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### ABSTRACT

Direct observation methods provide a unique opportunity to gather data about services provided in dental practice as compared to provider surveys, record review, or billing data alone. **Objective:** To determine the type and frequency of services provided, and to characterize how time is spent, during the dentist and hygiene visits in the private dental practice setting using a direct observation method. **Methods:** One hundred and twenty (120) dental practices from 22 Ohio counties were directly observed over a 16 month period. Two observation teams of two hygienist researchers and a patient intake coordinator visited each practice for four days to directly observe dentist and hygiene patient visits, review records, and administer patient and provider surveys. **Results:** 3697 patients were observed. Patients were 41.6% male and 58.2% female, with mean age 45.2 ± 21.3 years, 88.1% Caucasian, 8.6% African-American, and 1.9% from other racial/ethnic groups. The services most frequently provided were oral examinations (33.2%), composite restorations (23.8%) and single or multiple crowns (16.8%).

### AIMS

To determine the type and frequency of services provided, and to characterize how time is spent, during the dentist and hygiene visits in the private dental practice setting using a direct observation method.

### METHODS

One hundred and twenty (120) dental practices from the CROWN (Community Research Oral Wellness Network) in 22 Ohio counties were directly observed over a 16 month period. Two observation teams of two hygienist researchers and a patient intake coordinator visited each practice for four days to directly observe dentist and hygiene patient visits, review records, and administer patient and provider surveys.

**Participants:** Participant dentists (n=125) were 83.2% male and 16.8% female, mean age 49.0 ± 9.7 years, 93.0% Caucasian, 4.0% African-American, and 3.0% from other racial/ethnic groups. Participant hygienists (n=134) were 1.0% male and 99.0% female, mean age 41.0 ± 9.9 years, 98.0% Caucasian, 1.5% African-American, and 0.5% from other racial/ethnic groups. Observed patients (n=3697) were 41.6% male and 58.2% female, with mean age 45.2 ± 21.3 years, 88.1% Caucasian, 8.6% African-American, and 1.9% from other racial/ethnic groups.

**Instruments:** Two of the direct observation data collection instruments were used, a post-visit checklist on which all procedures observed in that visit were recorded, and coding of directly observed behaviors using a modified Davis Observation Code (Dental DOC). The Dental DOC is a coding scheme based on the Davis Observation Code, a code originally developed for direct observation in family medicine practice settings and modified for use in the dental setting. All relevant behaviors observed during each 30 second time interval are recorded.

### Direct Observation of Dentist Visit Using Dental DOC

Behavior	Percentage of visits in which behavior was observed n = 2211 (%)	Mean number of dentist time intervals in which behavior was observed (# of 30-second intervals)	Percentage of dentist time intervals in which behavior was observed (%)
Chatting	93.9	8.6	20.7
History Taking	69.1	3.1	10.0
Systemic Health	21.3	2.5	7.1
Evaluation Feedback	71.9	3.9	11.2
Dental Examination	48.3	5.2	16.8
Oral Cancer Screening	5.3	1.9	4.5
Procedure	85.9	38.7	67.3
Health Education	59.9	3.6	10.0
Oral Preventive Counseling	18.6	2.5	7.0
Oral Preventive Procedure	5.8	8.0	22.4
Smoking	4.3	1.6	5.5
Nutrition	3.2	1.8	3.7

### Direct Observation of Hygiene Visit Using Dental DOC

Behavior	Percentage of visits in which behavior was observed n = 1539 (%)	Mean number of hygienist time intervals in which behavior was observed (# of 30-second intervals)	Mean number of dentist time intervals in which behavior was observed (# of 30-second intervals)	Percentage of total visit time intervals in which behavior was observed (%)
Chatting	97.9	15.9	4.2	21.8
History Taking	86.1	3.1	2.0	4.3
Systemic Health	68.8	2.4	2.0	3.3
Evaluation Feedback	88.8	4.2	2.4	5.9
Dental Examination	88.8	6.2	4.9	8.3
Oral Cancer Screening	27.8	1.6	1.5	2.1
Procedure	98.8	41.9	5.6	56.3
Health Education	66.9	4.1	2.3	5.5
Oral Preventive Counseling	79.6	4.9	1.8	6.8
Oral Preventive Procedure	27.6	5.0	1.4	8.7
Smoking	8.3	2.3	1.7	2.8
Nutrition	9.5	2.1	1.7	3.4

### Selected Dental DOC Definitions

(12 of 24 total definitions)

**CH Chatting** -- Dentist/hygienist or patient discussing topics not related to current visit, e.g. small talk or humor which might be used to build rapport.

**HT History Taking** Dentist/hygienist inquiring about or patient describing details related to the current chief complaint or to prior visits or treatment. Includes dentist reading dental record and patient response to current treatment. Includes dentist response to chief complaint and asking if exam maneuver produces pain or feeling described in chief complaint.

**SH Systemic Health** Dentist/hygienist inquiring or patient describing systemic health conditions or changes for patient. Excludes oral health (HT).

**EF Evaluation Feedback** Dentist/hygienist tells patient about results of history, oral exam, biopsy, radiographs, etc. Includes telling that information is incomplete or inconclusive or that results are preliminary or speculative.

**DE Dental Examination** Dentist/hygienist conducts any aspect of intraoral/extraoral examination of patient including interpreting radiographs, periodontal probing or other diagnostic procedures; also includes asking patient to prepare for oral exam and/or telling patient to do something in oral exam.

**OC Oral Cancer Screening** Dentist/hygienist conducts any aspect of an oral cancer screen/soft tissue exam, including face, lips, and other soft tissue oral structures.

**PR Procedure** Any treatment or diagnostic procedure done in the office. Excludes preventive services such as oral hygiene instruction, fluoride application, mouth-guard construction, which are coded OP. Includes oral prophylaxis. Excludes cosmetic procedures, which are coded CD.

**OPC Oral Preventive Counseling** Dentist/hygienist provides counseling related to oral disease prevention or asks history on disease prevention. Includes oral hygiene instruction. Double code with HE. Excludes smoking and nutrition, which are coded SM, NU.

**OPP Oral Preventive Procedure** Dentist/hygienist discusses or performs any procedure associated with oral disease prevention. Includes topical fluoride application, sealants, mouth guards.

**HE Health Education** Dentist/hygienist presenting information regarding health to patient. This may include information regarding diagnosis, etiology, treatment effects, drug effects, and accident prevention. Also includes explanation of a procedure, its side effects, post-treatment effects or contraindication. Double code with OPC, SM, NU.

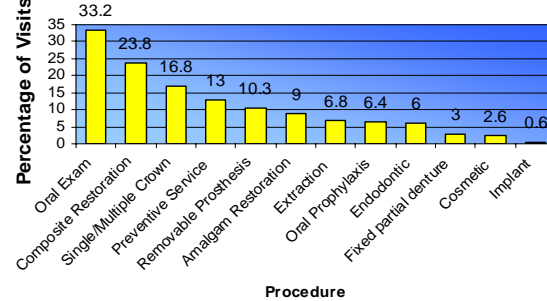
**SM Smoking Behavior** Any question about or discussion of smoking or other tobacco use. Double code with HE.

**NU Nutrition** Any question about or discussion of nutrition. Includes discussion of diet and/or food intake. Double code with HE.

### RESULTS

Mean dentist visit contact time was 25.7 ± 20.4 minutes. Mean hygiene visit contact time was 36.5 ± 12.8 minutes.

### Direct Observation of Dentist Visit Using Post-Visit Checklist: Frequency of Procedures



### Direct Observation of Hygiene Visit Using Post-Visit Checklist: Frequency of Procedures

Observed Service Provided	Percentage of Visits n = 1502 (%)
Oral Prophylaxis	94.6
Oral Exam	94.0
Preventive Service (excluding oral prophylaxis)	78.1

### CONCLUSIONS

- Dentists deliver a wide range of services and must possess a variety of skills to perform the tasks inherent in general practice. These tasks include establishing rapport with patients, providing health education and preventive counseling, taking histories and establishing diagnoses, and performing a variety of procedures.
- Multiple demands are placed on the dentist's time and attention in the course of a single visit.
- Health education occurs in both the dentist and hygiene visits, but preventive counseling is most likely to be delivered in the context of the hygiene visit, often with both the dentist and the hygienist participating. This is an important consideration in efforts to improve office-level delivery of preventive services.
- Both the frequency and duration of preventive counseling may be important in maximizing the effectiveness of preventive service delivery. Some services were of short duration and occurred in a relatively small percentage of visits (e.g. tobacco cessation counseling). These may reflect additional opportunities for delivery of counseling that could benefit patients.
- The frequency of delivery of cosmetic procedures was lower than expected.
- A greater percentage of visits included delivery of composite restorations as compared to amalgam restorations. This result reflects trends in provider and patient preferences for restorative materials, as expected.