Oral Pathology Asynchronous Tele-mentoring Pilot Study

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Study Product Provider:	SOPRO (France) https://www.acteongroup.com/en/products/imaging/diagnostic-camera/soprocare
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Statement of Compliance

This study will be conducted in accordance with the Code of Federal Regulations on the Protection of Human Subjects (45 CFR Part 46), 21 CFR Parts 50, 56, 312, and 812 as applicable, any other applicable US government research regulations, and institutional research policies and procedures. The International Conference on Harmonisation ("ICH") Guideline for Good Clinical Practice ("GCP") (sometimes referred to as "ICH-GCP" or "E6") will be applied only to the extent that it is compatible with FDA and DHHS regulations. The Principal Investigator will assure that no deviation from, or changes to the protocol will take place without prior agreement from the sponsor and documented approval from the Institutional Review Board (IRB), except where necessary to eliminate an immediate hazard(s) to the trial subjects. All personnel involved in the conduct of this study have completed Human Subjects Protection Training.

Table of Contents

List of Abbreviations

AE	Adverse Event/Adverse Experience
CFR	Code of Federal Regulations
CRF	Case Report Form
CSOC	Clinical Study Oversight Committee
DCC	Data Coordinating Center
DHHS	Department of Health and Human Services
DSMB	Data and Safety Monitoring Board
EHR	Electronic Health Record
FFR	Federal Financial Report
FHC	Family Health Centers at NYU Langone
FWA	Federalwide Assurance
GCP	Good Clinical Practice
HIPAA	Health Insurance Portability and Accountability Act
HRSA	Health Resources and Services Administration
ICF	Informed Consent Form
ICH	International Conference on Harmonisation
IRB	Institutional Review Board
ISM	Independent Safety Monitor
MOP	Manual of Procedures
N	Number (typically refers to subjects)
NIH	National Institutes of Health
NYU	New York University
OHRP	Office for Human Research Protections
OHSR	Office of Human Subjects Research
PI	Principal Investigator
QA	Quality Assurance
QC	Quality Control
SAE	Serious Adverse Event/Serious Adverse Experience
SOP	Standard Operating Procedure
US	United States

1 Key Roles

Nathalie Mohadjeri-Franck, DMD, MA, Principal Investigator. Dr. Mohadjeri-Franck is the Principal Investigator (PI) of the project and the Senior Director of Quality Management and Patient Care at NYU Langone Health. She is a recognized organizational leader in monitoring, performing, and managing quality assurance processes, including those supporting compliance with regulatory and/or accreditation standards. For this project, Dr. Mohadjeri-Franck will serve as the clinical champion, with a particular focus on the safety and operational oversight plans to be developed during the pilot study. She also possesses dental electronic health record (EHR) expertise, which will assist the study team and the clinical directors at the 6 Family Health Centers at NYU Langone (FHC) dental clinics in successfully completing the planned scope of work.

Robert B. Bowe, DDS, Sub-Investigator. Dr. Bowe is a Sub-Investigator of the project and the Director of Oral Pathology at NYU Langone Hospital – Brooklyn. For the proposed project, he will contribute his clinical expertise and scientific understanding to identify oral lesions and mentor dental faculty and residents in oral cancer prevention, screening, and treatment.

Steven Gargano, Health Information Technology Specialist. Mr. Gargano is the Health Information Technology (HIT) Specialist for the project and the Manager of Dental Technology at NYU Langone Health. He will be responsible for installing the intraoral cameras and software in the 6 FHC dental clinics, and storing, extracting, and transferring the requisite Dentrix EHR data to REDCap for the planned analyses.

Tina Littlejohn, MSW, Research Associate. Ms. Littlejohn is the Research Associate for the project and the Research Program Coordinator for NYU Langone Dental Medicine – Brooklyn. She will be responsible for assuring study compliance with all NYU School of Medicine IRB requirements and collaborate with Dr. Northridge on the qualitative data analysis.

Mary E. Northridge, PhD, MPH, Sub-Investigator. Dr. Northridge is a Sub-Investigator for the project and the Director of Dental Research and Research Associate Professor at the Hansjörg Wyss Department of Plastic Surgery in the Division of Dental Medicine at NYU School of Medicine. She will be primarily responsible for overseeing the qualitative data analysis, and lead the manuscript preparation and mentor her clinical colleagues in writing for peer-reviewed publication.

Andrea Troxel, ScD, Sub-Investigator. Dr. Troxel is a Sub-Investigator of the project and Professor of Population Health and Director of Biostatistics at the NYU School of Medicine. She will serve as the biostatistician on the project, providing guidance on all aspects of study design and analysis.

Yinxiang Wu, MA, Data Analyst. Mr. Wu is the Data Analyst on the project and an Assistant Research Scientist working under the direction of Dr. Troxel at the NYU School of Medicine. Mr. Wu will report directly to Dr. Troxel and conduct the data analyses for the project, while ensuring that all of the process and outcome data are safely stored according to security standards and in formats suitable for analysis.

2 Introduction, Background Information and Scientific Rationale

2.1 Background Information and Relevant Literature

Distance learning. The Division of Dental Medicine within the Hansjörg Wyss Department of Plastic Surgery at the NYU School of Medicine has developed ground-breaking initiatives in order to connect remote sites and programs for didactic training. With the assistance of an “Innovative” grant from the Health Resources and Services Administration (HRSA) awarded over a decade ago to introduce a live, interactive, video-teleconferencing (VTC) system, a distance learning component was added to the NYU Langone

Dental Medicine residency training program. This enabled the NYU Langone Dental Medicine network to develop clusters of training sites geographically removed from the primary teaching facilities at FHC in Brooklyn, NY, thus ensuring educational equity across geography.

In addition to the traditionally low-income, racial/ethnic minority, and immigrant patient populations of community health centers (CHCs), the Division of Dental Medicine places dental residents in Indian Health Service facilities as well as other ambulatory care organizations, thus providing care to socioeconomically underserved communities in both urban and rural areas. This pioneering distance learning system has enabled its hospital-based dental residency program to have a complete electronically-mediated curriculum as part of the didactic training program, in addition to clinical experiences at each specific training site. Currently, distance learning is delivered through both synchronous (e.g., live interactive video teleconferencing) and asynchronous (e.g., on-line educational modules) methodologies.

Tele-dentistry. Dental provider shortages, remoteness, funding challenges, and decreased costs, coupled with advances in technology, have increased interest in the use of tele-medicine applications.[3] In recent years, there have been extensive technological innovations in the field of dentistry. Among the most important of these advances are the use of computers, tele-communications technology, digital diagnostic imaging services, and specialized hardware and software for patient screening and follow-up. Technological capabilities that were considered out of reach 20 years ago are now possible in dental care, but implementing and evaluating them in diverse, low-resource dental settings requires the engagement of key organizational stakeholders and clinical, technological, and scientific experts.

By exploiting advanced information technologies, the science of dentistry has unprecedented potential to progress far more than it has during the previous 20 centuries. New information technologies have not only improved the quality of dental patient management, but have also made it possible to achieve partial or complete management remotely, even at distances of thousands of miles from health care centers or dental experts. Networking, the sharing of digital dentistry information, and distant consultations, workups, and analyses are handled by a specific branch of dentistry-related tele-medicine known as tele-dentistry.[4,5]

Cancer risks in low-income, racial/ethnic minority, and immigrant communities. Cancer risks are compounded in low-income, racial/ethnic minority, and immigrant communities by difficulties in accessing health care services and multiple linguistic, cultural, economic, and social barriers. Acculturation also plays a key role in health status and promotion, as immigrants who have lived in the United States for longer periods of time and possess higher degrees of acculturation may have different lifestyles than those who report fewer years of US residence or lesser degrees of acculturation.[6,7] For all population groups, cultural beliefs influence both health care choices and service use. For instance, among certain Asian subgroups, a strong sense of group collectivism exists, and individuality is submerged in the interest of group welfare.[8] Friends, neighbors, and family members are often accessed and consulted before turning to formal health care services,[8] which may delay the identification and diagnosis of oral lesions, especially in remote CHCs which often lack oral pathology expertise.

2.2 Diagnostic-imaging multiformat camera

The SOPROCARE is intended for clinical practice of general dentistry, as an aid in the diagnosis of pit and fissure caries, as an aid to highlight dental plaque and gingival inflammations (restricted to gingival inflammations which lead to bleeding upon probing) and as intra-oral camera to visualize anatomical details that are invisible to the naked eye or with a mirror (thanks to its magnification). In CARIO mode, the camera helps the dental practitioner to highlight carious warning on pits and fissures of the occlusal side of the teeth. In DAYLIGHT mode, the camera enables you to visualize anatomical details invisible to the naked eye or with a mirror (thanks to its magnification). In PERIO mode, the camera helps the dental practitioner to see the presence of dental plaque but also to highlight gingival inflammations (restricted to gingival inflammations which lead to bleeding upon probing). This mode offers to the dentist and/or hygienist a tool

for an improved communication, motivation and education of his/her patients, who will then become aware of their oral health condition.

This medical device is classified IIb according to the current applicable European Directive. It is CE marked. Notified Body: CE 0459 LNE-GMED. This medical device dedicated to dental cares is restricted to health staff; it is not reimbursed by health insurance organizations. This device was developed and manufactured according to the EN ISO 13485 quality control certification system. Read carefully the user manual. Manufacturer: SOPRO (France).

2.2.1 Preclinical Data

N/A

2.2.2 Clinical Data to Date

N/A

2.3 Rationale

Even as each preventive dental visit includes a screen for oral cancer, detection and identification of lesions is hampered by difficulty in visualizing lesions intraorally and lack of expertise among general dentists in oral cancer detection. We hypothesize that the oral pathology asynchronous tele-mentoring pilot project will both feasible to implement in the dental clinic setting, and acceptable to patients.

2.4 Potential Risks & Benefits

2.4.1 Known Potential Risks

The proposed study poses minimal risk to subjects. Loss of confidentiality is the greatest potential risk to study subjects. All data entered into the research databases (in REDCap) will be protected by confidential entry codes. Locked file cabinets will be used to store materials with identifying information (e.g., consent forms). Unique identifiers will always replace patient names in all research databases. All computer systems are protected from possible external access. No Internet access is possible with the research systems to be used for this study. In addition, computer records will be maintained in such a way that the patient's name or other obvious identifying information is not accessible in the same file or by using the same code. Once digital recordings are transcribed and entered into a password-protected database, the recordings will be deleted from the study files. Interview subjects will have the right to refuse to participate without any compromise of their employment status, reputation, or professional relationships. Records of subjects will not be linked to employment records. Also, if a subject is uncomfortable during any interview situation, s/he may stop the interview at any time without penalty. The data collected for this study will be used strictly for the purposes stated in this application and will only be available to NYU Langone Health research staff.

2.4.2 Known Potential Benefits

By participating in the proposed research, research subjects may gain the benefit of augmented services to prevent and/or identify oral cancer. Some patients may individually experience no benefit. This study will yield knowledge regarding methods for increasing adherence to evidence-based guidelines for prevention of, screening for, and treatment of oral cancer. Overall, the benefits of understanding effective methods for helping patients reduce their risk of oral cancer far outweigh the remote possibility of a breach of confidentiality.

3 Objectives and Purpose

The purpose of the proposed research project is to evaluate and enhance the feasibility and acceptability of integrating a tele-mentoring component into the identification of oral lesions at the 6 dental clinics of Family Health Centers at NYU Langone (FHC), a Federally Qualified Health Center (FQHC) in Brooklyn, NY.

The tele-mentoring intervention involves training dental faculty member subjecs and resident subjects to use intraoral cameras to take photographs of oral lesions and place them in the Dentrix electronic health record (EHR), along with descriptions of the lesions. This information will then be sent via Dentrix EHR to Robert B. Bowe, DDS, the Director of Oral Pathology at NYU Langone Hospital – Brooklyn, and an initial dummy code entry will be placed in the Dentrix EHR. For each patient with a detected lesion, Dr. Bowe will then review the Dentrix EHR chart and the uploaded photograph(s) of the lesion(s) found and place his observations in the Dentrix EHR. Next, Dr. Bowe will discuss his findings with the involved dental faculty member / dental resident via secure NYU Langone Health e-mail. The dental provider will then enter an apt comment in the Dentrix EHR, using the following template: “Reviewed entry and contacted patient. Follow-up appointment needed / not needed (+ date) for an appointment on (date).” A second dummy code entry will then be placed in the patient chart in the Dentrix EHR. Once a week, Dr. Bowe will receive a Dentrix EHR report with the 2 affiliated dummy codes for the tele-mentoring pilot study, and assure that entries for both codes are entered, and the loop is closed.

Using a mixed-methods approach, we will evaluate and enhance the feasibility and acceptability of integrating a tele-mentoring component into the identification of oral lesions at the 6 FHC dental clinics. This will be achieved through:

1. Administering provider surveys (n=12) that consist of a checklist of 10 key components of the intervention based on process, and asking the dental provider subjects at each of the 6 FHC dental sites if each one was covered.

2. Conducting semi-structured interviews (n=6) with dental resident subjects at each of the 6 FHC sites to assess specific barriers to sustaining the intervention and strategies for addressing these barriers to facilitate integration of the intervention into the routine workflow of the dental clinics. The interviews will be informed by the Consolidated Framework for Implementation Research (CFIR)[1] and the Implementation Outcomes Framework (IOF).[2]

3. Administering brief exit interviews (n=30) with patient subjects at each of the 6 FHC dental sites regarding the acceptability of the intervention. The survey will assess patient satisfaction with the use of intraoral cameras at chairside to screen for and refer patients with oral lesions and identification of these oral lesions via tele-mentoring with an oral pathology expert (Dr. Bowe).

Impact: If this pilot study proves successful, NYU Langone Health is well-equipped with both teaching and organizational expertise in faculty development activities, as well as the existing NYU Langone Dental Medicine national network of video-teleconferencing and web-based educational technology, to scale-up the proposed oral pathology asynchronous tele-mentoring educational program for the teaching of dental educators and residents, with the ultimate goal of improving patient care.

3.1 Primary Objective

To assess the feasibility of the oral pathology asynchronous tele-mentoring intervention in the dental clinic setting.

3.2 Secondary Objectives (if applicable)

To assess the acceptability of the asynchronous tele-mentoring pilot intervention to adult dental patients.

4 Study Design and Endpoints

4.1 Description of Study Design

This one-year pilot study is composed of 2 parts:

- During months 1-6, we will complete the installation of the intraoral cameras in the dental operatories at FHC and design the Dentrix EHR screens for entering the information and tracking the involved steps of the tele-mentoring intervention. Dentist and resident subjects at all 6 FHC dental sites will then be trained by Dr. Mohadjeri-Franck and Mr. Steven Gargano to use the intraoral cameras to take photographs of oral lesions and place them in the Dentrix EHR, along with descriptions of the lesions.

- During months 6-12, dentist and resident subjects will begin screening eligible patients for oral lesions and place photographs and descriptions of any found lesions in the Dentrix EHR, along with an initial dummy code entry. For each patient with a detected lesion, Dr. Bowe will then review the Dentrix EHR chart and the uploaded photograph(s) of any lesion(s) found and place his observations in the Dentrix EHR. Next, Dr. Bowe will discuss his findings with the involved dental faculty member / dental resident via secure NYU Langone Health e-mail. The dental provider will then enter an apt comment in the Dentrix EHR, using the following template: "Reviewed entry and contacted patient. Follow-up appointment needed / not needed (+ date) for an appointment on (date)." A second dummy code entry will then be placed in the patient chart in the Dentrix EHR. Once a week, Dr. Bowe will receive a Dentrix EHR report with the 2 affiliated dummy code entries for the tele-mentoring pilot study, thus assuring that entries are made for both codes, and the loop is closed. We will also pilot feasibility and acceptability of the intervention by completing provider surveys, semi-structured interviews with dental residents, and patient exit interviews.

4.2 Study Endpoints

4.2.1 Primary Study Endpoints

Feasibility will be assessed using provider surveys, semi-structured interviews, and EHR data.

Feasibility data collection.

We developed a checklist of 10 key components of the intervention based on process and will ask the dental resident and dentist subjects at the 6 FHC dental clinics if each was covered. Endorsement of 8 of the 10 checklist items (80%) by the dental provider subjects will be considered as the feasibility criterion. Specifically, we will estimate the average checklist endorsement score across all providers with its associated 95% confidence interval (CI); if the upper bound of the CI exceeds 80%, we will consider the process feasible.

Moreover, we will allow for open-ended collection of feedback on the feasibility of using the intraoral cameras for identification of oral lesions as part of the tele-mentoring intervention. Semi-structured interviews will also be conducted with dental resident subjects. We anticipate conducting 6 interviews before obtaining data saturation. The questions will be informed by the IOF and CFIR constructs and will assess specific barriers to sustaining the intervention and strategies for addressing those barriers to facilitate integration of the intervention into the routine workflow of the FHC dental clinics.

4.2.2 Secondary Study Endpoints

Acceptability will be assessed using patient exit interviews (PEIs) conducted right after the dental visit is completed.

Acceptability data collection.

Research staff will conduct a brief exit interview with 5 patients at each of the 6 FHC dental clinics with language interpretation services available regarding the acceptability of the intervention. We developed five statements on patient satisfaction with the intraoral cameras and the overall tele-mentoring intervention that will constitute the PEI. Patients will be asked the extent to which they agree with each statement (e.g., “Dentists should discuss with me ways to prevent and screen for oral cancer.”) (strongly agree, agree, disagree, strongly disagree). The acceptability criterion of the intervention will be that 80% or more of patients rate all five administered acceptability questions as “strongly agree” or “agree.” We will evaluate acceptability as described above for feasibility.

4.2.3 Exploratory Endpoints

N/A

5 Study Enrollment and Withdrawal

Any subject may withdraw from the study at any time. This will not affect the services and care received at the clinic site. If a subject is uncomfortable during the intervention or survey administration, the subject may stop at any time without penalty. If a subject withdraws consent, no further data from that subject will be collected.

5.1 Inclusion Criteria

Dental patients will be eligible for study participation if they meet the following criteria:

- Greater than or equal to 18 years of age.
- Live in any of the 5 boroughs of New York, NY and visit a participating FHC dental clinic for routine dental care.
- Able and willing to provide informed consent, have their oral lesion(s) photograph(s) and accompanying data entered into the Dentrix EHR, and participate in an exit interview.

Dental providers (non-patient subjects) will be eligible for study participation if they meet the following criteria:

- Greater than or equal to 18 years of age.
- Be employed as a dentist or placed as a dental resident at a participating FHC dental clinic.
- Able and willing to provide informed consent and participate in feasibility testing (provider survey or semi-structured interview).

5.2 Exclusion Criteria

Dental patients will be excluded from study participation if they meet the following criteria:

- Have an acute or terminal illness or a serious mental illness or any other severe health condition(s) that might preclude visiting an oral health care provider.
- Are currently participating in another oral health study.

Dental providers (non-patient subjects) will be excluded from study participation if they meet the following criteria:

- Have an acute or terminal illness or a serious mental illness or any other severe health condition(s) that might preclude them from completing the feasibility testing.

5.3 Vulnerable Subjects

No students will be involved in this research. Dental residents and dental faculty clinical advisors (dentists) will be recruited for this study to determine whether the tele-mentoring component will enhance the ability to detect and identify oral lesions in patients during routine dental visits. The voluntary nature of

their participation will be principal and without undue influence. All dental providers will be told that they have the right to refuse to participate without any compromise to their positions within the NYU Langone Dental Medicine network.

5.4 Strategies for Recruitment and Retention

Patient subjects will be dental patients who are visiting any of the 6 FHC dental clinics for their regular dental appointments. The dental provider will conduct chairside screening to determine patient eligibility for participation. No undue pressure will be given to patients to participate in the study, which is entirely voluntary.

Non-patient subjects will be dental residents and dental faculty who supervise them at any of the 6 FHC dental clinics. Study staff will meet with potential non-patient subjects during team meetings held in each dental clinic to discuss this study No undue pressure will be given to dental providers to participate in the study, which is entirely voluntary.

5.4.1 Use of DataCore/Epic Information for Recruitment Purposes

This study will not utilize EPIC to identify subjects.

5.5 Duration of Study Participation

The duration of study participation for patient subjects will be from 1-2 days, including follow-up.

The duration of study participation for non-patient subjects will be from 3-6 months.

5.6 Total Number of Subjects and Sites

All subjects will be recruited at the 6 FHC dental clinics in Brooklyn, NY.

The number of patient subjects will total 30 (5 from each of 6 FHC dental clinics).

The number of non-patient subjects will total 18: 12 dental resident and dentist subjects who will complete provider surveys (feasibility checklists), and 6 dental resident subjects who will complete semi-structured interviews.

5.7 Subject Withdrawal or Termination

5.7.1 Reasons for Withdrawal or Termination

Subjects are free to withdraw from participation in the study at any time upon request. An investigator may terminate participation in the study if:

- Any clinical adverse event (AE), laboratory abnormality, or other medical condition or situation occurs such that continued participation in the study would not be in the best interest of the subject
- The subject meets an exclusion criterion (either newly developed or not previously recognized) that precludes further study participation
- Patients will have the right to refuse to participate without any compromise of their health or dental services
- Non-patient subjects will have the right to refuse to participate without any compromise of their employment or standing in the NYU Langone Dental Medicine network

- If a subject is uncomfortable during an interview or survey administration, s/he may stop at any time without penalty

5.7.2 Handling of Subject Withdrawals or Termination

If a subject withdraws consent, no further data from that subject will be entered into the REDCap database for that subject. Depending on the nature of the request to withdraw, it may be necessary to remove existing data for that subject from the REDCap database.

5.8 Premature Termination or Suspension of Study

This study may be temporarily suspended or prematurely terminated if there is sufficient reasonable cause. Written notification, documenting the reason for study suspension or termination, will be provided by the suspending or terminating party to Dr. Mohadjeri-Franck (PI), HRSA, and regulatory authorities. If the study is prematurely terminated or suspended, the PI will promptly inform the IRB and will provide the reason(s) for the termination or suspension.

Circumstances that may warrant termination or suspension include, but are not limited to:

- Determination of unexpected, significant, or unacceptable risk to subjects
- Demonstration of efficacy that would warrant stopping
- Insufficient compliance to protocol requirements
- Data that are not sufficiently complete and/or evaluable
- Determination of futility

Study may resume once concerns about safety, protocol compliance, data quality are addressed and satisfy the sponsor, IRB, and/or FDA.

6 Study Agent (Study drug, device, biologic, vaccine etc.) and/or Procedural Intervention

The SOPROCARE is intended for clinical practice of general dentistry, as an aid in the diagnosis of pit and fissure caries, as an aid to highlight dental plaque and gingival inflammations (restricted to gingival inflammations which lead to bleeding upon probing) and as intra-oral camera to visualize anatomical details that are invisible to the naked eye or with a mirror (thanks to its magnification). In CARIO mode, the camera helps the dental practitioner to highlight carious warning on pits and fissures of the occlusal side of the teeth. In DAYLIGHT mode, the camera enables you to visualize anatomical details invisible to the naked eye or with a mirror (thanks to its magnification). In PERIO mode, the camera helps the dental practitioner to see the presence of dental plaque but also to highlight gingival inflammations (restricted to gingival inflammations which lead to bleeding upon probing). This mode offers to the dentist and/or hygienist a tool for an improved communication, motivation and education of his/her patients, who will then become aware of their oral health condition.

MORE INVENTIVE. PATENTED AUTOFLUORESCENCE TECHNOLOGY.
The ACTEON® imaging team has patented a technology based on the principle of autofluorescence. ACTEON® intraoral cameras provide a real-time fluorescence signal of the tooth superimposed on its anatomical image, revealing invisible tissues.

SELECTIVE CHROMATIC AMPLIFICATION.
Due to the combination of blue light absorption by soft tissue and selective chromatic amplification, SOPROCARE® improves visibility of all areas of tissue inflammation.

6.1 Study Agent(s) and Control Description

Prescription Use (Rx): Yes.

LESS INVASIVE. HIGHLIGHT PATHOLOGIES AND MOTIVATE PATIENTS.

The autofluorescence makes it possible to detect decay even at its earliest stages, without subjecting the patient to any unnecessary radiation. SOPROCARE® also reveals dental plaque without using plaque disclosing solutions, and highlights gingival inflammation painlessly.

Improve clinical performance and easily communicate the treatment plan to your patient. The patient is involved in making decisions and accept the treatment.

Images can be captured and stored into any imaging software, giving you all of the necessary tools to practice minimally invasive dentistry.

6.1.1 Acquisition

Commercially via vendor

6.1.2 Device Specific Considerations

Aceton Soprocare Intraoral Camera
Catalog Number: S_950_0002

6.1.3 Procedures for Training Interventionalists and Monitoring Intervention Fidelity

Dr. Mohadjeri-Franck will train and supervise the dental providers, who will administer the intervention.

6.1.4 Assessment of Subject Compliance with Study Intervention

N/A

6.2 Study Procedural Intervention(s) Description

The tele-mentoring intervention involves training dental faculty members and residents to use intraoral cameras to take photographs of oral lesions and place them in the Dentrix electronic health record (EHR), along with descriptions of the lesions. This information will then be sent via Dentrix EHR to Robert B. Bowe, DDS, the Director of Oral Pathology at NYU Langone Hospital – Brooklyn, and an initial dummy code entry will be placed in the Dentrix EHR. For each patient with a detected lesion, Dr. Bowe will then review the Dentrix EHR chart and the uploaded photograph(s) of the lesion(s) found and place his observations in the Dentrix EHR. Next, Dr. Bowe will discuss his findings with the involved dental faculty member / dental resident via secure NYU Langone Health e-mail. The dental provider will then enter an apt comment in the Dentrix EHR, using the following template: “Reviewed entry and contacted patient. Follow-up appointment needed / not needed (+ date) for an appointment on (date).” A second dummy code entry will then be placed in the patient chart in the Dentrix EHR. Once a week, Dr. Bowe will receive a Dentrix EHR report with the 2 affiliated dummy codes for the tele-mentoring pilot study, and assure that entries for both codes are entered, and the loop is closed.

6.2.1 Administration of Procedural Intervention

Dental resident and dentist subjects will administer the study during participating patient routine dental visits.

6.2.2 Procedures for Training of Clinicians on Procedural Intervention

Dr. Mohadjeri-Frank will train all dental provider subjects on the use of intraoral cameras and the tele-mentoring procedure. Dr. Bowe will train all dental resident and dentist subjects in the identification of oral lesions.

6.2.3 Assessment of Clinician and/or Participant Compliance with Study Procedural Intervention

N/A

7 Study Procedures and Schedule

7.1 Study Procedures/Evaluations

7.1.1 Study Specific Procedures

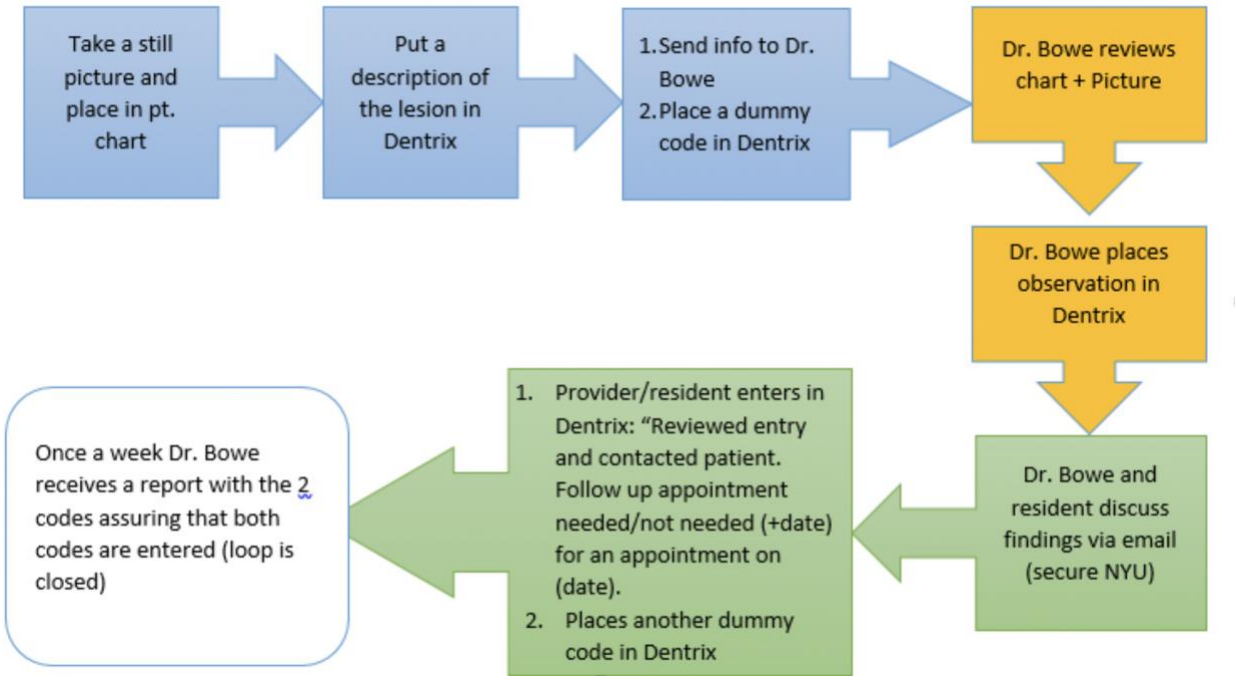
The protocol for the tele-mentoring study was designed by Drs. Bowe and Mohadjeri-Franck, and is provided on the following page. This workflow will be refined based upon the results of the planned feasibility and acceptability testing. All study activities will take place in the 6 FHC dental clinics and private offices of NYU Langone Dental Medicine in Brooklyn, NY. The PEIs with patient subjects and the feasibility checklists with provider subjects will take 10-15 minutes to complete. The semi-structures interviews with dental resident subjects will take 30-45 minutes to complete, and will be digitally recorded and transcribed. The transcriptions will be stored in a secure REDCap database. The digital files will be deleted once they are transcribed. No identifying information will be recorded.

A2. Data Collection

Feasibility of the integrated intervention will be assessed through dental provider surveys and semi-structured interviews. The dental provider survey, which consists of a checklist of 10 key components of the tele-mentoring intervention to be implemented, will be completed by 2 dentists at each of the 6 FHC dental clinics (n=12) after screening at least 1 patient subject for oral cancer using an intraoral camera, as per the tele-mentoring protocol. Furthermore, after we have reached our target of 30 patient participants (5 patient participants at each of the 6 FHC dental sites), we will engage 6 dental residents (1 at each of the 6 FHC dental clinics) in a semi-structured interview to assess specific barriers they have encountered to sustaining the intervention and strategies for addressing those barriers to facilitate integration of the tele-mentoring intervention into the routine workflow of the dental clinics.

Acceptability of the integrated intervention will be assessed through brief patient exit surveys. Consented participants will be asked to complete a brief patient exit survey at the end of their dental appointments after being screening for oral cancer lesions using an intraoral camera.

The protocol for the tele-mentoring study is provided below:



7.1.2 Standard of Care Study Procedures

N/A

7.2 Laboratory Procedures/Evaluations

N/A

7.2.1 Clinical Laboratory Evaluations

N/A

7.3 Study Schedule

7.3.1 Screening

The participating dental provider will conduct chairside screening to determine patient eligibility for participation.

Screening Visit (Day 1)

- Obtain informed consent of potential subject verified by signature on written informed consent for screening form.
- Review medical history to determine eligibility based on inclusion/exclusion criteria.
- Review medications history to determine eligibility based on inclusion/exclusion criteria.

7.3.2 Enrollment/Baseline

Enrollment/Baseline Visit (Visit 1, Day 0)

The dental resident or dentist subject screens the patient subject for oral cancer via use of an intraoral camera and the tele-mentoring protocol during her/his regularly scheduled dental visit.

7.3.3 Final Study Visit

The dental resident or dentist subject discusses the next steps with the patient subject, including scheduling a follow-up visit, where indicated.

7.4 Safety Oversight

It is the responsibility of the Principal Investigator to oversee the safety of the study at her site. This safety monitoring will include careful assessment and appropriate reporting of adverse events as noted above, as well as the construction and implementation of a site data and safety-monitoring plan. Medical monitoring will include a regular assessment of the number and type of serious adverse events.

No DSMB will be convened for this pilot study.

8 Clinical Monitoring

Clinical site monitoring is conducted to ensure that the rights and well-being of human subjects are protected, that the reported trial data are accurate, complete, and verifiable, and that the conduct of the trial is in compliance with the currently approved protocol/amendment(s), with GCP, and with applicable regulatory requirement(s).

No independent clinical monitor will be assigned for this pilot study.

9 Statistical Considerations

Feasibility Data Analysis
Provider Survey. All quantitative analyses will be conducted by Mr. Wu under the direction of Dr. Troxel. Endorsement of 8 of the 10 checklist items (80%) by the provider subjects will be considered as the feasibility criterion. Specifically, Mr. Wu will estimate the average checklist endorsement score across all dentists with its associated 95% confidence interval (CI); if the upper bound of the CI exceeds 80%, we will consider the process to be feasible.

Provider Semi-Structured Interview. All interviews will be transcribed by a transcription company and coded by 2 research staff members (Dr. Northridge and Ms. Littlejohn). The research staff members will code individually and then meet to discuss and agree upon the final codes. The analysis of the qualitative data will utilize the techniques of narrative analysis and be guided by the constant comparison analytic approach to identify themes.

Acceptability Data Analysis
Patient Exit Survey. The acceptability criterion of the intervention will be that 80% or more of patients rate all 5 administered acceptability questions as “strongly agree” or “agree” on a Likert Scale.

9.1 Sample Size

No sample size calculation will be conducted for this pilot study.

10 Source Documents and Access to Source Data/Documents

Source data is all information, original records of clinical findings, observations, or other activities in a clinical trial necessary for the reconstruction and evaluation of the trial. Source data are contained in source documents. Examples of these original documents, and data records include: hospital records, clinical and office charts, laboratory notes, memoranda, subjects' diaries or evaluation checklists, pharmacy dispensing records, recorded data from automated instruments, copies or transcriptions certified after verification as being accurate and complete, microfiches, photographic negatives, microfilm or magnetic media, x-rays, subject files, and records kept at the pharmacy, at the laboratories, and at medico-technical departments involved in the clinical trial. It is acceptable to use CRFs as source documents. If this is the case, it should be stated in this section what data will be collected on CRFs and what data will be collected from other sources.

The study case report form (CRF) is the primary data collection instrument for the study. All data requested on the CRF must be recorded. All missing data must be explained. If a space on the CRF is left blank because the procedure was not done or the question was not asked, write "N/D". If the item is not applicable to the individual case, write "N/A". All entries should be printed legibly in black ink. If any entry error has been made, to correct such an error, draw a single straight line through the incorrect entry and enter the correct data above it. All such changes must be initialed and dated. DO NOT ERASE OR WHITE OUT ERRORS. For clarification of illegible or uncertain entries, print the clarification above the item, then initial and date it.

Access to study records will be limited to IRB-approved members of the study team. The investigator will permit study-related monitoring, audits, and inspections by the IRB/EC, the sponsor, government regulatory bodies, and University compliance and quality assurance groups of all study related documents (e.g. source documents, regulatory documents, data collection instruments, study data etc.). The investigator will ensure the capability for inspections of applicable study-related facilities (e.g. pharmacy, diagnostic laboratory, etc.).

Participation as an investigator in this study implies acceptance of potential inspection by government regulatory authorities and applicable University compliance and quality assurance offices.

11 Quality Assurance and Quality Control

QC procedures will be implemented beginning with the data entry system and data QC checks that will be run on the database will be generated. Any missing data or data anomalies will be communicated to the site(s) for clarification/resolution.

Following written SOPs, the monitors will verify that the clinical trial is conducted and data are generated, documented (recorded), and reported in compliance with the protocol, GCP, and the applicable regulatory requirements (e.g., Good Laboratory Practices (GLP), Good Manufacturing Practices (GMP)).

The investigational site will provide direct access to all trial related sites, source data/documents, and reports for the purpose of monitoring and auditing by the sponsor, and inspection by local and regulatory authorities.

12 Ethics/Protection of Human Subjects

12.1 Ethical Standard

The investigator will ensure that this study is conducted in full conformity with Regulations for the Protection of Human Subjects of Research codified in 45 CFR Part 46, 21 CFR Part 50, 21 CFR Part 56, and/or the ICH E6.

12.2 Institutional Review Board

The protocol, key information forms, informed consent form, recruitment materials, and all subject materials will be submitted to the IRB for review and approval. Approval of both the protocol and the consent forms must be obtained before any subject is enrolled. Any amendment to the protocol will require review and approval by the IRB before the changes are implemented to the study. All changes to the consent form will be IRB approved; a determination will be made regarding whether previously consented subjects need to be re-consented.

12.3 Informed Consent Process

12.3.1 Consent/Assent and Other Informational Documents Provided to subjects

Consent forms describing in detail the study agent, study procedures, and risks are given to the subject and written documentation of informed consent is required prior to starting the study. The following consent materials are submitted with this protocol:

- Consent Form
- Research Subject Key Study Information Form

12.3.2 Consent Procedures and Documentation

Informed consent is a process that is initiated prior to the individual's agreeing to participate in the study and continues throughout the individual's study participation. Extensive discussion of risks and possible benefits of participation will be provided to the subjects and their families. Consent forms will be IRB-approved and the subject will be asked to read and review the document. The investigator will explain the research study to the subject and answer any questions that may arise. All subjects will receive a verbal explanation in terms suited to their comprehension of the purposes, procedures, and potential risks of the study and of their rights as research subjects. Subjects will have the opportunity to carefully review the written consent form and ask questions prior to signing. The subjects should have the opportunity to discuss the study with their surrogates or think about it prior to agreeing to participate. The subject will sign the informed consent document prior to any procedures being done specifically for the study. The subjects may withdraw consent at any time throughout the course of the trial. A copy of the signed informed consent document will be given to the subjects for their records. The rights and welfare of the subjects will be protected by emphasizing to them that the quality of their medical care will not be adversely affected if they decline to participate in this study.

A copy of the signed informed consent document will be stored in the subject's research record. The consent process, including the name of the individual obtaining consent, will be thoroughly documented in the subject's research record. Any alteration to the standard consent process (e.g., use of a translator, consent from a legally authorized representative, consent document presented orally, etc.) and the justification for such alteration will likewise be documented.

12.4 Subject and Data Confidentiality

Information about study subjects will be kept confidential and managed according to the requirements of the Health Insurance Portability and Accountability Act of 1996 (HIPAA). Those regulations require a signed subject authorization informing the subject of the following:

- What protected health information (PHI) will be collected from subjects in this study
- Who will have access to that information and why
- Who will use or disclose that information
- The rights of a research subject to revoke their authorization for use of their PHI.

In the event that a subject revokes authorization to collect or use PHI, the investigator, by regulation, retains the ability to use all information collected prior to the revocation of subject authorization. For subjects that have revoked authorization to collect or use PHI, attempts should be made to obtain permission to collect at least vital status (i.e. that the subject is alive) at the end of their scheduled study period.

Subject confidentiality is strictly held in trust by the participating investigators, their staff, and the sponsor(s) and their agents. This confidentiality is extended to cover testing of biological samples and genetic tests in addition to the clinical information relating to subjects. Therefore, the study protocol, documentation, data, and all other information generated will be held in strict confidence. No information concerning the study or the data will be released to any unauthorized third party without prior written approval of the sponsor.

The study monitor, other authorized representatives of the sponsor, representatives of the IRB or pharmaceutical company supplying study product may inspect all documents and records required to be maintained by the investigator, including but not limited to, dental and medical records (office, clinic, or hospital) and pharmacy records for the subjects in this study. The clinical study site will permit access to such records.

The study subject's contact information will be securely stored at each clinical site for internal use during the study. At the end of the study, all records will continue to be kept in a secure location for as long a period as dictated by local IRB and Institutional regulations.

Study subject research data, which is for purposes of statistical analysis and scientific reporting, will be transmitted to and stored at NYU Langone Health. This will not include the subject's contact or identifying information. Rather, individual subjects and their research data will be identified by a unique study identification number. The study data entry and study management systems used by clinical sites and by NYU Langone Health research staff will be secured and password protected. At the end of the study, all study databases will be de-identified and archived at the NYU Langone Health.

12.4.1 Research Use of Stored Human Samples, Specimens, or Data

Patient data:
All data entered into the research database (in REDCap) will be protected by confidential entry codes. Locked file cabinets will be used to store materials with identifying information (e.g., consent forms). Unique identifiers will always replace patient names in all research databases. All computer systems are protected from possible external access. No Internet access is possible with the research systems to be used for this study. In addition, computer records will be maintained in such a way that the patient's name or other obvious identifying information is not accessible in the same file or by using the same code.

The digitally recorded interviews will be transcribed. The transcriptions will be kept in a password-protected computer. The files will be deleted once they are transcribed. No identifying information will be recorded.

Provider and staff data:
We will assign a unique identifier (i.e., Subject ID) and remove any personal identifying information from each interview record to minimize the risk of breach of confidentiality. All data will be maintained on password-protected computers on a secure network accessible only to study investigators and staff.

12.5 Future Use of Stored Human Samples, Specimens, or Data

Data collected for this study will not be stored for future research.

13 Data Handling and Record Keeping

13.1 Data Collection and Management Responsibilities

Data collection is the responsibility of the clinical trial staff at the site under the supervision of the site PI. The investigator is responsible for ensuring the accuracy, completeness, legibility, and timeliness of the data reported.

All source documents should be completed in a neat, legible manner to ensure accurate interpretation of data. Black ink is required to ensure clarity of reproduced copies. When making changes or corrections, cross out the original entry with a single line, and initial and date the change. DO NOT ERASE, OVERWRITE, OR USE CORRECTION FLUID OR TAPE ON THE ORIGINAL.

Copies of the electronic CRF (eCRF) will be provided for use as source documents and maintained for recording data for each subject enrolled in the study. Data reported in the eCRF derived from source documents should be consistent with the source documents or the discrepancies should be explained and captured in a progress note and maintained in the subject's official electronic study record (EHR).

Clinical data (including AEs, concomitant medications, and expected adverse reactions data) and clinical laboratory data will be entered into REDCap, a HIPAA-compliant data capture system provided by the Division of Biostatistics. The data system includes password protection and internal quality checks, such as automatic range checks, to identify data that appear inconsistent, incomplete, or inaccurate. Clinical data will be entered directly from the source documents.

13.2 Study Records Retention

Study documents will be retained for the longer of 3 years after close-out, 5 years after final reporting/publication, or 2 years after the last approval of a marketing application is approved for the drug for the indication for which it is being investigated or 2 years after the investigation is discontinued and FDA is notified if no application is to be filed or if the application has not been approved for such indication. No records will be destroyed without the written consent of the sponsor, if applicable. It is the responsibility of the sponsor to inform the investigator when these documents no longer need to be retained.

13.3 Protocol Deviations

A protocol deviation is any noncompliance with the clinical trial protocol, GCP, or Manual of Procedures (MOP) requirements. The noncompliance may be either on the part of the subject, the investigator, or the study site staff. As a result of deviations, corrective actions are to be developed by the site and implemented promptly.

These practices are consistent with ICH E6:

- 4.5 Compliance with Protocol, sections 4.5.1, 4.5.2, and 4.5.3
- 5.1 Quality Assurance and Quality Control, section 5.1.1
- 5.20 Noncompliance, sections 5.20.1, and 5.20.2.

All protocol deviations must be addressed in study source documents, reported to Mr. Jesse Ungard, the HRSA Project Official.

Protocol deviations must be reported to the local IRB per their guidelines. The site PI/study staff is responsible for knowing and adhering to their IRB requirements. Further details about the handling of protocol deviations will be included in the MOP.

13.4 Publication and Data Sharing Policy

The Principal Investigator (Dr. Mohadjeri-Franck), writing mentor (Dr. Northridge), and other research team members will be responsible for developing publication procedures and establishing authorship policies. This study will comply with the NIH Public Access Policy, namely, that the public will have access to the published results of this intervention. Manuscripts will be submitted to peer-reviewed journals and accepted manuscripts will be submitted to PubMed Central upon formal acceptance of publication.

14 Study Finances

14.1 Funding Source

The RN Grant ID for this study is 1003931. The tele-mentoring pilot study titled, *Oral Pathology Asynchronous Tele-mentoring Pilot Study* (PI of the Human Subjects Research Study: Dr. Nathalie Mohadjeri-Franck) is part of the HRSA-funded Dental Faculty Development and Loan Repayment Program (Grant T93HP30391; PI of the HRSA Grant: Dr. Neal Demby).

14.2 Costs to the Subject

There are no costs to the subject to take part in this study.

14.3 Subject Reimbursements or Payments

There are no incentives budgeted for subjects to take part in the study.

15 Study Administration

15.1 Study Leadership

Dr. Modadjeri-Franck, as the PI, will assume leadership of this pilot study.

16 Conflict of Interest Policy

Any investigator who has a conflict of interest with this study (patent ownership, royalties, or financial gain greater than the minimum allowable by their institution, etc.) must have the conflict reviewed by the NYU Langone Conflict of Interest Management Unit (CIMU) with a Committee-sanctioned conflict management plan that has been reviewed and approved by the study sponsor prior to participation in this study. All NYULH investigators will follow the applicable conflict of interest policies.

17 References

1. Damschroder LJ, Aron DC, Keith RE, Kirsh SR, Alexander JA, Lowery JC. Fostering implementation of health services research findings into practice: a consolidated framework for advancing implementation science. Implement Sci. 2009;4:50.
2. Proctor EK, Landsverk J, Aarons G, Chambers D, Glisson C, Mittman B. Implementation research in mental health services: an emerging science with conceptual, methodological, and training challenges. Adm Policy Ment Health. 2009;36(1):24–34.
3. Yoshinaga L. The use of teledentistry for remote learning applications. Pract Proced Aesthet Dent. 2001;13:327-328.
4. Queyroux A, Saricassapian B, Herzog D, Müller K, Herafa I, Ducoux D, Marin B, Dantoine T, Preux PM, Tchalla A. Accuracy of teledentistry for diagnosing dental pathology using direct examination as a gold standard: results of the Tel-e-dent Study of older adults living in nursing homes. J Am Med Dir Assoc. 2017;18(6):528-532.
5. Estai M, Kanagasingam Y, Tennant M, Bunt S. A systematic review of the research evidence for the benefits of teledentistry. J Telemed Telecare. 2018;24(3):147-156.
6. US Department of Health and Human Services. Tobacco use among U.S. racial/ethnic minority groups--African Americans, American Indians and Alaska Natives, Asian Americans and Pacific Islanders, Hispanics. A Report of the Surgeon General. Executive summary. MMWR Recomm Rep. 1998;47(RR-18):v-xv, 1-16.
7. Kalra P, Srinivasan S, Ivey S, Greenlund K. Knowledge and practice: the risk of cardiovascular disease among Asian Indians. Results from focus groups conducted in Asian Indian communities in Northern California. Ethn Dis. 2004;14:497-504.
8. Esperat MC, Inouye J, Gonzalez EW, Owen DC, Feng D. Health disparities among Asian Americans and Pacific Islanders. Annu Rev Nurs Res. 2004;22:135-159.

18 Attachments

These documents are relevant to the protocol, but they are not considered part of the protocol. They are stored and modified separately. As such, modifications to these documents do not require protocol amendments.