

File Formats on Interproximal Caries Detection
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DDS

100 teeth were collected and randomized for caries detection and administration with some used in this study.

100 teeth were prepared with a high speed hand piece using 1/8, 1/4, or 1/2 round carbide round bur in the cut the bur. 10 teeth were placed with post placement was to simulate an oral prosthesis and to investigate the radiographic images.

Caries simulated in premolar incisors in sets of three.

Images were taken of each tooth with a 12 digital sensor under consistent exposure conditions at 70 kVp for 0.15 seconds.

A glassless storage tray used to maintain fixed sensors in single frames (DS2), and continuous frames (DS). These exposures simulated radiographic chain was used to simulate a full dental X-ray.

DS2 were saved in an uncompressed format in JPEG or software system, and then exported and saved in DICOM and BMP at a 1:1 compression ratio (75%).

DS2 images were compared into a PerioPrint presentation.

Images were presented in randomized order during 1, 45-minute sessions in 2 evaluators, each with one DS2. Compression diagnosing interproximal caries.

Compressions were given to a study 30 teeth, with minimal intervention, on a 30-inch monitor at resolution were given to a study 30 teeth, with minimal intervention, on a 30-inch monitor at resolution were given to a study 30 teeth, with minimal intervention, on a 30-inch monitor at resolution.

Diagnosis was made based on a 5-point confidence scale: 1= definitely not present, 2= probably not, 3= unsure, 4= probably present, 5= definitely present.

Both evaluators completed both sessions, their responses were recorded and sent to a technician for final analysis.

RESULTS

Category	Group 1	Group 2	Group 3	Group 4	Group 5
Carious	10	15	20	25	30
Non-Carious	5	10	15	20	25
Total	15	25	35	45	55

SIGNIFICANCE

- 1. Comparison between DS2 and DS2 images showed a significant difference in the number of teeth with interproximal caries detected.
- 2. Comparison between DS2 and DS2 images showed a significant difference in the number of teeth with non-carious lesions detected.
- 3. Comparison between DS2 and DS2 images showed a significant difference in the number of teeth with total lesions detected.

CONCLUSION

DS2 images showed a higher sensitivity for interproximal caries detection compared to DS2 images. DS2 images showed a higher specificity for non-carious lesion detection compared to DS2 images. DS2 images showed a higher specificity for total lesion detection compared to DS2 images.



RESULTS

This report was made using the comparison. kappa coefficient was 0.75. Cohen's kappa was calculated to evaluate the inter-rater agreement for diagnosing the caries. A 5-point alpha level was used to give the statistical significance.

There was not a significant difference regarding the sensitivity giving 7 different image sizes (p=0.16 for A, p=0.8879 for B, p=0.1894 for C).

The overall percentage of dental caries diagnosis ranged from 77% (DS2) and the correct percentage of dental caries diagnosis ranged from 47% (DS2).

DS2 had the highest sensitivity (88.7%) for reading with DS2. The specificity of reading 1 image size (DS2) was 87% for non-A. The sensitivity for non-A was 77% for non-B for 1 image size (DS2).

The strongest agreement between the DS2 and the correct reading of caries B was using DS2 image (kappa=0.83).

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THE CREATIVE CLINICIAN SCIENTIST

Dentsply Sirona Student Clinician Research Program (SCADA)

A Participation Guide for U.S. Student Clinicians and Faculty Advisors

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American Dental Association/Dentsply Sirona Student Clinician Research Program (SCADA)

Dentsply Sirona's vision is to deliver innovative dental solutions to improve oral health worldwide. This vision cannot be achieved without a strong commitment to scientific discovery. One way we encourage innovative thinking is through our long-standing support of student research.

The first International Association of Student Clinicians - American Dental Association (ADA) or SCADA Program was launched as a joint venture between DENTSPLY International and the American Dental Association in 1959 during the centennial session of the ADA in New York City. The program was conceived by the late Dr. Harold H. Hillenbrand, former Executive Director of the ADA, and the late Mr. Henry M. Thornton, former Chairman of DENTSPLY International. Their goal was to establish a program that would stimulate student interest in dental research and introduce dental students to the American Dental Association.

SCADA's mission today remains the same -- to advance the art and science of dentistry by introducing pre-doctoral students to the world of dental research. By immersing themselves in research, students learn how to apply the scientific method to best serve clinical problems, as well as broaden their understanding of career opportunities in dentistry. In fact, many of today's dental educators were first drawn to research and academic careers through SCADA. With its 55+ year history, the program has seen dental students across the globe become leaders in the profession.

Program Requirements

The scientific program of the Annual Session of the American Dental Association (ADA) plays an integral role in the continuing education of dental professionals. The ADA, with the generous sponsorship of Dentsply Sirona, proudly conducts the Student Clinician Research Program (also known as SCADA). This program supports one student from each CODA accredited dental school in the United States and Puerto Rico to receive an expense-paid trip to participate in the ADA's Annual Session, and the opportunity to represent his/her school in the SCADA research competition.

Responsibility of the Dental School. An invitation to participate in the SCADA Program is sent each CODA accredited U.S. dental school. The school must confirm its participation by completing an electronic form, and agreeing to work with the student participant and ensure compliance with the programs rules and regulations. A Dentsply Sirona representative will contact the identified Faculty Advisor to finalize details and assist the student in fulfilling the requirements of the program.

Student Eligibility. The participating Student Clinician:

- Must be selected through a student research or poster presentation competition at his/her school.
- Must be a pre-doctoral student at the time of the Student Clinician Program at the ADA Annual Session.
- Must be a current member of the American Student Dental Association (ASDA).

Policy on Co-Student Clinicians. Two or more students may develop the research for the presentation but only one student from each school is eligible to present the research for judging and only one student will receive financial support from Dentsply Sirona.

Method of Selecting the Student Clinician. The ADA and SCADA Board of Governors does not designate a specific procedure for the selection of Student Clinicians and delegate the selection of the Student Clinician to the participating dental school. Most dental schools conduct a student research competition and select the Student Clinician through that process. State and local dental societies are available to assist and advise students and faculty in the judging of the student research presentations at a local dental school. And the SCADA Board of Governors is willing to provide assistance to the schools if requested. While each school uses its own rules or guidelines to select the Student Clinician, this representative must adhere to the regulations established by the American Dental Association and the SCADA Board of Governors.

Responsibility of the Faculty Advisor. The faculty advisor must ensure that the student's presentation is in compliance with the regulations described in this document as established jointly by the American Dental Association and the SCADA Board of Governors. Faculty Advisors must ensure the following:

- The Student Clinician selected by the school makes initial contact with the Clinical Affairs Office of Dentsply Sirona by phone (800) 877-0020 extension 57972 or direct at (717) 849-7972.
- Student completes and submits the application, the abstract, and all other requested information by the due dates.
- Provides assistance to the student in selecting the appropriate category in which the student's research will be judged.

Responsibility of the Student Clinician. Participants in Student Clinician Research Program must:

- Meet all eligibility requirements.
- Complete all forms and submit all required documentation by the identified deadlines.
- Fully participate in all program activities.
- Conduct themselves in a professional manner.
- Wear business attire to all required events.
- Attend **the Orientation Seminar** on the evening prior to the judging when the policies and procedures will be reviewed. Members of the SCADA Board of Governors, SCADA members, the ADA staff and officers of Dentsply Sirona will be at the Orientation Seminar to greet Student Clinicians.
- Attend a dinner hosted by a Dentsply Sirona representative immediately following the Orientation Seminar.
- Attend the **Awards Program and Reception** on the evening of the competition in honor of all Student Clinicians participating in the program. The winners of the Student Clinician Research Program will be announced during this event. Each student will receive recognition as the official representative of his/her dental school.

COMPETITION RULES

PLEASE NOTE: Any violations of the following rules will automatically disqualify the student from the competition and the research will not be judged.

I. JUDGING CATEGORIES. Research presentations are judged in two (2) categories:

CATEGORY I: Clinical Science / Public Health Research

Clinical Science / Public Health Research presentations focus on clinical research questions in general dentistry or one of the clinical dental specialties and may focus on diagnostic approaches, interventions and/or prevention, and/or may evaluate clinical techniques, materials or devices directly related to oral health care. This category also includes educational research, epidemiology, public health, community-based, and/or public policy research.

CATEGORY II: Basic and Translational Science Research

Basic and Translational Science Research presentations are generally hypothesis-driven projects involving some aspect of basic or translational sciences. Translational research pertains to studies that investigate the application of basic science findings to clinical situations. Research in this category may address a technique or method involving a biological or physical science.

II. APPLICATION AND ABSTRACT

Student Clinicians must complete the on-line application at www.scadaresearch.org/us, and must submit an abstract, and provide a color passport type photograph (jpeg format preferred).

Abstracts should be no more than 250 words in length (excluding research title) and **must include:**

- Title – Should be succinct yet fully describe the nature of the project
- Problem statement – Identify reasons for investigation and provide background information. What problem are you trying to solve?
- Hypothesis – What is the hypothesis to be tested?
- Methods – Describe how the study was conducted, techniques used, sample size, data analysis methods, etc.
- Results – Present the findings of the study and their significance. Display the data using tables, graphs, and charts that can be easily understood.
- Conclusion – What did you learn from conducting this research? What are the clinical implications of this project?

Abstracts may NOT include:

- The names of any university and/or faculty personnel
- Trade names of products may not appear on any materials during the judging session. Be sure to use generic descriptions in place of brand names.

Qualified judges (at least one for each category) review each abstract prior to the competition. While it is the responsibility of the Faculty Advisor and the student to indicate the category in which the research presentation will be judged, the judges review all abstracts for accuracy. A SCADA representative will contact the Student Clinician for clarification about the classification of the abstract, if necessary, and SCADA reserves the right to re-classify the abstract into a more appropriate category if deemed appropriate by the judges.

III. POSTER SUBMISSIONS

- Digital posters must be submitted by the identified deadline through the selected digital poster presentation software.
- Once final poster presentations are submitted, no edits will be accepted.
- The name of the student's school and/or the name of any other school **must not** be visible on any materials during the judging session.
- Trade names of products **may not** appear on any materials during the judging session. Be sure to use generic description in place of brands.

IV. RESEARCH PRESENTATION: The research presentation should:

- Cover the same material as reported in the abstract. Substitution of clinicians or significant changes in the title of the research presentation from that listed in the official program is not permitted.
- Give an opening statement to acquaint the audience with the nature and purpose of the study.
- Briefly describe procedures and materials. Be sure to use generic description such as "Product A," or "Product B" in place of brands.
- Allocate most of the presentation time to the results of the study. State the results simply and clearly so that significant facts can be readily identified.
- Conclude the presentation with a brief summary of the essential results you believe were demonstrated by the experimental data, as well as their clinical implications.

Student Clinicians will be required to present their research twice: in a closed session to a panel of judges and publically to ADA Annual Session participants.

Students are required to wear **business attire** during the assigned presentations as well as during the awards program.

1. Closed sessions for judging the Student Clinician's research
 - Judging hours are between 7:30 AM and 1:30 PM on the designated day.
 - Each student will be assigned a specific presentation time to present his/her research to a panel of 3-6 judges. Students should arrive at least 15 minutes prior to the scheduled presentation time. Student Clinicians who arrive late or miss their assigned presentation time may be disqualified from the competition.

- No one other than the primary Student Clinician, the panel of judges and program staff are permitted in the presentation area during the closed judging session.
- The presentation should be no longer than 7-10 minutes in length with an additional 5 minutes for Q&A.

2. Open presentations

- The open presentations take place between 8:00 AM and 4:00 PM on the designated day.
- Each student will be assigned a specific time to present his/her research to ADA Annual Session attendees.
- Students should arrive at least 15 minutes prior to your presentation time.
- The presentation should be no longer than 7-10 minutes in length with an additional 5 minutes for Q&A.
- Co-clinicians may be present and assist in the presentation during the open session.
- The open presentations will be moderated by an experienced host.

V. HANDOUT MATERIALS

Handouts are not required, and if used, are limited to a one page synopsis of the research presentation. **Handouts should NOT include the name of the student's school or any other school displayed.** It is the student's responsibility to arrange to have sufficient copies of handouts available for distribution to the Judges and those viewing the presentation. Fifty copies (50) should be sufficient.

VI. ADVERTISING

No advertising material or material that resembles a commercial promotional effort may be distributed or shown during either presentation. Drugs and products mentioned in the presentation should be identified by chemical formula or by generic name. No trade names (brand or company) may be used for identification or other purposes in the poster presentation during the judging. Only generic identifiers are acceptable. For example: "Product A" is a glass-filled resin catalyzed by visible light. Commercial promotion of a product or service by trade name is absolutely prohibited. Violation of this requirement will automatically disqualify a project from consideration in the competitive portion of the research presentation. It is permissible to use trade names (brand or company) for identification purposes only during the open presentation portion of the research presentations (non-judging portion).

VII. Assistance Received

Each student must acknowledge the amount of assistance received in preparing the research presentation during the application process. The Judges recognize that the research process requires a team approach. The student should identify his/her role on the research team.

STUDENT CLINICIAN BENEFITS

- I. **Registration for Annual Session.** The Student Clinician will be pre-registered for the ADA Annual Session and his/her registration badges will be included in the welcome packets distributed during the Orientation Seminar. The Annual Session badge will entitle the student to admission to all no fee-ticketed scientific sessions and the Exhibit Floor area.

Please Note: If the student plans to bring along a co-clinician, family member, or friend, please inform the Clinical Affairs Office of Dentsply Sirona prior to Annual Session for information about SCADA events the ADA Annual Session registration process.

- II. **Expenses.** The Student Clinician will receive the following from Dentsply Sirona:

- A stipend to cover meal expenses and ground transportation.
- A round-trip economy class airline ticket to the Annual Session.
- Hotel accommodations for two nights during the Annual Session

- III. **Hotel Reservations.** A hotel in the convention city will be designated as headquarters for the Student Clinicians. The Clinical Affairs Office of Dentsply Sirona will make the reservations for all Student Clinicians. Students are responsible for their incidental expenses.

IV. **Awards**

- All awards are provided by Dentsply Sirona. The announcement of the winning students will be made during the ADA/Dentsply Sirona Awards Program.
- Three (3) winners will be selected from each category, totaling six (6) winners.
 - **First Place** award winners will receive a cash award of \$750 and a travel prize to attend the Hinman Dental Meeting where they will present their award winning research presentations as part of the meeting in March following the ADA Annual Session.
 - **Second Place** award winners will receive \$750.
 - **Third Place** award winners will receive \$500.
 - All participants receive a certificate of membership to SCADA for their contribution to the ADA's Scientific Session.

- V. **Alumni Organization.** All Student Clinicians who participate in all aspects of the competition, open presentation and awards program are granted membership status in the International Association of Student Clinicians - American Dental Association, the international alumni association of student clinicians.

**ADA/DENTSPLY SIRONA
STUDENT CLINICIAN RESEARCH PROGRAM
JUDGES RATING FORM**

This is an oral presentation. It is not an essay or exhibit. Students have 10 minutes for their presentation followed by 5 minutes of Q&A.

Name:		Presentation #	1-1
Title:			

RESEARCH TEAM SUPPORT - Please check one.

	Student did not participate as part of a research team in preparing this poster presentation.
	Student participated as part of a research team, acknowledged role in the research team, and credited the assistance from other members of the team.
	Student participated as part of a team but did not credit other members of the research team.

SUBJECT MATTER

Maximum number of points for this section – 45.

		Low				High
1.	Important, timely, pertinent.	1	3	5	7	9
2.	Organization, logic, sequence.	1	3	5	7	9
3.	Practical approach to practice.	1	3	5	7	9
4.	Scientifically sound and supported.	1	3	5	7	9
5.	Creative ability, new approach.	1	3	5	7	9
Total Points for this Section:						

PRESENTATION

Maximum number of points for this section – 36.

		Low			High
1.	Hypothesis clearly stated.	1	2	4	6
2.	Background knowledge provided.	1	2	4	6
3.	Methods clearly outlined.	1	2	4	6
4.	Results presented succinctly.	1	2	4	6
5.	Discussion consistent with data.	1	2	4	6
6.	Conclusions driven by scientific data.	1	2	4	6
Total Points for this Section:					

PROFESSIONALISM

Maximum number of points for this section – 18.

		Low		High
1.	Oral presentation brief/lucid.	1	2	3
2.	Clinical data readily understood.	1	2	3
3.	Visuals well organized.	1	2	3
4.	Clinically relevant.	1	2	3
5.	Professional appearance.	1	2	3
6.	Creative ability.	1	2	3
Total Points for this Section:				

ADDITIONAL INFORMATION

Faculty members or students seeking additional information regarding the program and/or requirements of the ADA/Dentsply Sirona Student Clinician Research Program should to contact the Clinical Affairs Office of Dentsply Sirona (800)877-0020 Ext. 7972.

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