Outreach Work and Other Action Report
UNAH-CURLA

Presented by: Dr. Liliana Matute Mandujano, Odontology Clinic
Project: Village Partners Project, September 15 School, Boca del Toro, San Francisco, Atlántida

Activity: Phase 1 Odontology Clinic, Community Development

Date: March 15, 2018

Participants
Dr. Liliana Matute Mandujano, Pediatric Dentist, Odontology Clinic
Claudia Cecila Caragena, Odontology, Health Center, San Francisco Municipality
Engineer Evangelina Trejo, Extension Office, UNAH-CURLA
Engineer Vilma Castañeda, Extension Office, UNAH-CURLA
Engineer Kelvin Bodden, Extension Office, UNAH-CURLA
Engineer Sarahi Zerón, William Jewell College
Nurse Priscilla Martinez Johnson, Nursing volunteer (UNAH-CURLA alumnus)
Allan Enrique Elvir Murilla, Intern, Social Service Odontology, UNAH
5 student volunteers, William Jewell College

General Objectives
Determine the state of oral health of students at September 15 School in Boca del Toro, with oral examination, to define the strategies to follow in terms of prevention, treatment, maintenance and control.

This dental clinic was provided with all necessary privacy protections, infection control and minimum biosecurity measures required for these activities.

Background
The plan for this visit was developed almost a year ago, on April 28, 2017. At that time, the guidelines to be followed for this brigade were determined. Those guidelines were followed.

Introduction
The logistics and adequate preparation of the equipment, instruments, materials and supplies necessary for the development of the clinic were completed.
The work area was installed in one of the classrooms of the school. Support was provided by the school teachers and mothers of the community, staff of William Jewell College, support staff of the Municipal Health Center, a Social Service Dentistry Intern and volunteers.

The required supplies were provided by the William Jewell College, according to requests previously provided.

Oral brushing was performed on all children, prior to the dental evaluation. This was made possible with donated toothbrushes and toothpaste provided by William Jewell College and the Dr. Mandujano’s Odontology Clinic. Likewise, the Dental Clinic created toothbrush holders using reusable materials in collaboration with Astrid Escobar, student from the UNAH-CURLA Nursing department, so that each child has a brush and toothpaste at school. This enables establishment of oral hygiene habits after recess each school day.

Oral diagnoses were performed on a dental clinical recliner, with disposable materials for each patient, in a suitable space and with adequate lighting. A dental record was created for each student.

At the end of the day, a meeting was convened with Dr. Lori Wetmore, Engineer Sarahi Zerón, Engineer Vilma Castañeda, Engineer Evangelina Trejo and Dr. Liliana Matute Mandujano. A preliminary report of the state of oral health of children and recommended next steps were elucidated, with these key observations:

1. Recognition that all the children were evaluated by a Pediatric Dental Specialist, with the support of the dental clinic team.
2. First steps should include preventive actions and decrease of any cariogenic load with dental prophylaxis (cleanings), application of fluoride varnish and completion of radiographs (in cases that require radiograph records).
3. Step 2 activities will require a dental unit, so it was suggested that they be carried out by the staff of the Dental Clinic of the VOAE, at the Health Center of San Francisco, with the assistance of the Dental Staff that work there.
4. Realization of the treatments described above, will require planning according to the number of students. This will require two days, with AM and PM sessions.
5. A list of the supplies and materials necessary for the completion of Phase III was provided, with the realization that some materials have already been provided.
6. During the meeting, some cultural insight was provided. The parents lack education on dental health, so they do not understand the importance of maintaining the health of baby teeth. From their perspective, the children will lose these teeth, so they do not see the need for regular dental care.

Technical Support was provided by UNAH-CURLA.

Translated by Dr. Lori Wetmore
Advances
Oral diagnosis of 29 students who attend the September 15 School in Boca del Toro was accomplished. A summary of the results of these diagnoses are provided in the figures below.

A list of required materials and supplies for Phase III was provided.

Figure 1. Oral Health Evaluation for Students Attending September 15 School in Boca del Toro. The number of caries (C), discolorations (D), lesions (L), gingivitis indications, or enamel alterations (EA) are recorded. Note that only two patients were completely free of oral health anomalies.
Figure 2. Relationship between Age, Gender and Oral Health. At least one active lesion or caries was observed in 75.5% of the students, indicating oral disease. Hence, only 24.5% of the students were free of caries or discoloration.

**Conclusions**
Examination of 29 students with ages ranging from 3-11 years (average of 8 years) was completed. The student population was composed of 52% male and 48% female.

Conclusions from both gender groups can be determined:
- 71% (10 girls) have oral disease and 29% (4 girls) exhibit oral health
- 80% (12 boys) have oral disease and 20% (3 boys) exhibit oral health

The conclusions are generated with the understanding that a patient with the presence of at least one active lesion, dental caries and/or the presence of gingivitis are considered to have oral disease. Oral health is indicated by the absence of caries and/or discoloration that do not represent cariogenic activity.

**Agreements and Commitments (short and long term)**
- Scheduling of dates for completion of preventive actions (dental prophylaxis and applications of fluoride varnish to all students), by the staff of the Dental Clinic of the VOAE at the San Francisco Health Center, Atlántida
- Some students require radiographs, which can be completed at the San Francisco Health Center. Required oral perspectives will be recorded.
- Subsequently, the remaining preventive, restorative and control actions will be carried out in the following phases.
- It is necessary to raise awareness among teachers, parents and students about the importance of oral health in the development, growth and maintenance of general health. Therefore, check-ups should be established over time to perform oral cleanings (every 3, 4 or 6 months) or according to the cariogenic risk of each patient.
Means of Verification
- Report document
- Dental records for each patient
- Photo documentation of clinic (in Appendix)

Comments and Observations of the Interinstitutional Outreach
Pending preventive actions are recommended
Appendix

Activities with William Jewell students while waiting for oral examination

Dental team (CURLA, San Francisco Health Center and William Jewell College), school students, teachers and parents who participated in the clinic

Preparation of the school toothbrush holders using reusable materials and delivery of the kits to the schoolchildren (toothbrush and toothpaste).
Student oral examinations and cleaning
General Objective
Perform, with informed consent of the parents and teacher, preventive actions (prophylaxis and application of fluoride varnish) to school students, to reduce the risk of cavities and other conditions in the oral cavity.

Background
After completion of Phase 1, guidelines for the Phase 2 were determined.

The logistics and adequate preparation of equipment, instruments, material and necessary supplies were facilitated by William Jewell College Village Partners so that Phase 2 objectives could be realized.

On April 25, Phase 2 education workshops were completed with parents and teachers.

Execution of Phase 2
On April 26-27, four working groups were formed to complete the objectives.

A total of 30 children were treated for dental prophylaxis, with application of fluoride varnish. Two patients did not receive varnish application due to severe gingivitis.
While waiting for treatment, children participated in drawing activities, painting, crossword puzzles, with teacher supervision.

Students were served refreshments that included a healthy fruit cocktail snack.

The children were transported from the community of Boca del Toro to the dental health clinic (CESAMO) in San Francisco municipality in a small bus provided by CURLA.

At the conclusion of Phase 2, a meeting with Engineers Castañeda and Zerón was accomplished to determine the necessary materials, budget and tentative dates for the Phase 3.

Conclusions
The treatments were performed with aseptic technique and biosecurity to avoid infections or contamination.

These actions required the use of the dental facilities at CESAMO.

Thirty students were treated, ages 3-11 years with an average age of 8 years, 52% were male and 48% were female.

Among the female students, 71% were not healthy and 29% were healthy.
Among the male students, 80% were not healthy and 20% were healthy.

Oral diagnoses were determined for 30 students.
Appendix
Outreach Work and Other Action Report
UNAH-CURLA

Presented by: Dr. Liliana Matute Mandujano, Odontology Clinic
Project: Village Partners Project, September 15 School, Boca del Toro, San Francisco, Atlántida

Activity: Phase 3 Odontology Clinic, Community Development

Date: December 3-5, 2018

Participants
Dr. Liliana Matute Mandujano, Pediatric Dentist, Odontology Clinic
Engineer Vilma Castañeda, Extension Office, UNAH-CURLA
Marvin Romero Fiallos, driver
Ubaldo Hernández, driver
Leonel Madrid, driver
Dr. Esther Alejandra Castillo, Odontology Intern, Health Center, San Francisco Municipality
Intern Yeimy Rivera, William Jewell College

General Objective
Perform preventive dental care, according to informed parental consent, to diminish the risk of
dental caries and gingival conditions that can be present in the oral cavity of the children at
September 15 School
- prophylaxis and application of fluoride varnish
- dental radiograph collection
- sealant application to pits and fissures
Community development Phase 3 odontology clinic, in accordance with required privacy,
control of infections and minimum biosecurity required for this type of clinical activity. The
radiographs will be completed in Dr. Mandujano’s Odontology Clinic, and the prophylaxis,
application of fluoride varnish and sealants will be completed in the Health Center of San
Francisco Municipality.

Justification
Due to the critical state of oral health presented by the population evaluated, phase III of the
project was deemed necessary, which consisted of several steps:
   Step 1: Complete periapical radiographs
Step 2: Apply sealants to pits and fissures

During the last community development visit April 25-27, 2018, the objectives for this phase were determined, in accordance with the development plan.

The logistics and adequate preparation of equipment, instruments, materials and supplies necessary for the development of phase III were determined.

On December 3, 2018, beginning at 8:00 am, the children were transported to the Mandujano Odontology Specialty Center to complete oral radiographs. The Health Center in San Francisco municipality is not equipped with radiograph equipment. The radiographs were provided without charge.

On December 4-5, 2018, beginning at 6:00 am, the needed equipment was transported to the Health Center in San Francisco. The following interventions were completed:

1. Dental prophylaxis for all the children
2. Application of fluoride varnish for children not completed in Phase II
3. Application of sealant to pits and fissures in accordance to caries risk for each child
4. Elimination of partial caries and completion of provisional fillings in the patients that required this treatment

The necessary supplies were provided by UNAH-CURLA, in accordance with the list submitted earlier. It should be noted that all supplies and materials are in accordance with scientific evidence and are of the best quality available in the market.

Radiographs were completed for a total of 22 children, and a total 16 children received preventive care of sealant and fluoride varnish application, as needed. All prophylaxis was completed after removal of tartar. At this same time, fluoride varnish application was applied to the two pending patients. Removal of partial caries and completion of provisional fillings were completed in three patients. Due to the high cariogenic activity that was presented, continued treatment for management of caries is needed to prevent progression.

While the children waited, activities were provided that included drawing, games, and movies. These activities were provided by Engineer Vilma Castañeda and Intern Gemmy Rivera.

In addition, a healthy snack was given to each of the children that consisted of popcorn, wheat bread sandwiches, Jamaica juice and lunch. The children were transported to and from Boca del Toro to the centers for treatment in the small CURLA bus.

At the end of Wednesday, December 5, Intern Yeimy Rivera indicated that all the remaining supplies would be left with the Health Center as a donation. All phases of the dental health project were finalized with this third phase. This third phase proceeded as described in this report, with delivery of all materials and supplies to Dr. Esther Alejandra Castillo, Odontology Intern, Health Center, San Francisco Municipality.
It is worth noting that:

1. The parents of each family gave their informed consent for the children to participate in all three dental prevention phases of the project.
2. All of the treatments were provided by a specialist in pediatric odontology, with quality care, following guidelines for asepsis and biosecurity, to prevent any type of infection and/or contamination between the patients.
3. The actions that required use of the dental unit and radiograph equipment was accomplished by the dental clinic personnel at the Health Center in San Francisco municipality and the Mandujano Odontology Specialty Center, as described in the plans developed in phase 2.
4. The completions of the treatments described previously in this report, according to the requirements for the number of children treated over three days, in the morning and afternoon (similar in form to what was accomplished in phase 2).
5. A donation of all the materials was provided to the Health Center in San Francisco municipality. All supplies and materials were accounted, as described for the project.
6. Maintenance of preventive controls for all patients is needed at least every 6 months, in order to complete dental prophylaxis and application of fluoride varnish.
7. Some patients still require restorative and rehabilitative treatments (dental fillings, root canals, extractions), thus continuation of the project is suggested.

Technical Support provided by UNAH-CURLA.
Advances: Radiographs and finalization of Phase 3

Figure 1. Phase 3, Preventive Actions Completed for Children of September 15 School. Periapical radiographs for 22/30 patients were completed.
Figure 2. Phase 3, Preventative Care Accomplished for Children of September 15 School. Sealant application was provided for 16/30 patients. Fluoride varnish was applied to pending patients and emergency caries were eliminated. (Filling composite was provided by the Mandujano Dental Specialty Center.)

Conclusions

Twenty-two students were provided periapical radiographs in the age range of 4-13 years, with an average age of 9 years, 41% were male and 59% were female.

A total of 49 radiographs were completed

For the application of sealant to pits and fissures, 16 students were treated. All of these students underwent previous dental prophylaxis and a total of 84 sealants were applied.

Two students received fluoride therapy.

Three students required placement of temporary fillings, due to their cariogenic status (donated by CEO Mandujano), 9 fillings were completed.

Some restorations are still pending (Phase IV). Four patients require restorative dental treatment to avoid loss of their permanent molars. (This was emphasized both to Dr. Castillo and Mr. Castañeda and Mr. Rivera).

In addition, one patient requires panoramic radiography because he presented with severe dentomaxillary disharmony and lack of eruption of several of his teeth, with obvious loss of space.

Translated by Dr. Lori Wetmore
Agreements and Commitments (short and long term)

1. Review with Village Partners Project the feasibility of performing restorative actions (Phase IV) and check-ups every 6 months for all children.
2. Repeated education is needed for teachers, parents and students, about the importance of oral health in the development, growth and maintenance of general health. Therefore, it is necessary not only to establish check-ups over time for the performance of oral cleanings (every 3, 4 or 6 months) or according to the cariogenic risk of each patient. Also, the proper brushing should be accomplished at home and school.
3. Motivate healthy eating not only at school but also at home, with effective brushing after each meal. It is necessary to focus on these efforts, since oral health depends on both aspects.

Means of Verification

- Report document
- Attendance list, with daily sheet
- Dental records for each patient
- Photo documentation of clinic (in Appendix)

Comments and observations of the inter-institutional interaction

Future, restorative actions are pending (according to budget for Phase IV).

- Check-ups are suggested over time, with at least 1 or 2 visits per year for the realization of dental prophylaxis and application of fluoride varnish.
- The aforementioned three phases have been completed, with the purpose of maintenance and safeguarding the oral health of the children of the September 15 School over time.
- There are 4 patients who, if the subsequent phases are not completed, must come to the Health Center, or a dental clinic of their choice, to continue treatment. Otherwise, they may have complications with their permanent teeth.
Appendix

December 3, 2018. Completion of radiographs at Mandujano Odontology Specialty Center.

December 4, 2018. Team members and children who attended the Phase 3 Odontology Clinic, application of sealant to pits and fissures.

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December 5, 2018. Team members and children who attended the Phase 3 Odontology Clinic, application of sealant to pits and fissures.

December 5, 2018. Activities and healthy snacks delivered to children during the workday. In the photo below: Team members including Dr. Claudia Cartagena (Director of the Health Center) and Dr. Esther Alejandra Castillo (Dental Clinic of the Health Center).
Application technique of sealants to pits and fissures (3M Clinpro®) for children who required sealants, according to diagnosis and cariogenic risk.