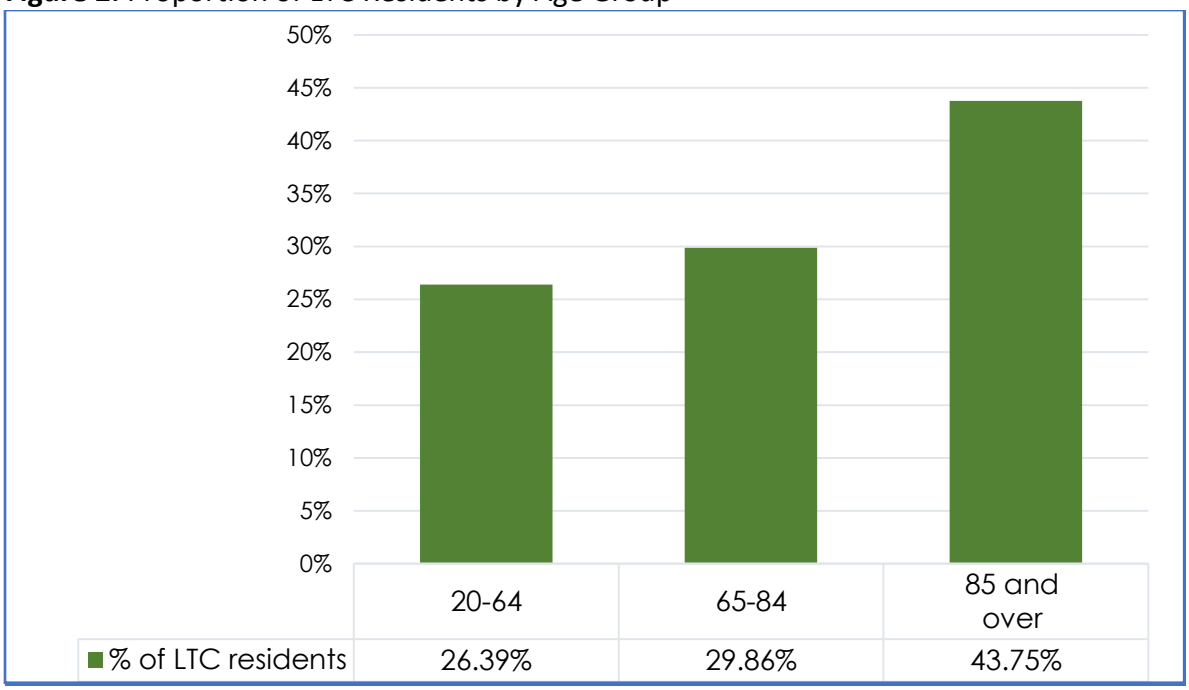
Figure 1: Number of residents in initial and 12 month follow-up assessments



Gender and Age

The oral health status of 144 residents, 76 females (52.78%) and 68 males (47.22%) were assessed. The residents ranged from 20 to 103 years old with the average age of 75.58 years. Seniors made up 73.61% of the residents' population, and 43.75% of residents were 85 years and older **[Figure 2]**.

Figure 2: Proportion of LTC Residents by Age Group



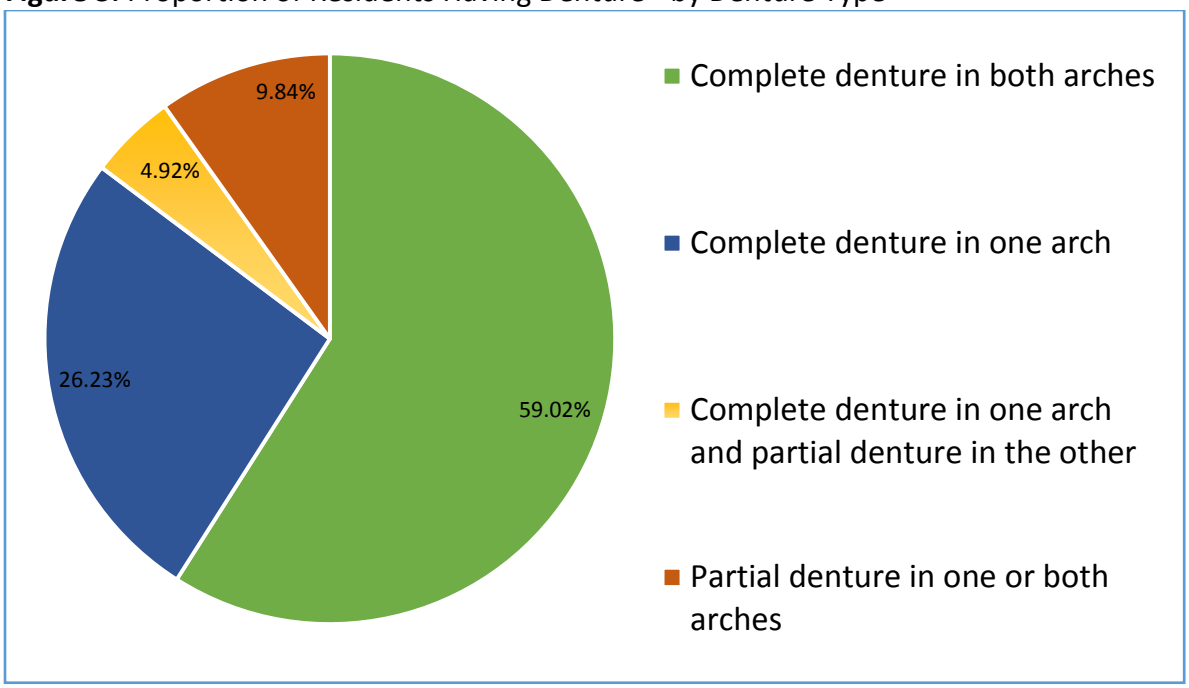
73.61% of the residents were ≥ 65 years old.

Dentition and Dentures

Out of 144 participants, 94 residents (65.28%) were dentate at the initial assessment. However, the number dropped to 93 (64.58%) residents who had teeth at the time of 12 month follow-up. Total of 64 (44.44%) residents wore dentures at the initial assessments compared to 61 (42.36%) residents who wore either partial or complete denture in the final assessment. In the 12 month assessment, 51 (35.42%) were found to be edentulous.

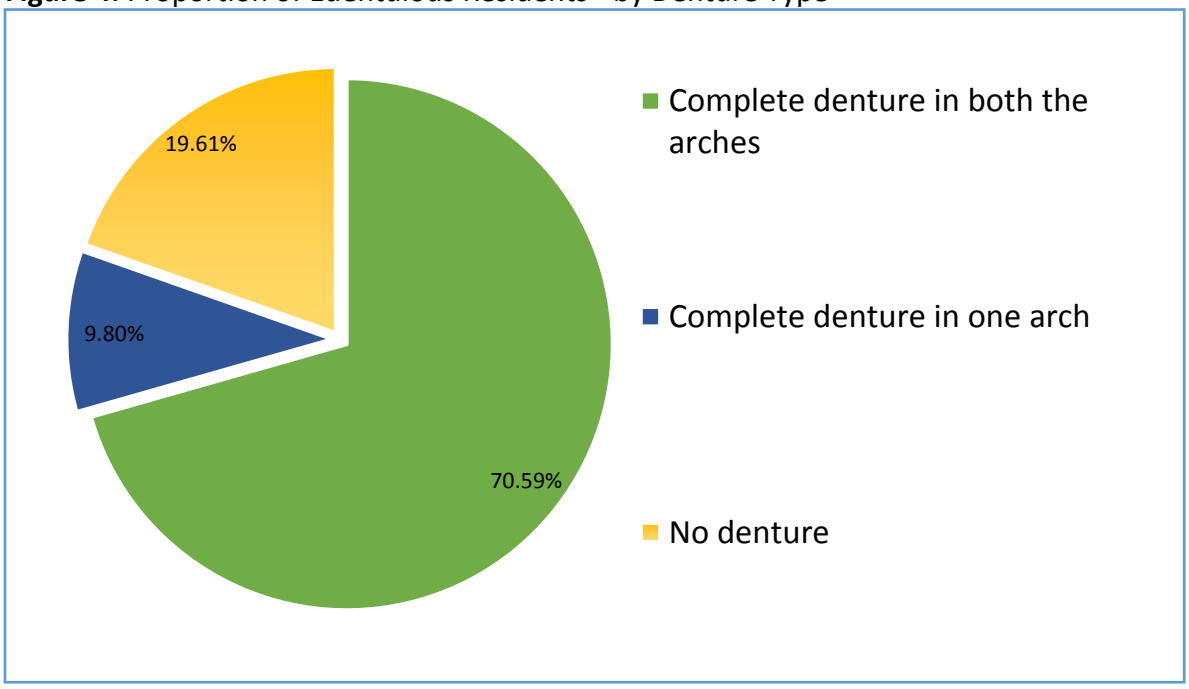
Of 61 residents who wore dentures in the 12 month assessment, 36 (59.02%) wore complete dentures in both arches, 16 (26.23%) wore complete denture in one arch, 3 (4.92%) wore complete denture in one arch and partial denture in another arch and 6 (9.84%) had partial dentures (in one or both the arches) **[Figure 3]**.

Figure 3: Proportion of Residents Having Denture - by Denture Type



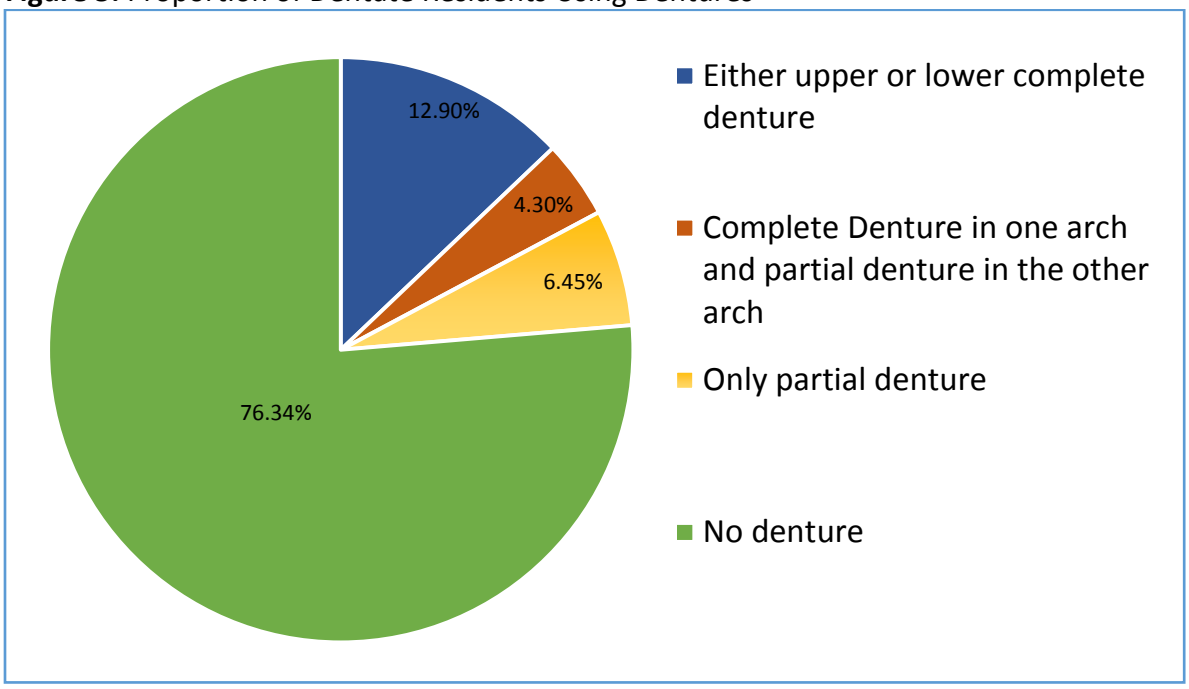
Among 51 edentulous residents in the 12 month assessment, 36 (70.59%) wore a complete denture in both arches, 5 (9.80%) had either upper or lower complete dentures, and 10 individuals (19.61%) didn't have any dentures [**Figure 4**].

Figure 4: Proportion of Edentulous Residents - by Denture Type



Of 93 dentate residents in the 12 month assessment, 12 (12.90%) had either upper or lower complete dentures, 4 (4.30%) had complete denture in one arch and partial denture in another arch, 6 (6.45%) had partial denture(s), and 71 individuals (76.34%) didn't have any complete/partial dentures [**Figure 5**].

Figure 5: Proportion of Dentate Residents Using Dentures



Oral Care Practices

Additionally, to assist in better oral care, 109 (75.69%) used Perivex for dry lips and 11(7.64%) used Biotene for dry mouth by the 12 month follow-up time.

Oral Health Assessment Tool (OHAT) Scores

The Oral Health Assessment Tool (OHAT) utilized in this project, examined the following 9 aspects of the residents' mouth

- Exterior of face
- Lips
- Tongue
- Gum and tissues
- Oral cleanliness
- Teeth
- Denture(s)
- Saliva
- Dental pain

The OHAT scores were recorded for the initial assessment and 12 month follow-up. **Table-4** and **Figure 6-14** compare the difference of OHAT scores during the initial and 12 month assessment using descriptive and statistical analysis.

For all the 9 OHAT measures, the percentage of healthy residents improved considerably over time. The *percentage change* of healthy residents, pre and post *BOH in LTC program*, was more than 30% in six out of nine OHAT measures. The highest *percentage changes* of healthy residents were observed in *Teeth* (70.56%) and *Oral Cleanliness* (67.23%) measures.

The McNemar's Test was used for evaluating difference in oral health status (initial assessment vs. 12 month follow-up assessment). *BOH in LTC* program was found to have a significant impact on the oral health aspects of *Lips*, *Tongue*, Gums and Oral Tissue, *Saliva, Teeth*, *Denture* and *Oral Cleanliness* (p-value <0.05). Refer to **Table-4** and **Figure 6-14** for further details.

Table 4: Oral Health Status of LTC Residents Before and After *BOH in LTC* Program

	Initial Observation			12 Month Follow-up				
OHAT Measures	**Count**	**%**	**95% CI**	**Count**	**%**	**95% CI**	**P-value**	**Odds Ratio (95 %CI)**
Exterior of Face								
Healthy	141	97.92%	94.05%-99.29%	143	99.31%	96.17%-99.88%	0.625	3 (0.24-157.49)
Changes	2	1.39%	0.38%-4.92%	1	0.69%	0.12%-3.83%		
Unhealthy	1	0.69%	0.12%-3.83%	0	0%			
Lips								
Healthy	80	55.56%	47.4%-63.42%	124	86.11%	79.52%-90.83%	<0.001*	4.67 (2.47-9.57)
Changes	64	44.44%	36.58%-52.6%	19	13.19%	8.61%-19.69%		
Unhealthy	0	0%		1	0.69%	0.12%-3.83%		
Tongue								
Healthy	81	56.25%	48.09%-64.09%	115	79.86%	72.57%-85.6%	<0.001*	3.83 (2.00-7.95)
Changes	63	43.75%	35.91%-51.91%	29	20.14%	14.4%-27.43%		
Unhealthy	0	0%		0	0%			
Gums & Oral Tissue								
Healthy	79	54.86%	46.71%-62.76%	106	73.61%	65.87%-80.13%	<0.001*	3.70 (1.80-8.34)
Changes	50	34.72%	27.43%-42.8%	35	24.31%	18.03%-31.92%		
Unhealthy	15	10.42%	6.41%-16.48%	3	2.08%	0.71%-5.95%		
Saliva								
Healthy	118	81.94%	74.86%-87.37%	134	93.06%	87.69%-96.18%	0.007*	3 (1.30-7.72)
Changes	25	17.36%	12.04%-24.37%	8	5.56%	2.84%-10.58%		
Unhealthy	1	0.69%	0.12%-3.83%	2	1.39%	0.38%-4.92%		
Teeth[(a)]								
Healthy	32	34.04%	25.26%-44.08%	54	58.06%	47.91%-67.58%	0.0003*	4.14 (1.78-1.20)
Changes	43	45.74%	36.04%-55.78%	34	36.56%	27.49%-46.7%		
Unhealthy	19	20.21%	13.34%-29.43%	5	5.38%	2.32%-11.97%		
Dentures[(b)]								
Healthy	32	50.00%	38.1%-61.9%	41	67.21%	54.72%-77.66%	0.023*	3 (1.14-9.23)
Changes	23	35.94%	25.29%-48.18%	10	16.39%	9.16%-27.61%		
Unhealthy	9	14.06%	7.58%-24.62%	10	16.39%	9.16%-27.61%		
Oral Cleanliness								
Healthy	58	40.28%	32.62%-48.44%	97	67.36%	59.34%-74.48%	<0.001*	6.57 (2.95-7.25)
Changes	76	52.78%	44.66%-60.75%	46	31.94%	24.88%-39.94%		
Unhealthy	10	6.94%	3.82%-12.31%	1	0.69%	0.12%-3.83%		
Dental Pain								
Healthy	129	89.58%	83.52%-93.59%	133	92.36%	86.84%-95.68%	0.648	1.38 (0.50-3.94)
Changes	9	6.25%	3.32%-11.45%	9	6.25%	3.32%-11.45%		
Unhealthy	6	4.17%	1.92%-8.79%	2	1.39%	0.38%-4.92%		

Descriptive Statistics: Absolute and relative frequencies with 95% CI (Confidence Interval) were reported. The 95% CI for proportions (%) were calculated using Wilson Score interval.

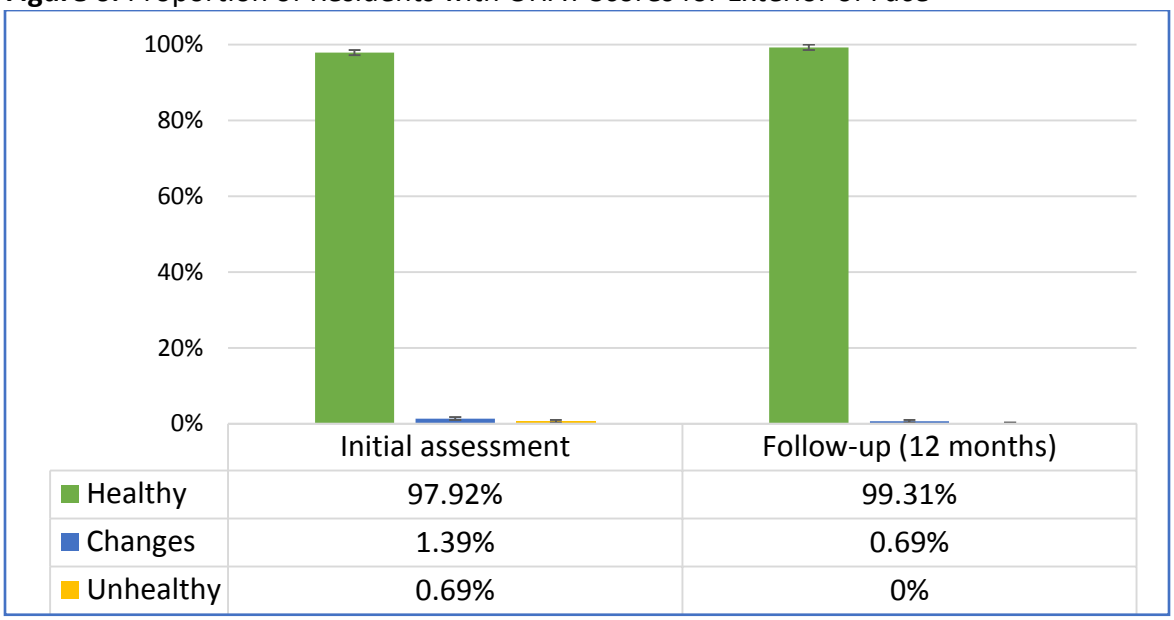
(a) The descriptive analysis for *Teeth* was conducted for 94 dentate residents in the initial observation and 93 dentate residents in the 12 month follow-up

(b) The descriptive analysis for D*entures* was conducted for 64 residents in the initial observation and 61 residents in the 12 month follow-up, who wore dentures.

Statistical Test Measures: McNemar's Test was used for evaluating the impact of *BOH in LTC* program on the oral health of the residents. P-value <0.05 was considered statically significant*.

Odds Ratio with 95% CI Interval was reported as a measure of association

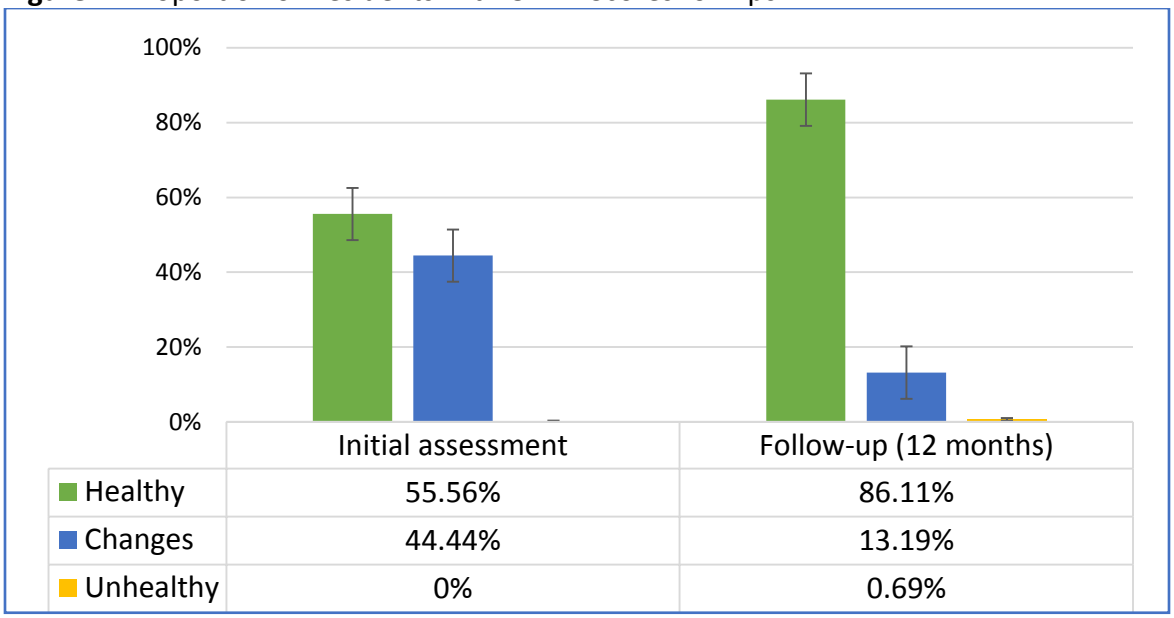
Figure 6: Proportion of Residents with OHAT Scores for Exterior of Face



	Initial assessment	Follow-up (12 months)
Healthy	97.92%	99.31%
Changes	1.39%	0.69%
Unhealthy	0.69%	0%

BOH in LTC program did not have a statistically significant impact on OHAT scores for Exterior of Face (P-value=0.625). However, there was 1.42% more residents who had healthy face.
95% CI are shown as error bars.

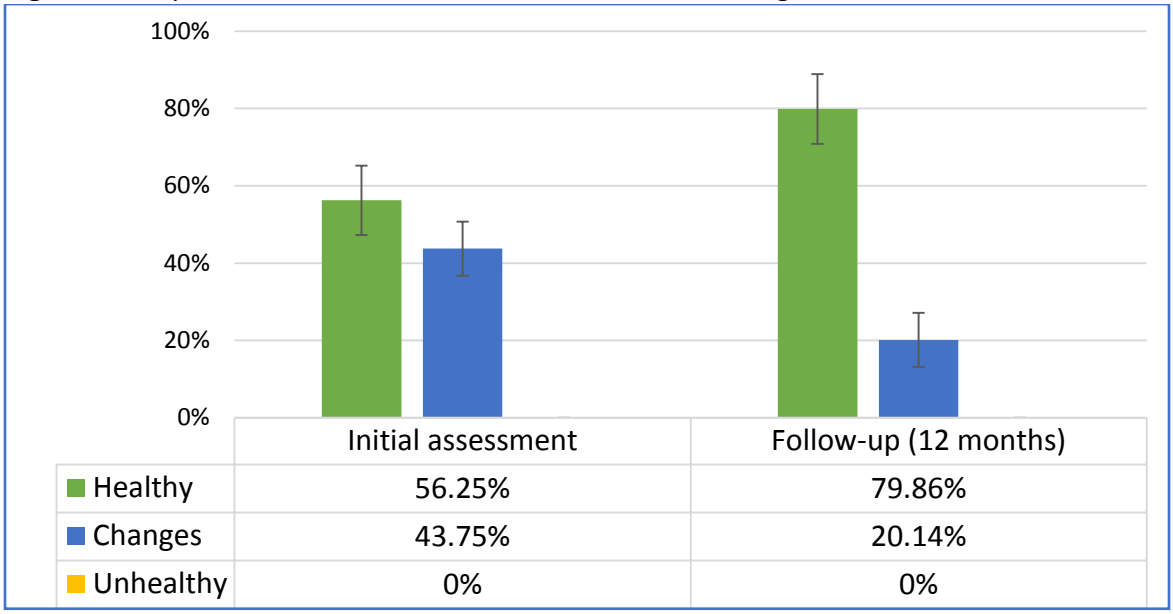
Figure 7: Proportion of Residents with OHAT Scores for Lips



	Initial assessment	Follow-up (12 months)
Healthy	55.56%	86.11%
Changes	44.44%	13.19%
Unhealthy	0%	0.69%

BOH in LTC program had a significant impact on OHAT scores for Lips (p-value <0.001).
There were 54.99% more residents with healthy lips in 12 month follow-up compared to the initial assessment.
95% CI are shown as error bars.
Post-*BOH in LTC program,* there was 4.67 times more odds of having healthier lips, if you were unhealthy, than vice versa (odds ratio 4.67 (2.47-9.57))

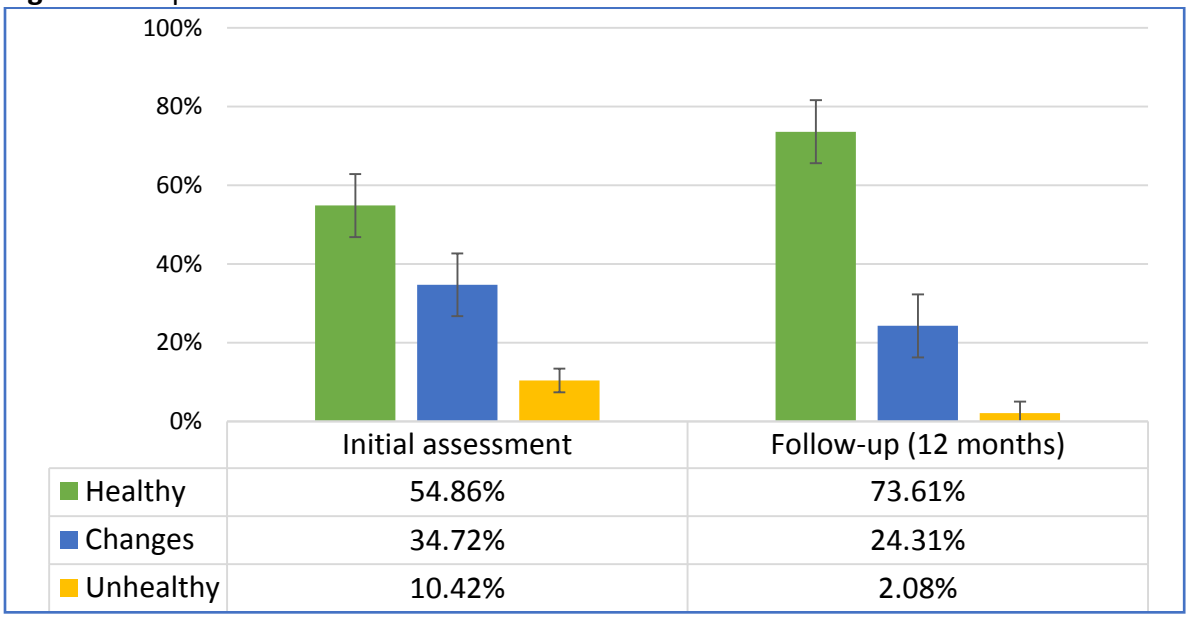
Figure 8: Proportion of Residents with OHAT Scores for Tongue



	Initial assessment	Follow-up (12 months)
Healthy	56.25%	79.86%
Changes	43.75%	20.14%
Unhealthy	0%	0%

BOH in LTC program had a significant impact on OHAT scores for Tongue (p-value <0.001).
There were 41.97% more residents with healthy tongue in 12 month follow-up compared to the initial assessment.
95% CI are shown as error bars.
Post-*BOH in LTC program,* there was 3.83 times more odds of having healthier tongue, if you were unhealthy, than vice versa (odds ratio 3.83 (2.00-7.95))

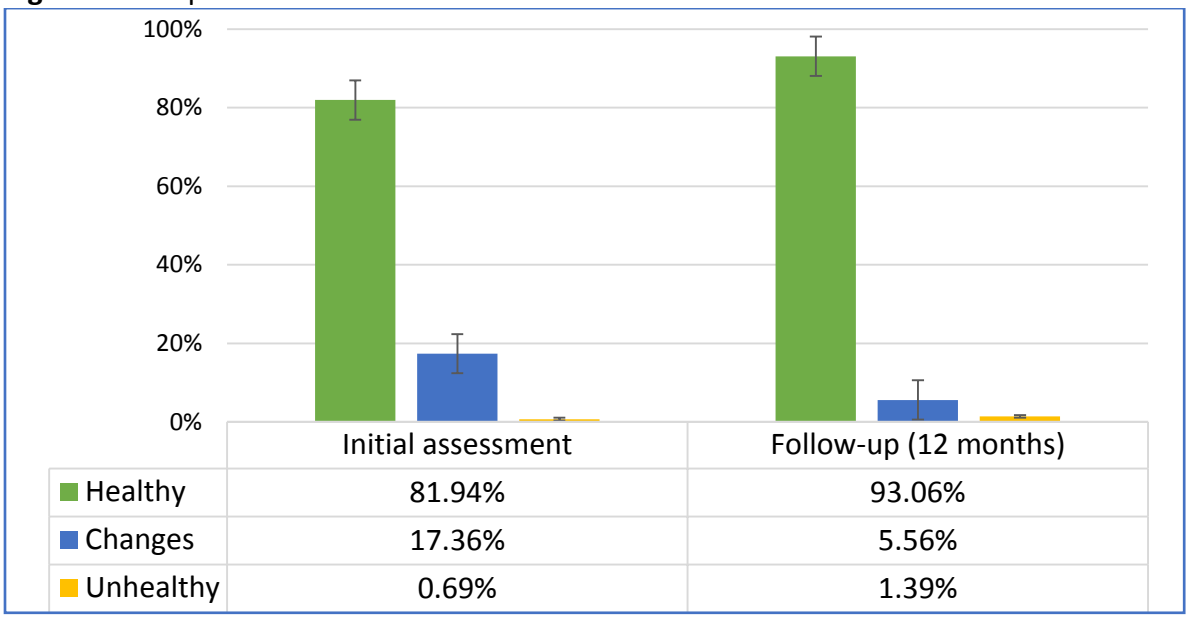
Figure 9: Proportion of Residents with OHAT Scores for Gums



	Initial assessment	Follow-up (12 months)
Healthy	54.86%	73.61%
Changes	34.72%	24.31%
Unhealthy	10.42%	2.08%

BOH in LTC program had a significant impact on OHAT scores for Gums (p-value <0.001).
There were 34.18% more residents with healthy gums in 12 month follow-up compared to the initial assessment.
95% CI are shown as error bars.
Post-*BOH in LTC program,* there was 3.70 times more odds of having healthier gums, if you were unhealthy, than vice versa (odds ratio 3.70 (1.80-8.34))

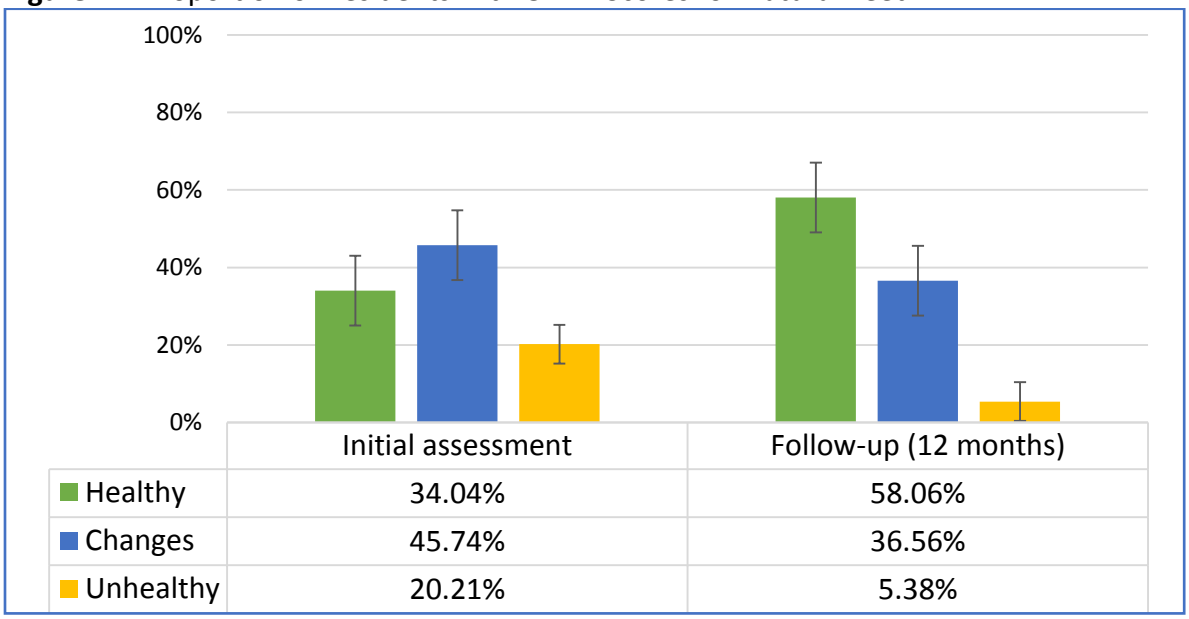
Figure 10: Proportion of Residents with OHAT Scores for Saliva



	Initial assessment	Follow-up (12 months)
Healthy	81.94%	93.06%
Changes	17.36%	5.56%
Unhealthy	0.69%	1.39%

BOH in LTC program had a significant impact on OHAT scores for Saliva (p-value=0.007).
There were 13.57% more residents with healthy saliva in 12 month follow-up compared to the initial assessment.
95% CI are shown as error bars.
Post-BOH in LTC program, there was 3 times more odds of having healthier saliva, if you were unhealthy, than vice versa (odds ratio 3 (1.30-7.72))

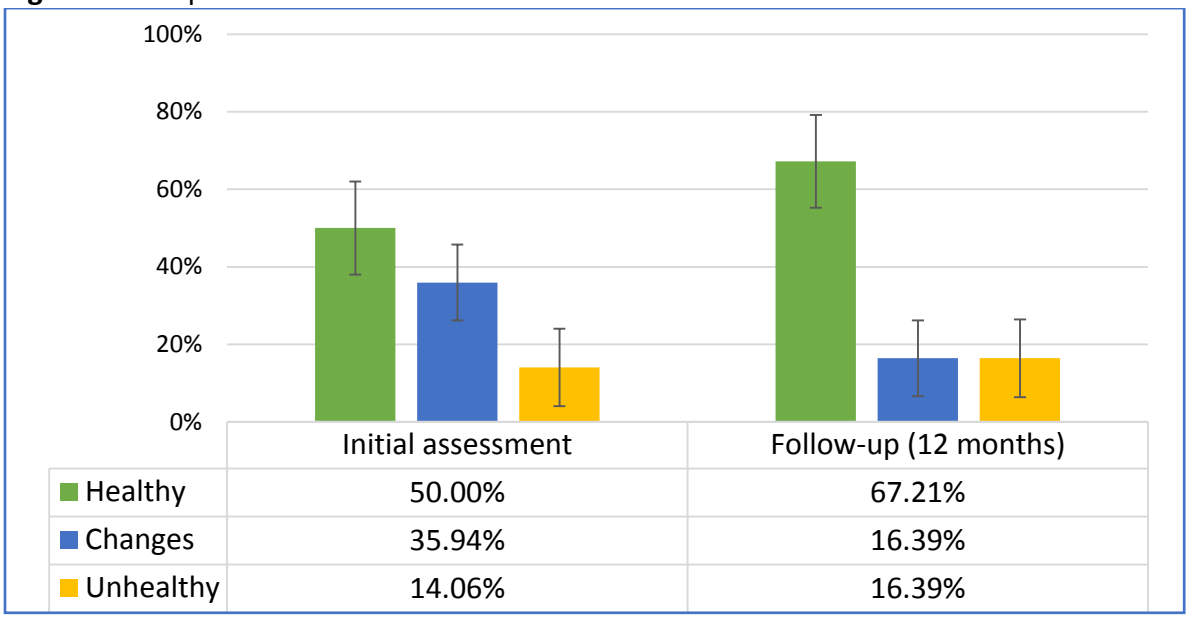
Figure 11: Proportion of Residents with OHAT Scores for Natural Teeth



	Initial assessment	Follow-up (12 months)
Healthy	34.04%	58.06%
Changes	45.74%	36.56%
Unhealthy	20.21%	5.38%

BOH in LTC program had a significant impact on OHAT scores for Teeth (p-value= 0.0003).
There were 70.56% more residents with healthy teeth in 12 month follow-up compared to the initial assessment.
95% CI are shown as error bars.
Post-*BOH in LTC program,* there was 4.14 times more odds of having healthier teeth, if you were unhealthy, than vice versa (odds ratio 4.14 (1.78-11.20))

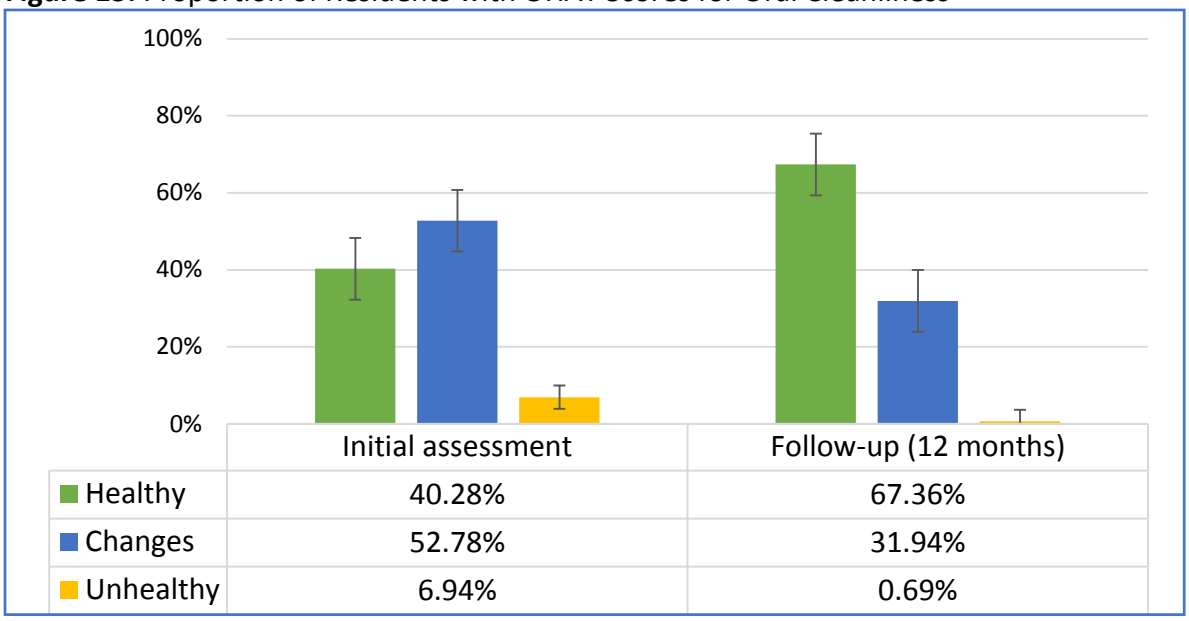
Figure 12: Proportion of Residents with OHAT Scores for Dentures



	Initial assessment	Follow-up (12 months)
Healthy	50.00%	67.21%
Changes	35.94%	16.39%
Unhealthy	14.06%	16.39%

BOH in LTC program had a significant impact on OHAT scores for Dentures (p-value= 0.023).
There were 34.42% more residents with healthy denture in 12 month follow-up compared to the initial assessment.
95% CI are shown as error bars.
Post-*BOH in LTC program,* there was 3 times more odds of having healthier denture, if you were unhealthy, than vice versa (odds ratio 3 (1.14-9.23))

Figure 13: Proportion of Residents with OHAT Scores for Oral Cleanliness



	Initial assessment	Follow-up (12 months)
Healthy	40.28%	67.36%
Changes	52.78%	31.94%
Unhealthy	6.94%	0.69%

BOH in LTC program had a significant impact on OHAT scores for Oral Cleanliness (p-value <0.001).
There were 67.23% more residents with healthy oral hygiene in 12 month follow-up compared to the initial assessment.
95% CI are shown as error bars.
Post-*BOH in LTC program,* there was 6.57 times more odds of having healthier oral hygiene, if you were unhealthy, than vice versa (odds ratio 6.57 (2.95-17.25))

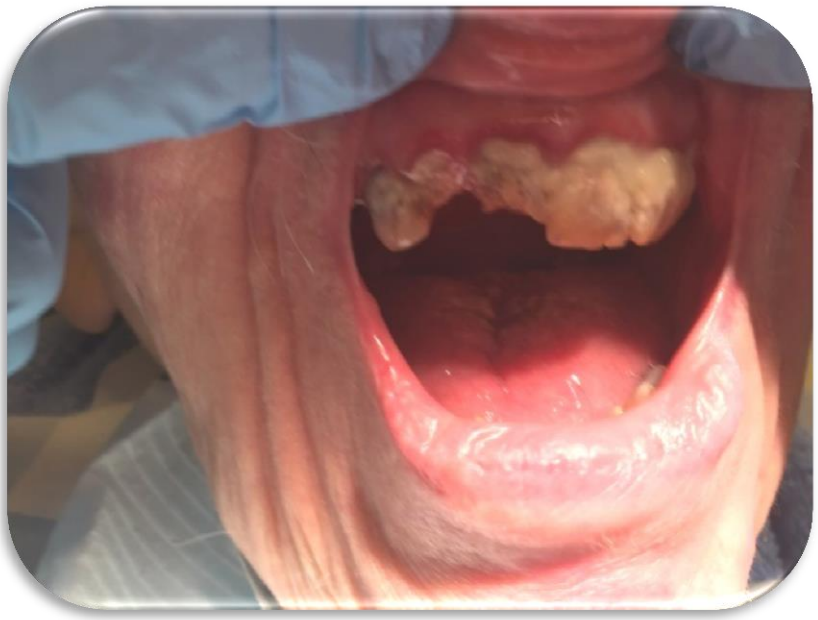
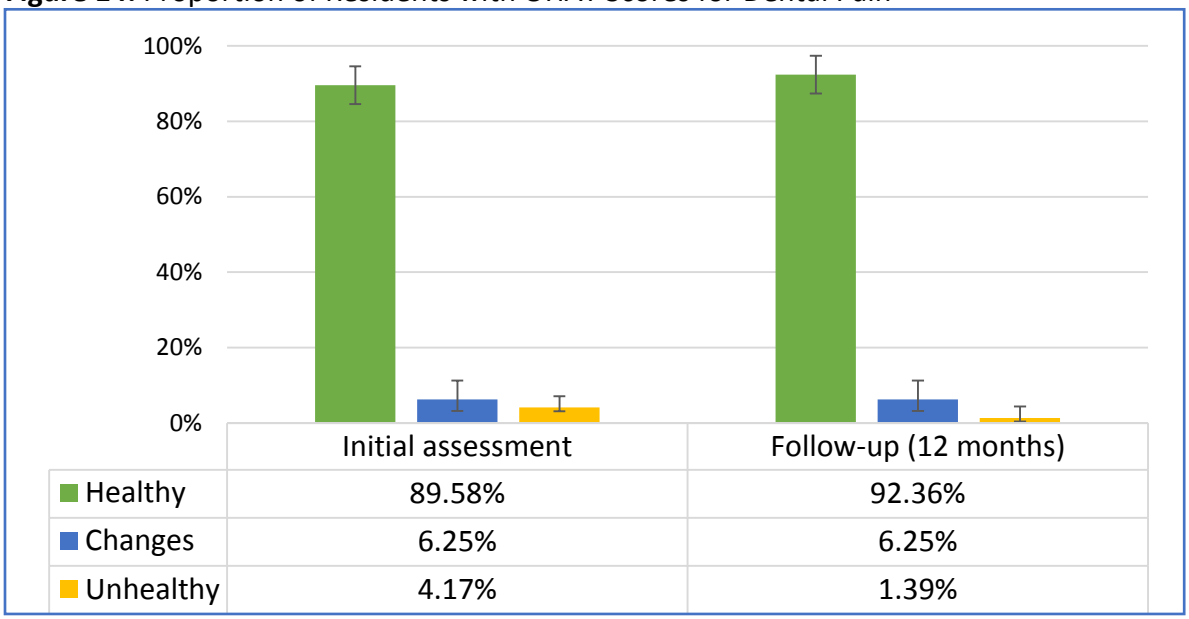


Figure 14: Proportion of Residents with OHAT Scores for Dental Pain



	Initial assessment	Follow-up (12 months)
Healthy	89.58%	92.36%
Changes	6.25%	6.25%
Unhealthy	4.17%	1.39%

BOH in LTC program did not have a significant impact on OHAT scores for Dental Pain (p-value= 0.648).
However, there were 3.10% more residents who were healthy with regard to dental pain in 12 month follow-up compared to the initial assessment.
95% CI are shown as error bars.

Referrals and Treatments

A total of 30 (20.83%) residents were referred for dental treatment during the 12 month follow-up. However, 7 of these referrals did not complete dental consent forms and 3 of the residents could not access treatment for other reasons. Hence, 20 (13.89%) residents completed consent and were seen by in-house dental team (dentist, dental hygienist, denturist) between the 6 month and 12 month follow-ups.

Table 5 further elaborates on the average cost of dental procedures and the types of dental treatment provided to the residents during the 6 month time period.

Table 5: Dental procedures and treatment provided.

Service	Number	Average Cost ($)
Initial Exams	14	$68.^{00}$
X-Rays	20	$31.^{00}$ per X-Ray
Hygiene (including Scaling, Fluoride Varnish)	13	$160.^{00}$ per patient
Comprehensive Oral Treatments (including Fillings, Extractions, Root Canals, Crowns, Full Dentures, Partial Dentures, Night guards)	12	$1325.^{00}$ per patient

Of 20 residents who received oral exam/care in-house, 6 were already in-house patients and their treatment was continued on to completion.
For 14 residents, initial exams were conducted between 6 and 12 month assessment.
In comparison to the 6 month assessment, the average cost of oral hygiene procedures increased from $104.^{89}$ to $160.^{00}$ during the 12 month follow-up assessment. This is because some of the residents were seen several times in this time frame, with some residents being seen every 4 months for hygiene.
The average cost of comprehensive dental treatment was $1402.^{52}$ in the 6 month assessment, which dropped to $1325.^{00}$ in the next follow-up assessment of 12 month.

Impact of *BOH in LTC* program on the oral health of the residents over time

Table 6 and **Figure 15-16** elaborate on the changes in oral health status of residents before and after BOH in LTC program. The *healthy* scores (%) of OHAT measures were compared across initial observation, 6 month and 12 month follow-up assessments.

The oral health status has clearly improved over time as there was considerable improvement in percentage of healthy residents in 6 month and 12 month follow-ups, post *BOH in LTC* program, compared to the initial observation.

The percentage of healthy residents in the 12 month follow-up has gradually improved in 4 out of 9 OHAT measures (Lips, Saliva, Denture and Teeth) compared to 6 month evaluation. The OHAT scores of healthy Teeth has prominently and steadily improved from initial observation to 12 month-follow-up as a result of a yearlong *BOH in LTC* program.

Table 6: Comparison of *healthy* residents (OHAT measures) over time

	Initial Observation	6 Month Follow-up	12 Month Follow-up
OHAT Measures	(% Healthy Residents)	(% Healthy Residents)	(% Healthy Residents)
Exterior of Face	97.92%	100.00%	99.31%
Lips	55.56%	84.72%	86.11%
Tongue	56.25%	80.42%	79.86%
Gums and Oral Tissue	54.86%	80.42%	73.61%
Saliva	81.94%	92.36%	93.06%
Teeth	34.04%	51.61%	58.06%
Dentures	50.00%	66.67%	67.21%
Oral Cleanliness	40.28%	70.83%	67.36%
Dental Pain	89.58%	93.06%	92.36%

Note: The 6 month follow-up assessment percentages were calculated from 144 residents who participated in the 12 month follow-up assessment. Hence, the percentages of healthy residents for the 6 month follow-up in this table would differ from the values stated in the previous 6 month evaluation report on *BOH in LTC* program.

Figure 15: Line Graph; Changes in percentage of *healthy* residents (OHAT measures) over 3 time periods

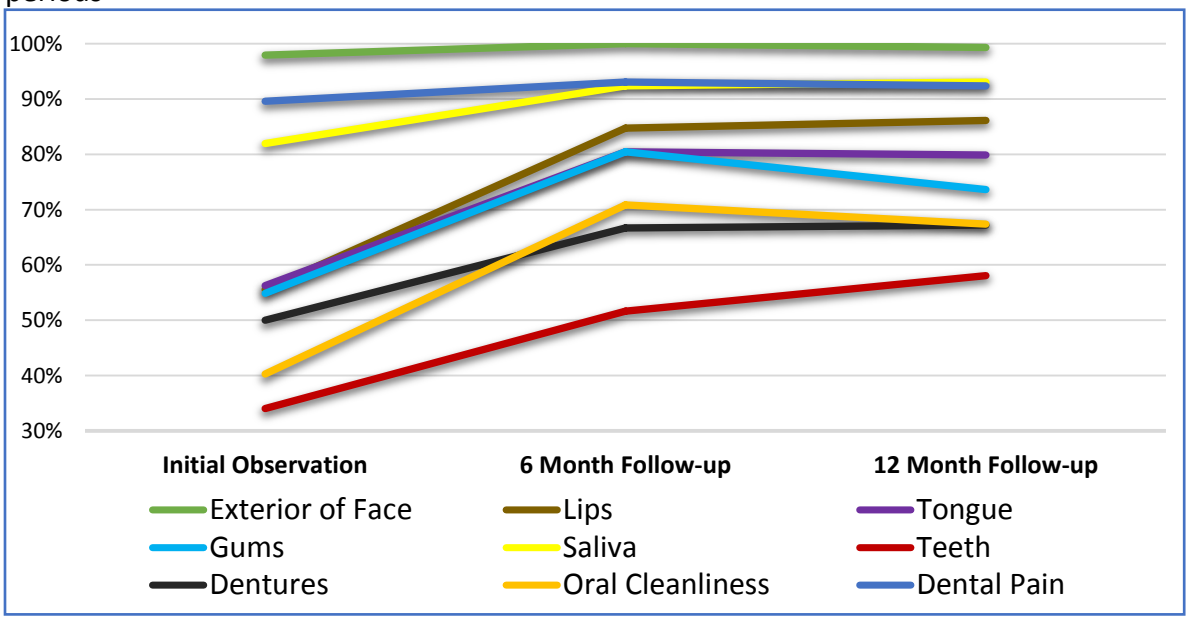
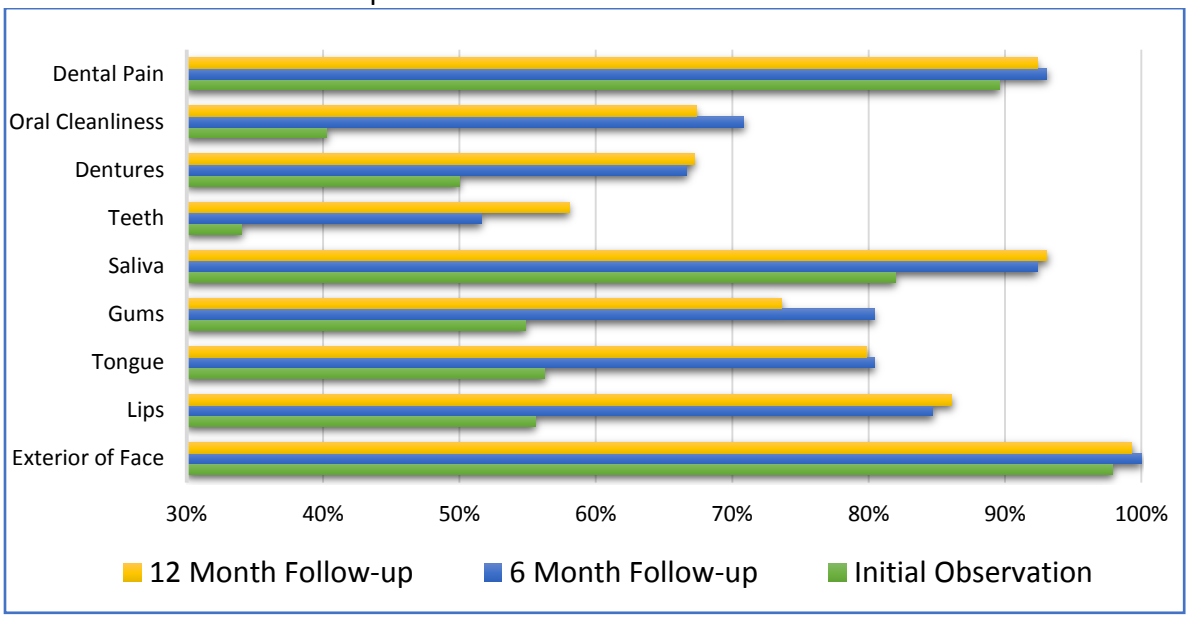


Figure 16: Bar Chart; Proportion of *healthy* residents (OHAT measures) at Initial observation, 6 month & 12 month follow-up assessments



Discussion

Oral health of the LTC residents has considerably improved after the implementation of *BOH in LTC* program. Planned execution of the program covered all the important aspects of oral health which resulted in enhanced oral health of residents who participated.

Of 252 LTC residents, the retention rate for the 6 month follow-up assessment was 70.23%, compared to 57.14% for the 12 month follow-up assessment. The relatively low participant retention rate in the current study was due to the age structure of the LTC residents, as 108 participants were not followed up due to death or moving to another LTC. Eventually, the oral health status of 144 residents, with an average age of 75.58 years (with 73.61% seniors and 43.75% residents 85 years and older) were assessed over 12 months.

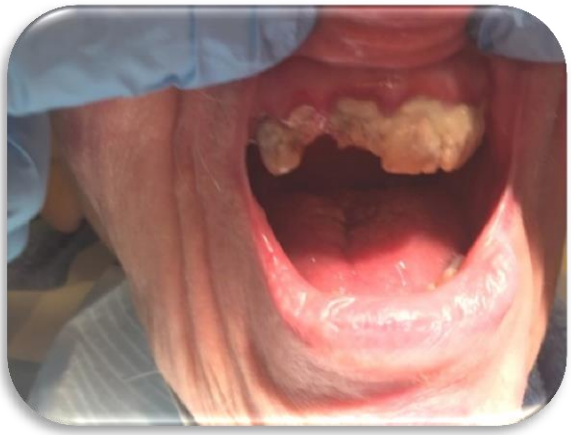
The women (52.78%) and men (47.22%) in the study had approximately similar distribution, whereas according to the 2015-2016 Continuing Care Reporting System, women made up 70% of population of residential care in Canada. Similarly, the Organization for Economic

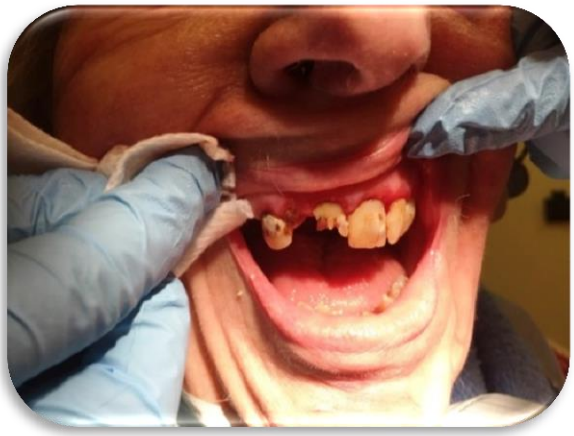
Cooperation and Development (OECD) reported that in 2016, 63% of LTC home residents in Canada were women. [12]

Due to the sufficient presence of dentate (64.58%) and edentulous participants (35.42%) in the study cohort, it provided an opportunity to better understand the impact of *BOH in LTC* program on the dental and denture care of the resident. In the 12 month follow-up, 37 out of 144 LTC residents were aged 60 to 79 years and within this age group 24.32 % were edentulous which is relatively similar to the proportion of edentulous Canadians aged 60 to 79 years (21.7%) reported in the 2007-2009 Canadian Health Measures Survey (CHMS). [13]

In total, 42.36% residents had a removable denture (upper and/or lower complete, or partial denture); among dentate residents, 23.65% had a removable denture (upper and/or lower complete, or partial denture. The majority of edentulous residents (80.39%) had a complete denture in one or both arches. The high percentage of denture use in our study highlights the importance of education and provision of denture care by residents/staff. However, there is a need to further promote denture wearing to 19.61% of edentulous residents who do not wear denture of any form. For the denture wearers, ongoing denture hygiene practices, as part of *BOH in LTC*, are essential in order to prevent elderly patients from gum inflammation, tongue and denture plaque, Candida Albicans infection and other systematic diseases which can result from poor denture hygiene. [14] It is crucial to assess dentures, perform daily care, and make referrals for repair/exchange if needed. As a result of *BOH in LTC* program, after 12 months OHAT score for *Denture* significantly changed, as 34.43% more residents had healthy dentures.

For all the 9 OHAT measures, the percentage of healthy residents improved considerably over time. Almost one-third more residents had healthy lips, tongue, gums, teeth, dentures and oral cleanliness in the 12 month assessment compared to the initial observation. The highest percentage changes of healthy residents were observed in *Teeth* (70.56%) and *Oral Cleanliness* (67.23%) measures.





The statistical testing further provides evidence of significant impact of the program on oral health measures. Following 12 months, 7 of 9 OHAT scores significantly improved: *Lips, Tongue, Gums and Oral Tissue, Saliva, Teeth, Denture and Oral Cleanliness*. For all of these measures, the odds ratios were significantly higher exhibiting strong association of *BOH in LTC* program and the oral health of the residents. Highest likelihood ratios were observed in case of oral cleanliness (6.57), Lips (4.67) and teeth (4.14). This clearly shows the impact of *BOH in LTC* program on the oral health of residents as the percentage of healthy residents considerably improved over time. The daily oral care (brushing), use of moisturizing agents for lips and tongue (such as Perivex), denture care (e.g. daily cleaning, labelling, use of adhesives), and oral treatments (e.g. scaling, denture replacement) all may have contributed to improvement in the above-mentioned scores.

With regard to referral services, 66.67% of residents who were referred for a more comprehensive oral examination/treatment, completed consent and were seen by a dental team (e.g. dentist, dental hygienist, denturist). The reasons for not consenting should be discovered to identify as to whether this was mainly due to financial barriers or resident/family values on oral health.

Comparing the oral health status of the LTC residents over time, from the initial assessment to 6 month and 12 month follow-up assessments, provided substantial evidence about the

positive impact of *BOH in LTC* program on the oral health of the LTC residents. The percentage of healthy residents noticeably increased in the 6 month and 12 month follow-ups compared to the initial assessment. The improvement in oral health was clearly evident in the 6 month follow-up compared to the initial assessment, due to initial impact of the *BOH in LTC* program. However, number of healthy residents with respect to lips, saliva, denture and teeth further increased from 6 month to 12 month follow-up assessment. This increase was gradual but steady for measures which might require ongoing care to show better results. Especially for teeth, 12.49% more residents had healthy teeth in the 12 month follow-up compared to the 6 month follow-up assessment.

In the current study, the oral health status of residents showed significant improvement following the implementation of the *BOH in LTC* Program. There are many factors which might contribute to the findings: successful delivery of daily oral care in LTC homes could be achieved through an integrated approach that includes role of a LTC-OHC in implementing and maintaining the BOH in LTC Program, education of staff, commitment of CCAs in daily oral care, role of RNs in monitoring CCAs to ensure standard protocols/standard work were followed, and support from managers and administrators.

Limitation

This study used convenience sampling from two LTC homes in Saskatoon. Due to specific age and gender structure and neighbourhood attributes, this study might not always be applicable to other LTC homes.

Conclusion

Within the limitations of this study, residents who received daily oral care and/ or treatment showed an improvement in their oral health status after 12 months. The results also signify the multidisciplinary approach and role of LTC-OHC, who works collaboratively with the LTC team, in improving the oral health care.

Recommendations

In addition to the 10 recommendations related to oral health in LTC homes, which were previously developed and endorsed by Saskatchewan Oral Health Coalition (SOHC) and Saskatchewan Oral Health Professions (SOHP) for consideration and action by the Saskatchewan Ministry of Health, **[Appendix 6]**, additional recommendations include:

• **Modifications of the existing OHAT form:**

Current form emphasizes more on patient's sign and less on symptoms. Participant's involvement in history and examination could identify health issues that can otherwise get unnoticed. This might be most useful in recording dental pain in residents as throughout the three observations in LTC residents, there was no noticeable difference in the scores. With regard to 'denture': "not being labelled dentures" should be categorized under either 'changes' or 'unhealthy' – but not fall under both. While, LTC- OHC confirmed that this condition corresponded to 'changes', this needs to be modified on the OHAT form. Also, the existing form does not contain pain related to tongue or lips

• **Changes to the existing data collection strategy**:

Currently the data is stored in a horizontal table structure. Separate sections of follow-up assessments in a vertical table structure will ease the process of data entry and data analysis. Also, it is recommended that data entry be performed as soon as possible (preferably the same day). Any delay in data entry may lead to loss of some important information. Since the data analysis is the basis of the policy making, it is of utmost importance that to have the most accurate data possible.

• **Establish oral health surveillance system at the provincial level:**

Every possible effort should be made to design and develop oral health surveillance at a Saskatchewan level. This can be achieved by accessing all possible data sources, for example

administrative data (emergency, hospitalization, physician's data) to collect, analyze, interpret and report oral health status of population at provincial level. The surveillance system will provide an opportunity to continuously monitor health of seniors to guide programs and policies related to this population.

• **Involve more LTC homes in the study and increase the number of study participants:**

Increase the number of LTC homes and expand the number of LTC homes trained to support the *BOH in LTC* Program, as the evaluation of the program indicated a significant improvement in the oral health of residents. Involvement of other LTC homes will provide a more representative sample for developing significant evidence to inform decision making.

• **Focus on translating research to practice:**

Communicate the finding of this evaluation report with relevant stakeholders,
health care professionals and provincial government agencies to enable mutual understanding of the report's findings and initiate discussions to address the recommendations.

• **Ongoing training of LTC staff:**

LTC staff should be educated continuously to deliver a standard care of service. Theoretical and practical oral health education of LTC staff improves the residents' oral health. [(15)] However, a single educational session or workshop is not sufficient to establish a long term result. After some time, the education effect diminishes and the residents' oral health declines. In addition, some methods such as role-playing may help to put care providers in the residents' shoes. [(16)]

• **Emphasis on dental public health at the grass root level, to establish health system that promotes oral health.**

This can be achieved by emphasizing on public health and community outreach programs related to oral health at the dental school level. Outreach experiences will improve students' confidence in tackling clinical situations, and help them develop a more understanding of the complexity of the determinants of oral health.

• **Establish provincial legislation for oral screening and oral care plans for LTC residents.**

In tough economic times, the lack of legislative protection for these programs allows governments to stop funding without any significant resistance, regardless of the negative impact that this can have on many people's lives. [17]

• **Expand the use of other dental professionals in oral health service delivery**

The provincial government and dental regulatory bodies should renew the role of the dental therapist, review the use of dental hygienists, and explore the use of alternative providers of oral health care to ensure that cost-effective care is provided in settings not currently served by dental professionals. For example, the expansion of the scope of practice for dental hygienists will allow them to bridge the gaps in service. [18]

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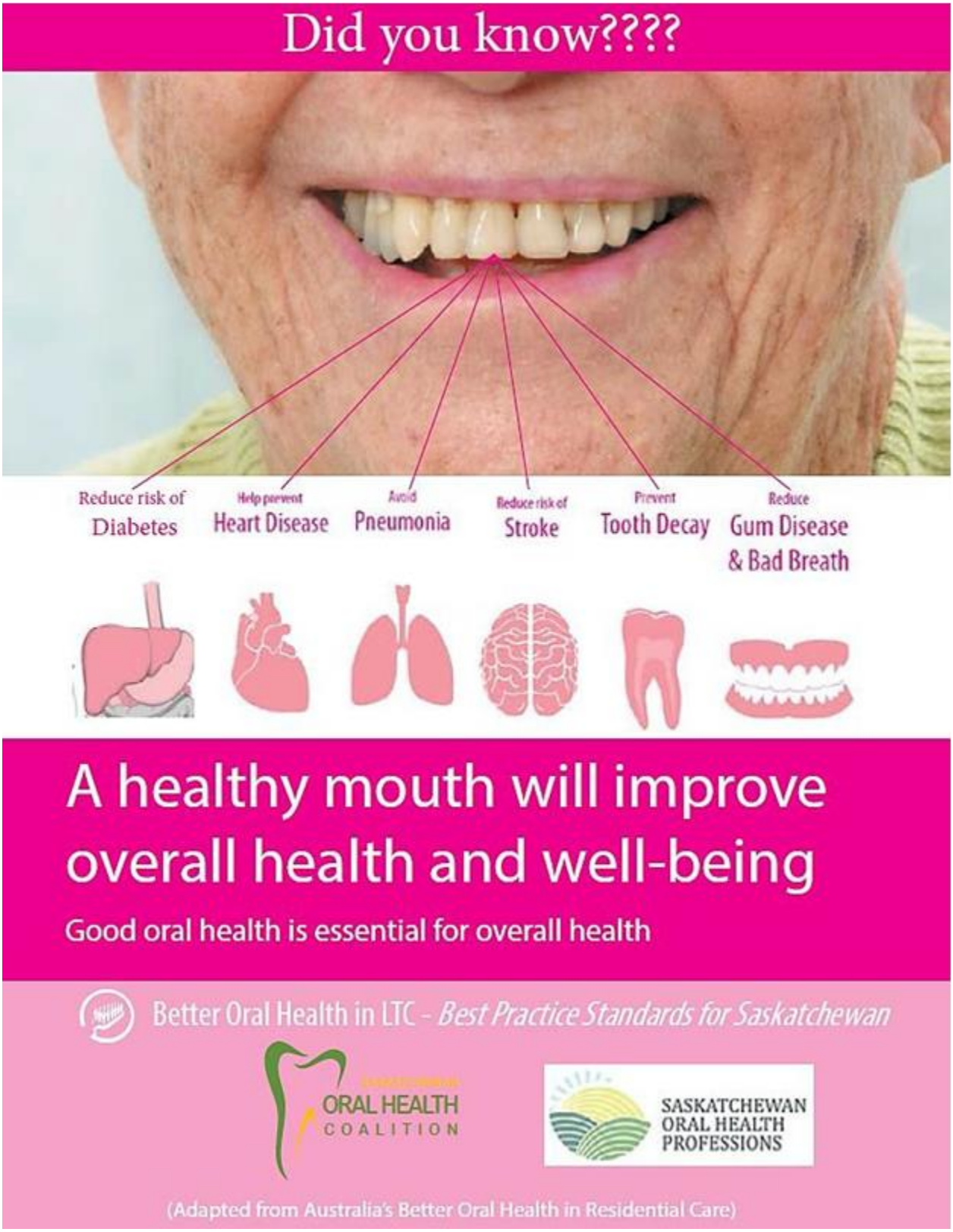
Appendices

Appendix 1: Posters, Pamphlets, Brochures



Brush morning and night

Fluoride toothpaste on teeth

Soft toothbrush on gums, tongue & teeth

Antibacterial product after lunch

Keep the mouth moist

Cut down on sugar

Six of the best ways to maintain a healthy mouth

Protect your residents' oral health

Better Oral Health in LTC - *Best Practice Standards for Saskatchewan*

SASKATCHEWAN ORAL HEALTH COALITION

SASKATCHEWAN ORAL HEALTH PROFESSIONS

(Adapted from Australia's Better Oral Health in Residential Care)

It takes a team approach to maintain a healthy mouth

Work together to protect your residents' oral health

Better Oral Health in LTC - *Best Practice Standards for Saskatchewan*

SASKATCHEWAN ORAL HEALTH COALITION

SASKATCHEWAN ORAL HEALTH PROFESSIONS

(Adapted from Australia's Better Oral Health in Residential Care)

Six of the best ways to maintain a healthy mouth

Use a soft toothbrush to brush your teeth and to clean your gums and tongue.

If you require help, a care giver may sometimes use an extra toothbrush, so that they can see inside your mouth.

Replace your toothbrush with a new one with the change of seasons (every three months).

If you wear dentures clean them by brushing with a denture brush using soap and water. Rinse well. Disinfect dentures once a week. Dentures should have your name on them.

Clean your mouth every morning and every night.

Keep your mouth moist by sipping water.
A lip moisturiser may be helpful

Try to reduce the amount of sugary drinks, juices and coffee you drink

Use only a pea-sized amount of fluoride toothpaste to protect your teeth

Spit - do not rinse after brushing so the fluoride can soak into your teeth.

If you wear dentures take your dentures out overnight to rest your gums. Soak your cleaned dentures in a container with cold water

Cut down on sugary foods and beverages, particularly between meals.

A healthy mouth will improve overall health and well-being

When your mouth is not clean, germs from the mouth may enter the airways and cause chest infections such as **pneumonia.**

The same blood that goes through infected gums also goes through the **rest of the body.**

This may cause infections far away from the mouth and may increase the risk of having a heart attack or even a **stroke.**

When oral health is poor, it can lead to:

- bad breath
- bleeding gums
- dental pain and infection
- inability to eat
- low self-esteem
- poor/impaired speech
- tooth decay
- change in behavior when pain or infection is present

Simple daily mouth care and regular checks will help protect you

SASKATCHEWAN ORAL HEALTH COALITION

SASKATCHEWAN ORAL HEALTH PROFESSIONS

Better Oral Health in LTC – *Best Practice Standards for Saskatchewan*

(Adapted from Australia's Better Oral Health in Residential Care)

Good Oral Health is essential for Overall Health

Appendix 2: Lift the Lip Poster

ORAL SCREENING

Oral Health Assessment

Supplies: Exam gloves, face mask and flash light

Look for anything out of the ordinary as part of your routine oral assessment. You may identify potentially life threatening oral infections or cancer.

- Make sure that mouth care is done daily.
- Offer Perivex for moisturizing dry and cracked lips (up to six times a day, if needed).
- Use fluoride toothpaste on natural teeth.
- Adjust daily mouth care to meet the needs of the resident daily.
- Offer sips of water throughout the day.
- Limit drinks high in sugar content.
- Dry mouth is a very uncomfortable feeling and it may require a prescription for a mouth moisturizer such as Biotene.
- Check if the resident can swallow comfortably.
- If the resident cannot swallow or spit, do not use toothpaste! Use **Perivex**.
- Never use regular toothpaste to clean dentures!
- Very loose teeth, tooth aches or infection in the mouth requires immediate attention.
- Make referrals to a dentist for other dental needs such as fillings or dental cleanings.
- Make referrals to the dentist for broken or ill -fitting dentures.

For more information, ask a LTC oral health coordinator or an oral health professional at your local public health office

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Oral Health Assessment

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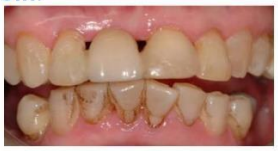
For more information, ask a LTC oral health coordinator or an oral health professional at your local public health office

Check your Residents' Lips and Mouth

Why check? To catch a problem before it becomes serious. **Lift at the inside of the lips by pulling the lower lip down and the upper lip up.**

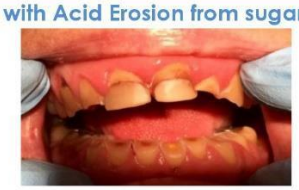
What to look for:

Healthy Mouth:



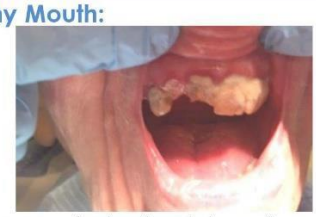
Gums are light pink in colour and visibly moist. Teeth are clean with no plaque and calculus.

Dry Mouth with Acid Erosion from sugary drinks:



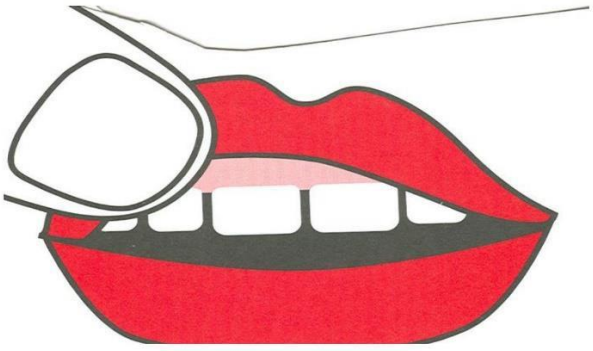
Gums are dry and mouth will often have a burning feeling.

Unhealthy Mouth:



Visible plaque, calculus (hard deposits on the teeth and under the gums), food deposits in the mouth. Teeth may be loose, broken, or have decay or lost fillings.

Not all problems are painful.
It is best to ask the resident if there is a concern.



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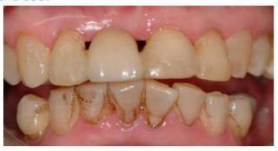
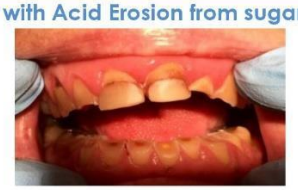
What to look for:

Healthy Mouth:



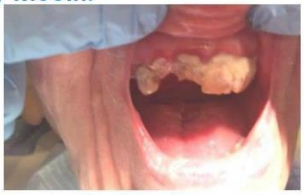
Gums are light pink in colour and visibly moist. Teeth are clean with no plaque and calculus.

Dry Mouth with Acid Erosion from sugary drinks:



Gums are dry and mouth will often have a burning feeling.

Unhealthy Mouth:



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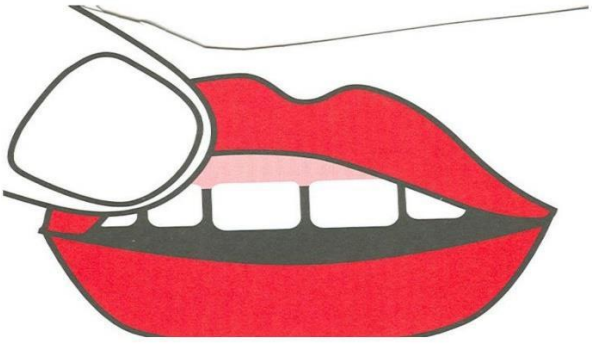
Not all problems are painful.
It is best to ask the resident if there is a concern.



Appendix 3: Oral Health Assessment Tool

Better Oral Health in Long Term Care – Best Practice Standards for Saskatchewan

Oral Health Assessment Tool (OHAT)

Resident: ☐ is independent ☐ needs reminding ☐ needs supervision ☐ needs full assistance

☐ not able to open mouth ☐ grinding or chewing ☐ head faces down ☐ refuses treatment

☐ has responsive behaviour ☐ bites ☐ excessive head movement

☐ not able to rinse and spit ☐ cannot swallow well ☐ does not take dentures out at night

Date – dd/mm/yyyy (Re-assessment every 6 months)									
Exterior of face	**Healthy** Both sides of face/neck are symmetrical, no lumps or bumps, swallowing normal, lips open and close								
	Changes Asymmetrical changes to face/neck, presence of lumps or bumps, swallowing challenging, lips do not open or close								
	Unhealthy * Asymmetrical changes to face/neck, presence of lumps or bumps, painful swallowing, lips do not open and close *								
	Dental referral Y – Yes * N – No								

***Unhealthy signs usually indicate referral to a dentist is necessary**

Date	Assessor Comments

Date – dd/mm/yyyy (Re-assessment every 6 months)									
Lips	**Healthy** Smooth, pink, moist								
	Changes Dry, chapped or red at corners								
	Unhealthy * Swelling or lump, red/white/ulcerated bleeding/ulcerated at corners *								
	Dental referral Y – Yes * N – No								

***Unhealthy signs usually indicate referral to a dentist is necessary**

Date	Assessor Comments

Date – dd/mm/yyyy (Re-assessment every 6 months)									
Tongue	**Healthy** Normal moist, roughness, pink								
	Changes Patchy, fissured, red, coated								
	Unhealthy * Patch that is red and/or white/ulcerated, swollen *								
	Dental referral Y – Yes * N – No								

***Unhealthy signs usually indicate referral to a dentist is necessary**

Date	Assessor Comments

Date – dd/mm/yyyy (Re-assessment every 6 months)									
Gums and Oral Tissue	**Healthy** Moist, pink, smooth, no bleeding								
	Changes Dry, shiny, rough, red, swollen, sore, one ulcer/sore spot, sore under dentures								
	Unhealthy * Swollen, bleeding, ulcers, white/red patches, generalized redness under dentures *								
	Dental referral Y – Yes * N – No								

***Unhealthy signs usually indicate referral to a dentist is necessary**

Date	Assessor Comments

Date – dd/mm/yyyy (Re-assessment every 6 months)									
Saliva	**Healthy** Moist tissues watery and free flowing								
	Changes Dry, sticky tissues, little saliva present, resident thinks they have a dry mouth								
	Unhealthy * Tissues parched and red, very little/no saliva present, saliva is thick, resident thinks they have a dry mouth *								
	Dental referral Y – Yes * N – No								

***Unhealthy signs usually indicate referral to a dentist is necessary**

Date	Assessor Comments

Date – dd/mm/yyyy (Re-assessment every 6 months)									
Natural Teeth	**Healthy** No decayed or broken teeth or roots								
	Changes 1-3 decayed or broken teeth/roots, or teeth very worn down, mobile								
	Unhealthy * 4 or more decayed or broken teeth/roots or fewer than 4 teeth, or very worn down teeth, mobile *								
	Dental referral Y – Yes * N – No								

***Unhealthy signs usually indicate referral to a dentist is necessary**

Date	Assessor Comments

Date – dd/mm/yyyy (Re-assessment every 6 months)									
Dentures	**Healthy** No broken areas or teeth, worn regularly, and named								
	Changes 1 broken area or tooth, or worn 1-2 hours per day only or not named								
	Unhealthy * 1 or more broken areas or teeth, denture missing/not worn, need adhesive or not named *								
	Dental referral Y – Yes * N – No								

***Unhealthy signs usually indicate referral to a dentist is necessary**

Date	Assessor Comments

Date – dd/mm/yyyy (Re-assessment every 6 months)									
Oral Cleanliness	**Healthy** Clean and no food particles or tartar in mouth or on dentures								
	Changes Food tartar, plaque 1-2 areas of mouth, or on small area of dentures								
	Unhealthy * Food particles, tartar, plaque most areas of mouth or on most of dentures *								
	Dental referral Y – Yes * N – No								

***Unhealthy signs usually indicate referral to a dentist is necessary**

Date	Assessor Comments

Date – dd/mm/yyyy (Re-assessment every 6 months)									
Dental Pain	**Healthy** No verbal behavioral signs or physical signs of dental pain								
	Changes Verbal &/or behavioral signs of pain such as pulling at face, chewing lips, not eating, responsive behavior								
	Unhealthy * Physical pain signs (swelling of check or gum, broken teeth, ulcers), as well as verbal &/or behavioral signs (pulling at face, not eating, responsive behavior) *								
	Dental referral Y – Yes * N – No								

***Unhealthy signs usually indicate referral to a dentist is necessary**

Date	Assessor Comments

Appendix 4: Oral Health Care Plan

Oral Health Care Plan

Name: _____

Oral Health Assessment (OHA) Date: _____

Challenges: ☐ difficulty swallowing ☐ frequent head movement ☐ difficulty opening mouth ☐ fear of being touched ☐ difficulty eating/nutrition

Interventions: ☐ bridging ☐ modelling ☐ hand over hand ☐ distractions (activity board/toy) ☐ alternative provider ☐ other _____

Daily Activities of Oral Hygiene

	Morning	After Lunch	Night
Natural Teeth ☐ Yes ☐ No **Cleaned by:** ☐ Self ☐ Supervise ☐ Assist **Replace toothbrush** (once every 3 months) Date:	☐ clean teeth, gums, tongue	☐ rinse mouth with water antibacterial product (teeth & gums)	☐ clean teeth, gums, tongue
Denture ☐ Full ☐ Partial ☐ Upper ☐ Lower **Inserted/removed by:** ☐ Self ☐ Staff **Cleaned by:** ☐ Self ☐ Supervise ☐ Assist	☐ clean teeth, gums, tongue ☐ brush denture	☐ rinse mouth with water ☐ rinse denture ☐ antibacterial product (gums)	☐ clean teeth, gums, tongue ☐ brush denture with mild soap ☐ leave dentures out overnight ☐ soak denture in cold water **Disinfect dentures** (weekly) Specify day:

Oral Hygiene Aids	Oral Health Care Products	Additional Oral Care Instructions
☐ soft toothbrush	☐ mild soap (denture)	☐ antifungal gel
☐ modified toothbrush	☐ antibacterial product	☐ denture adhesive
☐ toothbrush grip	☐ saliva substitute	☐ interproximal brush
☐ denture brush	☐ lip moisturiser	☐ tongue scraper
☐ spray bottle (labelled)	☐ fluoride toothpaste	☐ normal saline solution

Date of next assessment: _____

Signed: _____ **Date:** _____

Appendix 5: LTC Forms

Saskatchewan Health Authority

Resident Label

NAME: _____

HSN: _____

D.O.B.: _____

LONG TERM CARE
ORAL HEALTH PROGRAM
HOME: _____

ANNUAL DENTAL EXAMINATION CONSENT

Resident's name: _____ **Room #:** _____

I, _____, hereby authorize a dentist who is working with the program to perform an annual examination.

In requesting this examination, I recognize the dentist accepts my right to choose the treatment of my choice following consideration of the treatment plan provided to me.

I fully understand:

- An annual examination prior to receiving dental treatment from other oral health professionals, employed by the dentist, is mandatory. This is important to prevent, diagnose, and minimize conditions which may result in complications associated with dental treatment.
- All findings of the examination will be provided to each resident as a treatment plan. The written plan will be presented to the resident and/or care provider. This will include the treatment plan, a fee estimate for the dental treatment, and consent to proceed with the proposed treatment.
- A prescription for mild oral sedation may be required prior to dental treatment. If necessary, I consent to the physician providing a sedation prescription.
- There is a charge for the dental examination, as outlined in the *College of Dental Surgeons of Saskatchewan* current fee guide.

The collection of health and dental information is consistent with the requirements of our profession and those of the *Health Information Protection Act of Saskatchewan* and the *Personal Information Protection and Electronic Documents Act of Canada*. We acknowledge our duty and responsibility to hold in confidence your personal health information gathered in the course of our professional relationship. I understand it is my responsibility to pay for dental treatment. I understand that if I have provided an email address that correspondence may occur through email.

If you have any questions about these services, or if you have limitations, possible complications, or other information, contact the Long Term Care Oral Health Coordinator at **(306) 655-4317**.

_____
Name of the authorizing person

_____
Address and postal code of authorizing person

_____
Home phone #/Cell phone #/Work phone #

_____
Authorizing person's signature

Return this form to:

_____

_____

_____

_____
Relationship to resident

_____
Email address of authorizing person

Dental benefits/Insurance: ☐ Yes ☐ No

Name of insurance plan: _____

Group plan number: _____

Name of subscriber: _____

Certificate/ID # of subscriber: _____

Date of birth (subscriber): _____

Date of birth (spouse): _____

Form #104284 (Saskatoon Area) 02/2018 Category: Consents/Releases

Saskatchewan Health Authority

Resident Label

NAME: _____

HSN: _____

D.O.B.: _____

LONG TERM CARE
ORAL HEALTH PROGRAM
HOME: _____

MEDICAL HISTORY FORM FOR DENTAL EXAMINATION/TREATMENT

Personal Health Information

Resident's name: _____

Room #: _____ Unit telephone #: _____

Date of birth: _____ ❑ Male ❑ Female

Dental benefits/Insurance: _____

Saskatchewan Personal Health (health card #): _____

Veteran Affairs (K #): _____

First Canadian Health (Treaty #): _____

Person responsible for account: _____

Billing address: _____

Email address for family representative: _____

Phone number for family representative: _____

Medical History

1. Name of physician: _____
   Physician phone #: _____ Physician fax #: _____
2. Have you been hospitalized: ❑ Yes ❑ No
   If yes, please explain: _____
3. Current Medication Administration Review (MAR) list attached: ❑ Yes ❑ No
4. Are you allergic to latex: ❑ Yes ❑ No
5. Do you have any allergies: ❑ Yes ❑ No
6. Have you ever had an allergic reaction to any drug or anesthetic, at the time or later: _____
   _____
   _____
7. Do you bruise easily or have prolonged bleeding: ❑ Yes ❑ No
8. Have you ever fainted, had shortness of breather, or had chest pains: ❑ Yes ❑ No
9. Do you have a heart or circulatory problem of any kind: ❑ Yes ❑ No
10. Are you taking or have you taken bisphosphonate drugs such as Fosamax®, Skelid®, or Actonel® (for osteoporosis) or Aredia®, Zometa®, or Didronel® (for cancer treatments): ❑ Yes ❑ No
11. If you checked yes for #10, how were the drugs given: ❑ Oral ❑ I.V. Duration of therapy: _____
12. Are you MRSA, ESBL, or VRE positive (+): ❑ Yes ❑ No If yes, which one? _____

Form #104285 (Saskatoon Area) 02/2018 Category: Assessments/Histories

MEDICAL HISTORY FORM FOR DENTAL EXAMINATION/TREATMENT

Resident Label

NAME: _____

HSN: _____

D.O.B.: _____

13. Do you have/had any of the following:

- ❑ Aids
- ❑ Anemia
- ❑ Angina
- ❑ Anorexia
- ❑ Antibiotic resistance organisms
- ❑ Arthritis
- ❑ Artificial heart valve
- ❑ Artificial joints
- ❑ Asthma
- ❑ Blood disorder
- ❑ Bronchitis
- ❑ Bulimia
- ❑ Cancer
- ❑ Diabetes
- ❑ Drug dependence
- ❑ Emphysema
- ❑ Epilepsy
- ❑ Glaucoma
- ❑ Head/neck injury
- ❑ Heart disease
- ❑ Heart murmur
- ❑ Heart pacemaker
- ❑ Heart rhythm disorder
- ❑ Hepatitis A/B/C
- ❑ Herpes
- ❑ High/Low blood pressure
- ❑ HIV
- ❑ Implanted electrical devices
- ❑ Kidney disease
- ❑ Liver disease
- ❑ Leukemia
- ❑ Lung disease
- ❑ Mental disorder
- ❑ Mitral valve prolapse
- ❑ Organ transplant
- ❑ Radiation/chemo
- ❑ Rheumatic/Scarlet fever
- ❑ Sinus trouble
- ❑ Stomach problems
- ❑ Stroke
- ❑ Thyroid disease
- ❑ Tuberculosis
- ❑ Ulcers
- ❑ Sexually Transmitted Infection

14. Have you ever had any illness not included above: ❑ Yes ❑ No

If yes, explain: _____

Consent for Dental Examination/Treatment

I understand the information contained in the medical and dental history is important to my dental examination and treatment. I certify all the information I have completed is correct, and I have not knowingly omitted information.

I authorize the dentist/oral health professional to perform diagnostic procedures, including x-rays and photographs inside and outside the mouth. Any photographs taken of the resident and/or family member may be used for education purposes. This also includes collecting personal health information as required to determine necessary treatment. This includes consultation with other health professionals as necessary.

A prescription for mild oral sedation may be required prior to dental treatment. If necessary, I consent to the physician providing a sedation prescription.

The collection of health and dental information is consistent with the requirements of our profession and those of the *Health Information Protection Act of Saskatchewan* and the *Personal Information Protection and Electronic Documents Act of Canada*. I understand that if I have provided an email address that correspondence may occur through email.

We acknowledge out duty and responsibility to hold in confidence your personal health information gathered in the course of our professional relationship.

I understand it is my responsibility to pay for dental treatment.

_____ _____

Signature Date

_____

Name (print)

Form #104285 (Saskatoon Area) 02/2018 Category: Assessments/Histories

Saskatchewan Health Authority

RECORD OF TREATMENT

LONG TERM CARE
ORAL HEALTH PROGRAM
HOME: _____

Resident's full name: _____ Room #: _____

Date	Comments	Future Appointment

(Saskatoon Area) 01/2018

Saskatchewan Health Authority

CONSENT FOR FINANCIAL RESPONSIBILITY FOR DENTAL TREATMENT

LONG TERM CARE
ORAL HEALTH PROGRAM
HOME: _____

Resident's full name: _____ Date: _____

The following treatment has been recommended:

Procedure	Cost	Procedure	Cost
❑ **Professional Oral Hygiene (scaling and fluoride varnish application)** Every: ❑ 3 months ❑ 4 months ❑ 6 months ❑ 12 months	$_____ each visit	❑ **Restorations (fillings)** ____ fillings	$_____ all fillings
❑ **Denture(s) labelling**	$_____	❑ **Tooth/teeth extractions** ____ extractions	$_____ all extractions
❑ **New denture(s) (complete or partial)**	$_____	❑ **Dental Radiographs**	$_____
❑ **Denture repair/reline**	$_____	❑ **Other:** _____	$_____

An institutional fee of $ _____ is charged with each visit.

The estimated cost of the recommended dental treatment is: $ _____

The dental procedures will be performed at:

❑ Bedside
❑ Other: _____
❑ On-site in the Dental Clinic

I, the undersigned, will be responsible for the payment of the fees, or payment of fees not covered by insurance, benefits, etc. associated with this treatment. **I understand the costs are estimates, and treatment costs may exceed the estimated costs.**

Name: _____ Relation to Resident: _____

Address: _____ Home Phone: (____) _____

_____ Business Phone: (____) _____

Email: _____ Cell Phone: (____) _____

Signed: _____ Date: _____

Complete and sign the *Consent for Financial Responsibility for Dental Treatment* and return to:

_____

_____

_____

#4 (Saskatoon Area) 01/2018

Saskatchewan Health Authority

CONSENT FOR DENTAL TREATMENT

LONG TERM CARE
ORAL HEALTH PROGRAM
HOME: _____

Re:

Resident's name: _____

I, the person signed below, give consent for the following dental treatment, procedure or surgical operation to be provided by an oral health professional (dentist, dental assistant, dental hygienist, dental therapist and denturist as required):

The treatment is:

_____

_____

The nature, possible effects, risks and alternatives to this treatment have been explained to me. I understand the explanation and the alternatives. A prescription for mild oral sedation may be required prior to dental treatment. If necessary, I consent to the physician providing a sedation prescription.

I consent to receiving anesthetic, and to the use of anesthetics as may be considered necessary. I consent that the oral health providers may provide additional treatment if it is considered immediately necessary. I also consent that the oral care providers may be assisted by other oral/health care providers and that they may perform all or part of the treatment.

The collection of health and dental information is consistent with the requirements of our profession and those of *The Health Information Protection Act of Saskatchewan* and the *Personal Information Protection and Electronic Documents Act of Canada*. We acknowledge our duty and responsibility to hold in confidence your personal health information gathered in the course of our professional relationship.

I understand it is my responsibility to pay for dental treatment.

I understand if I have provided an email address that correspondence may occur through email.

Signed: _____ Date: _____
(Resident or Responsible Party)

Print Name: _____

Complete and sign the *Consent for Dental Treatment* and return to:

_____

_____

_____

#3 (Saskatoon Area) 01/2018

Appendix 6: Recommendations, related to oral health in LTC homes, developed and endorsed by Saskatchewan Oral Health Coalition (SOHC) and Saskatchewan Oral Health Professions (SOHP) for consideration and action by the Saskatchewan Ministry of Health

1. The Saskatchewan Government, Ministry of Health, endorse the *Saskatchewan Seniors' Oral Health and LTC Strategy* developed by SOHP collaboratively with SOHC and Seniors Health and Continuing Care in the Saskatoon Health Region.

2. An OHC, who is a registered and licensed oral health professional, should be employed in each health region to facilitate the delivery of initial oral assessments, oral examinations and treatment, daily oral hygiene for
residents and oral health education. The OHC will work collaboratively with the LTC, multi-disciplinary team to improve the oral and overall health of residents.

3. Upon entry into a LTC home, an initial oral assessment must be completed by a registered and licensed oral health professional, through the general and medical consent provided by the LTC home.

- **3.1** Oral assessments should be routinely performed every 6 months thereafter, by an oral health professional or a health care professional trained in oral health assessments.
- **3.2** Non-oral health professionals performing oral health assessments or care will receive appropriate training developed by the SOHP.
- **3.3** Training will be provided by oral health professionals.

4. Initial oral assessments will include:

- **4.1** Personal client record*, including consent for oral examination
- **4.2** Review of medical and dental history
- **4.3** Complete examination of the oral cavity, which includes:
  - **4.3.1** Assessment of hard and soft tissues
  - **4.3.2** Assessment of oral hygiene care
  - **4.3.3** Oral cancer screening
  - **4.3.4** Denture assessment

*Note: Implementation of a Saskatchewan electronic health record should include an oral health record.

5. Oral Health Care Policies and Procedures for LTC and Personal Care Homes* are standardized and implemented based on best practice for optimal oral and overall health for residents in LTC in Saskatchewan. Policies should ensure that every LTC resident has the right and access to the following oral health care services:

- **5.1** An individualized oral health care plan
- **5.2** Basic oral hygiene supplies
- **5.3** Daily oral hygiene
- **5.4** Access to professional oral health services
- **5.5** Oral health record included within the health record
- **5.6** Dental recommendations/orders are followed

*Note: As per Section 23 of the current Personal Care Home Regulation (1996), each resident receive an oral examination, as necessary.

6. Treatment needs based on the oral examination, may be provided by dentists, denturists, dental hygienists, dental therapists and/or dental assistants. Residents may access oral health services through their personal oral health professional or through oral health services as available through the LTC home. Oral examinations require:

- **6.1** Consent for oral examination
- **6.2** Treatment plan and progress notes
- **6.3** Estimate and consent for financial responsibility
- **6.4** Consent for treatment

7. The Saskatchewan Seniors' Oral Health and LTC Strategy is incorporated into post-secondary educational health training programs, orientation, and continuing professional development (i.e. for care aides, nurses, physicians, etc.).

8. The standard for new LTC homes includes provision for a treatment room suitable for a variety of health professionals including access to portable dental equipment to facilitate oral treatment.

9. Surveillance, evaluation and continuous quality improvement be performed on an ongoing basis to demonstrate improved health and oral health status outcomes.

10. The Saskatchewan government establish a safety net program to increase access to oral health services for low income seniors (similar to Ministry of Health Supplementary Health/Family Health Benefits or Alberta's Dental Assistance for Seniors Program through which low income seniors are eligible for up to $5000 every 5 years for those aged 65 and older).