French Dental Students' Perception of a Period of Instruction in a Hospital Department

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Abstract: At the end of the first year of both French medical and dental studies, a four-week rotation in a hospital department has been implemented to introduce preclinical students to hospital life. The aims of this study were to analyze the scope of this training period and to determine dental students' perceptions of how they benefited from this hospital experience. All registered second-year dental students belonging to four successive cohorts were enrolled in the study (n=161). They were asked to complete two questionnaires, one immediately at the end of the course, the second one in the final year of dental studies. The former questionnaire assessed what had been accomplished during the hospital rotation; the latter evaluated the impact of the course on dental studies. Good implementation of hygiene rules (77.7 percent) and washing hands (75.5 percent), communication with patients (67.5 percent), carrying out injections (53.5 percent), and performing easy nursing care (53.2 percent) seemed to be the most useful practices that helped students all through their dental education. The majority of students (70.7 percent) judged the course useful and necessary for dental studies. For 70 percent, however, the hospital rotation was too long, and these students recommended shortening the program. The usefulness of such an experience depends a lot upon the supervision that the student received.

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Clinical rotations during the early phases of dental school are seen as one of the important means of giving students a broader medical and clinical scientific basis for their work and helping them appreciate the importance of what they are learning in the classroom. Many dental educators believe that linking dental undergraduate courses to a general hospital program produces a better-informed and more versatile general dental practitioner.[1-3] This concept is applied in numerous countries, particularly in the United States, Great Britain, and Australia.[4] An aging population and an increased emphasis on long-term management of chronic illness drive a number of health professionals to cooperate in the best interest of the patient.[5] Since dental treatment is a component of comprehensive health care, dentists must be able to take an active part as members of the health team. A closer integration of the education and training of medical, dental, paramedical, and auxiliary health personnel is thus needed.[4,5]

Teaching basic clinical skills as early as possible in the curriculum helps to produce an integrated curriculum.[6] Moreover, among all the subjects taught, students often find clinical training the most useful. Linking learning to individual patients encourages students to make an effort to understand their classroom instruction and motivates them to study additional theoretical subjects.[7,8] After participating in clinical rotations that provide clinical experience early in the curriculum, students claim to have gained confidence in talking to patients and acquired a better understanding of their role and the importance of the health care provider-patient relationship.[6,7] Such an experience may, however, also show students what their future profession is really like; sometimes that may help them to either overcome or confirm their doubts about dental practice.[6]

Since 1995, important curriculum modifications have been implemented in French dental education. Reinforcement of teaching both medical and dental basic sciences, medical rotations in different hospital departments, internship in a dental practice, and a sixth year with a focus on the patient's comprehensive care are the most important modifications in the new program. Basically, this new curriculum emphasizes introduction to research and links with medical training and offers a broader clinical experience.

The first year is common to medical, dental, and midwifery studies. At the end of the year, there is a highly competitive examination. Students choose to start upon medical, dental, or midwifery studies according to their rank on this examination. However, before moving up to the second year of either

medical or dental studies, students have to spend four weeks in a hospital department. The main objective of this course is to help students get acquainted with hospital life through the correct implementation of hygiene rules, communication with patients, identification of the different members of the hospital team, and performing some basic nursing care such as testing blood sugar levels, taking blood pressure or pulse, and giving subcutaneous injections. The students' performance in the hospital course is evaluated by the head of the hospital department. Students' regular attendance, their good will, and the absence of major errors like repeated mistakes in asepsis and cross infections or the inability to communicate with patients are taken into account in evaluating their performance. It seems that such a course may help to develop communication skills as well as an aptitude for group work, critical thinking, analysis, creativity, and self-learning.[3] It has been shown that early patient contact allows medical students to gain self-confidence and starts the development of the human qualities the public expects to see in doctors.[9]

Because an early clinical experience in a hospital department was a previously untried curricular innovation in dental education, the aim of this study was to analyze the usefulness of such a course for dental students.

Materials and Methods

Each year a list of hospital departments that accept students is published. Almost all hospital departments participate in the rotation. This is due to the fact that all students who passed the competitive exam at the end of the first year have to follow this four-week hospital rotation before entering the second year of either medical or dental studies. Students choose their hospital residency destination according to the rank acquired in the competitive exam at the end of the first year. It happens that students destined to be in the medical studies track are mixed with the future dental students during this hospital course. Each department can accept only one or two students.

The course is a four-week, full-time commitment. The head nurse of the hospital department is the contact person for the student and has the student's day-to-day requirements in mind. However, medical and nursing staffs are all in charge of supervision during their normal professional activities. A student residency program guide is given to each student and to each head nurse. In this guide are included a general introduction describing the aim of the hospital rotation and its organization; the theoretical knowledge and manual skills that may be acquired week after week; and a weekly assessment grid showing which competencies have been acquired or not by the student. The objectives are correct implementation of hygiene rules, communication with patients, getting acquainted with general hospital hierarchy and routine procedures, and performing some basic nursing care.

The program is organized as follows. During the first three weeks, students spend all day Monday attending lectures, then apply the acquired knowledge in practice during the rest of the week. The fourth week is entirely dedicated to hospital life and is an in-depth learning of what was experienced during the three previous weeks. The difficulty of the tasks assigned increases week by week.

The subjects in this study were four cohorts of forty-two, thirty-seven, forty, and forty-two students (n=161) who started studying dentistry in Clermont-Ferrand, France, in October 1995, 1996, 1997, and 1998, respectively.

The students were asked to complete two paper questionnaires. One was handed out at the beginning of the first lecture (second year), immediately at the end of the four-week hospital residency program; the second one was distributed at the end of the final year of their dental studies, four and a half years later. The first questionnaire assessed what the students experienced during the training period; the second evaluated the impact of the hospital program on the students' overall dental studies. The two questionnaires consisted of multiple choice questions, Likert scale questions, and open-ended questions. The first and second surveys for a given student were both anonymous and therefore could not be linked. Microsoft Excel was used for data collection and analysis.

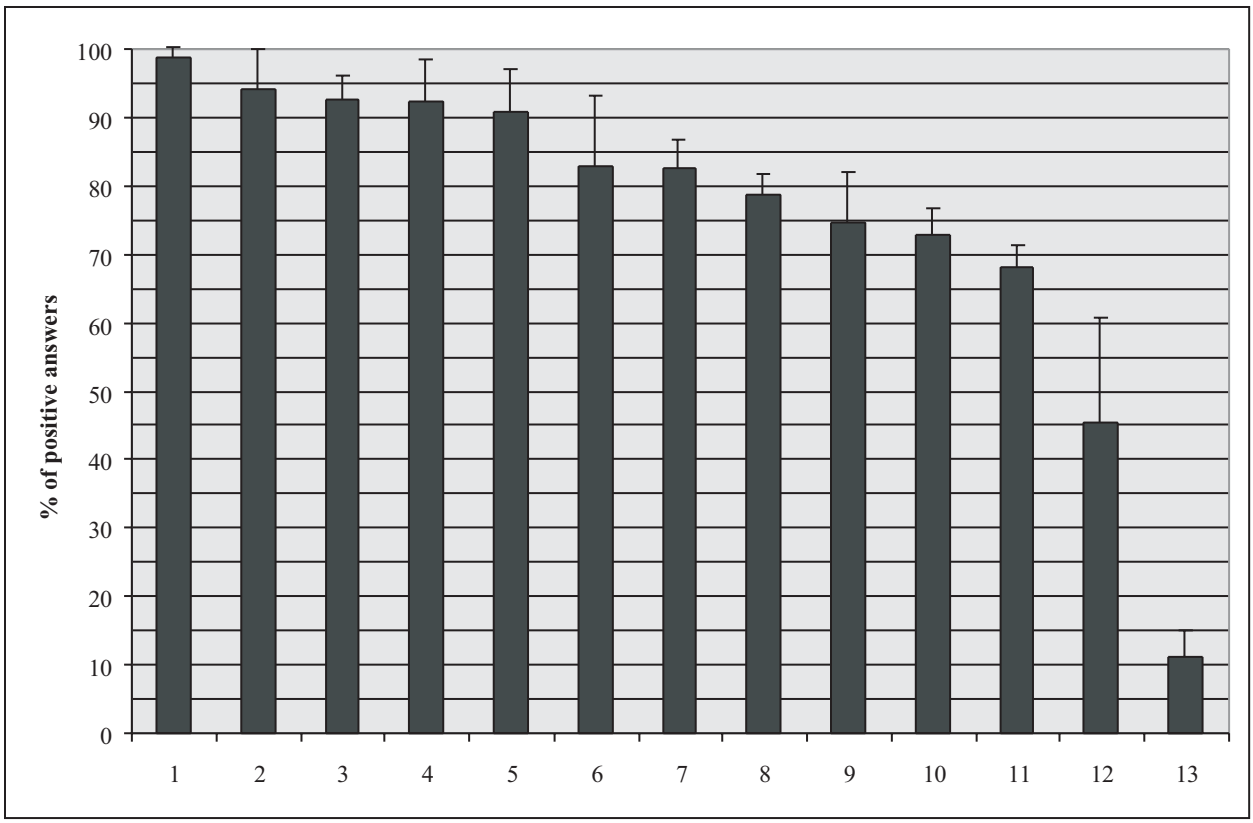
Questionnaires, together with an oral explanation of the study aims, were distributed to the students at the end of a lecture; when possible, the students were given time within the lecture to complete and return the questionnaire. When this was not possible, the students were asked to put the questionnaire into the investigator's mailbox. Completion and return of the questionnaire were taken as an expression of consent to participate, and any decision by students not to complete the questionnaire was respected.

Results

The response rates to both questionnaires were very high for the four cohorts. A total of 156 students (96.6 percent) answered the first questionnaire and 157 (97.6 percent) returned the second.

Results from the first questionnaire revealed that, during the hospital program, students performed a wide variety of tasks (Figure 1). More than nine students out of ten carried out the following tasks: practicing fundamental nursing care skills such as testing blood sugar levels, taking blood pressure or pulse, and giving subcutaneous injections; communicating with patients; washing hands systematically; and implementing hygiene rules to avoid microbial contamination. In the year 1995-96, thirty-seven students (88 percent) were supervised by several persons, two (5 percent) by only one tutor, and the remaining three (7 percent) were not supervised at all. During the three following years, all students were supervised by several department members.

Results of the second questionnaire showed that, at the end of their studies, a little more than seven sixth-year students out of ten (70.7 percent, SD 11.6 percent) thought that the training period had been useful for dental studies (Figure 2). The most useful practices that helped students all through their dental education are shown in Figure 3. The usefulness for dental practice of the different tasks accom-



1. Performing easy nursing care
2. Washing hands
3. Giving subcutaneous injections
4. Implementing hygiene rules
5. Communication with the patient
6. Cleaning of patient's room
7. Making patient wash
8. Preparation of instruments before acting
9. Taking blood samples
10. Cleaning, disinfection of instruments
11. Dressing wounds
12. Making intravenous injections
13. Sterilization of instruments

Figure 1. Tasks performed by students during their training period

plished during the training period were, in decreasing order, correct implementation of hygiene rules (77.8 percent, SD 7.8 percent); systematic washing of hands (75.5 percent, SD 11.2 percent); communication with patients (67.5 percent, SD 8.3 percent); giving injections (53.5 percent, SD 11.4 percent); performing some easy nursing care tasks (53.2 percent, SD 6.4 percent); identifying members and tasks of a multidisciplinary team (37.2 percent, SD 14.4 percent); maintenance of equipment (preparation, cleaning, and disinfection) (36.0 percent, SD 9.9 percent); sterilization of instruments (22.0 percent, SD 6.4 percent); dressing a wound (20.2 percent, SD 8.8 percent); washing the patient (3.7 percent, SD 3.5 percent); and cleaning the patient's room (3.2 percent, SD 2.4 percent).

One hundred and thirty-four students (85.0 percent, SD 15.0 percent) considered that the Monday lessons were useful for the training period. Among the subjects addressed during the Monday lectures, the most useful were (in decreasing order) nursing care (91.6 percent, SD 6.6 percent); hygiene rules and asepsis (91.5 percent, SD 5.3 percent); communication with the patient (80.2 percent, SD 8.1 percent); identification of the different members of the hospital team (49.5 percent, SD 5.0 percent); ethical rules (44.0 percent, SD 7.2 percent); and continuity of care (28.7 percent, SD 3.4 percent).

Eighty-nine students (56.7 percent, SD 10.0 percent) judged that they should be supervised by different department members, and fifty-four (34.5 percent, SD 7.4 percent) by only one tutor. Fourteen students (9.2 percent, SD 3.5 percent) had no opinion.

One hundred and ten students (70.0 percent, SD 7.9 percent) felt that a four-week period was too long for the objectives of the program (Figure 4). For fifty-five students (35.1 percent), two weeks would be the ideal length for the training period. Thirty-five students (21.4 percent) proposed a three-week period, and eleven (7.1 percent) recommended a one-week period. Fifty-six students (30.6 percent) didn't answer the question. One hundred and twenty-five students

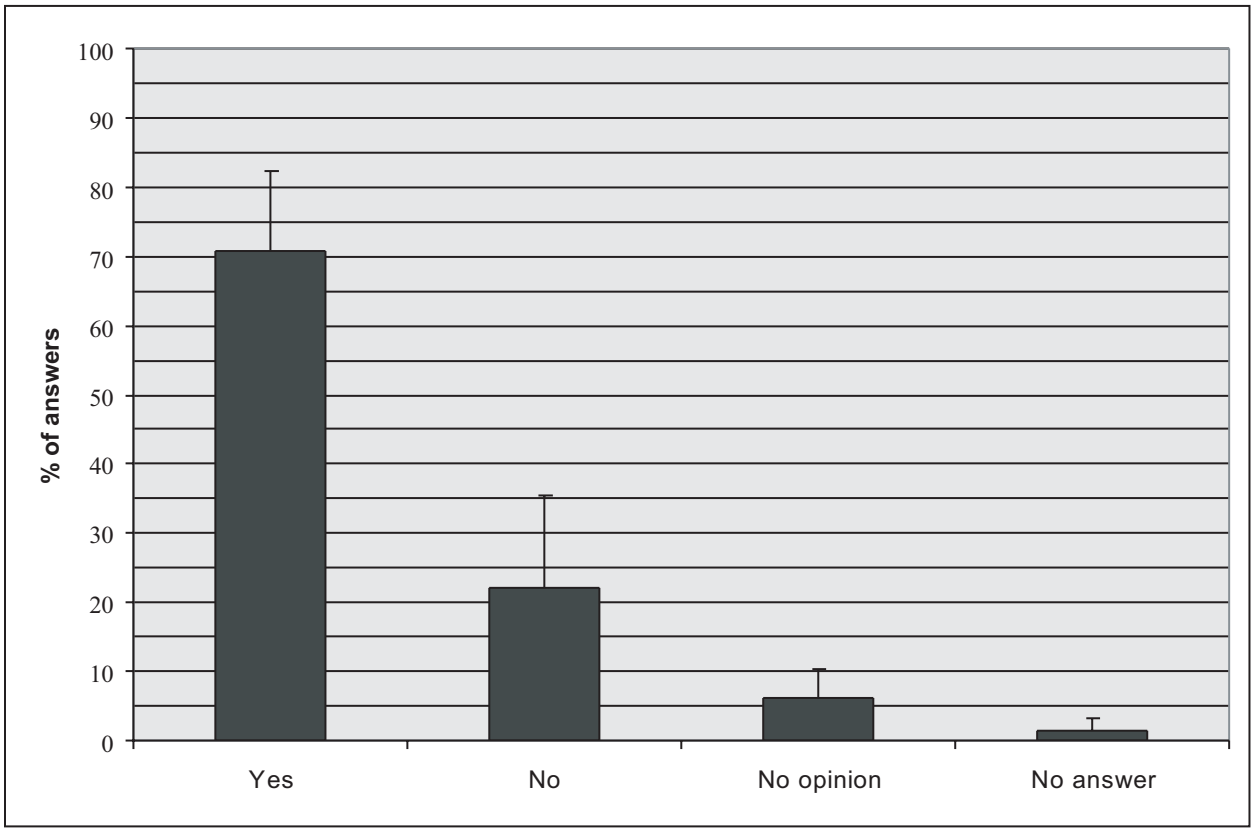


Figure 2. Is the training period useful for dental studies?

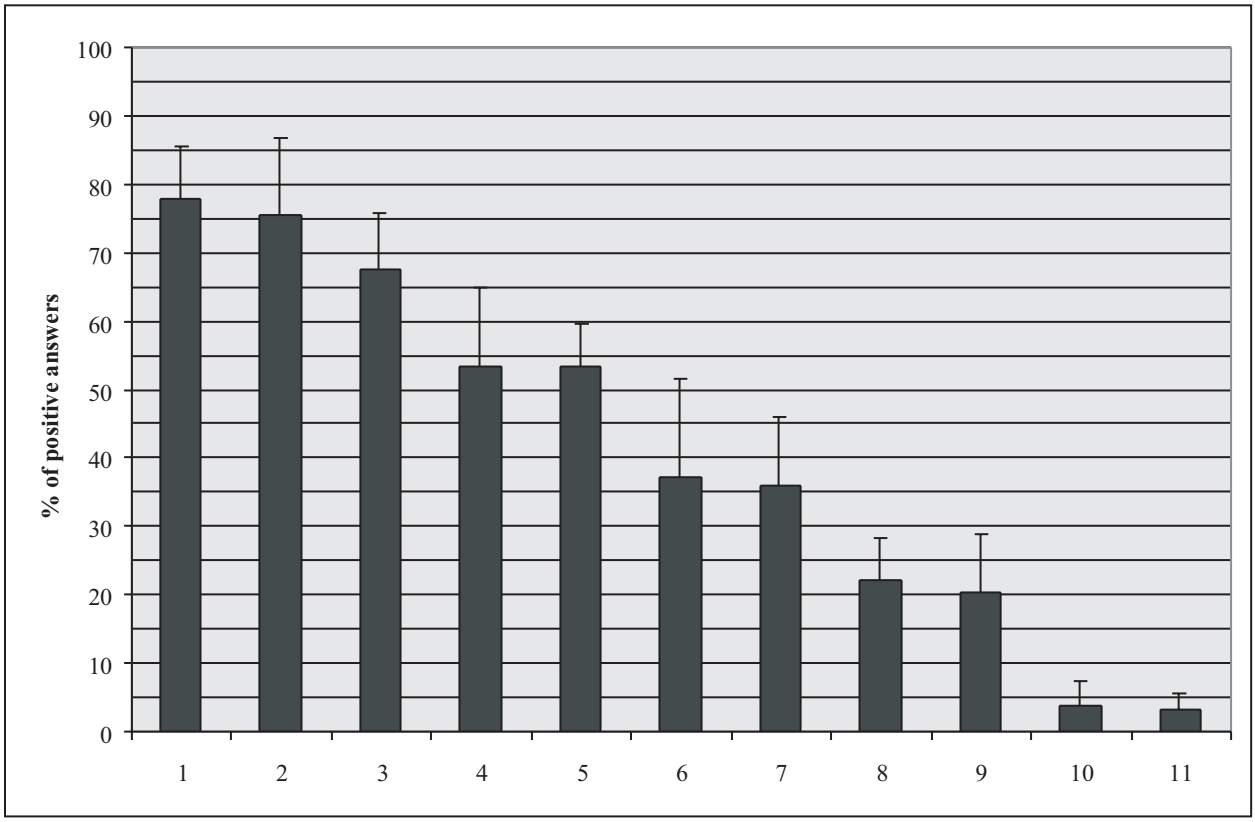
(79.2 percent) thought that the hospital training period could be combined with a two-week rotation in a dental practice that had the same objectives.

Fifty-six percent of the sixth-year students considered that this training period should take place in a department closely related to dentistry such as stomatology or ENT.

Discussion

A hospital rotation for dental students has several potential benefits including providing students with a broader medical and clinical scientific basis. Experience in a hospital should help dental graduates develop a concept of coordinated comprehensive clinical care. In addition, they should realize the benefit of integrating their oral health care skills into other health services[1,4] and may avoid confining themselves to dentistry alone.[10] Dental students' development of cultural competence and social responsibility is also an important element in the overall shaping of minds and attitudes of modern dental practitioners.

Dental schools all over the world provide abundant dental-related experiences, but often fail to give students a nondental perspective on exposure to health care issues. Effective interprofessional work-



1. Correct implementation of hygiene rules
2. Systematic washing of hands
3. Communication with the patient
4. Giving injections
5. Performing easy nursing care
6. Identifying members and tasks of a multidisciplinary team
7. Maintenance of equipment (preparation, cleaning, disinfection)
8. Sterilization of instruments
9. Dressing a wound
10. Making patient wash
11. Cleaning of patient's room

Figure 3. Practices that helped students all through their studies

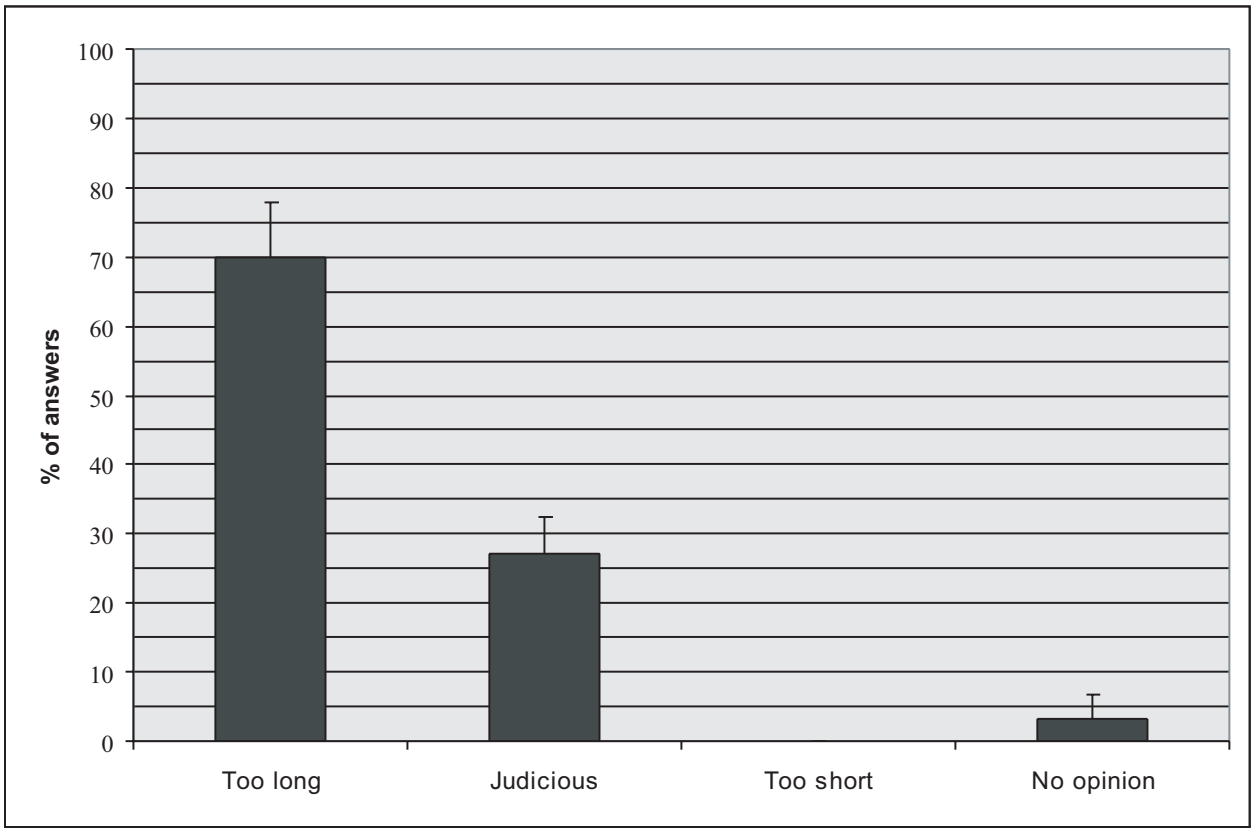


Figure 4. Students' opinion of the length of the training period

ing, which is widely considered as essential to high-quality health care, is influenced by the attitudes of health care professionals toward their own and other professional groups. More interprofessional education has been encouraged as a mechanism to break down barriers and allow effective teamwork. Dialogue between dentists and physicians at an early stage in their careers would encourage better professional relationships.[10] Thus, interprofessional education should be an integral part of undergraduate studies from the very beginning.[2,5,11,12] It could be useful in four ways: 1) to learn and understand each other's roles; 2) to make it possible to work effectively in multidisciplinary teams; 3) to allow effective substitution of roles; and 4) to promote career flexibility.[5,12] Junior students, before being subjected to professional socialization, may be highly receptive to interprofessional education.[13]

Numerous students were either enthusiastic or showed a clear appreciation of the value of this hospital rotation. Favorable student evaluations do not necessarily correlate with departments that are perceived as more closely related to dentistry but rather with the supervision and the amount of activity the student has had during the training period. Students described the program as being effective in providing firsthand experience in the management of some of the most relevant tasks they perform in dental clinics such as correct implementation of hygiene rules, communication with the patient, and performing some nursing care. In this course, cultural and social values, rights, obligations, and social responsibility were brought to the undergraduates' attention in an effort to underscore their value at an early stage in the students' dental education.[9] Early patient contact increases the students' motivation to acquire theoretical knowledge and offers opportunities to learn communication skills and how to establish a good dentist-patient relationship.[2,7,9] Training in communication skills initiated at an early stage and contin-

ued throughout the undergraduate years gives lasting and reliable results.[14] Almost all students gave injections during their training period. Giving injections at an early stage of dental studies will help dental students subsequently in their clinical training and will be particularly helpful for performing infiltration and block anesthesia. Only 11.2 percent of the students performed the sterilization of instruments. This can be explained by the fact that sterilization of instruments in the Public Hospital of Clermont-Ferrand is centralized in most departments. This area is highly controlled, and inexperienced students are not welcome.

In the open-ended question at the end of the questionnaire, half of the students maintained that this training period was interesting and enriching and that they were given a warm welcome by all the department staff. Some failed to see its relevance to their training, and some claimed that they were left unsupervised and that the staff were not aware of their assignment to the department. Hospital services receive a great number of health care students each year from various disciplines including medicine, dentistry, pharmacy, and physiotherapy, and sometimes students are confronted with inappropriate and even frankly antagonistic reactions from medical and nursing staff, which naturally affects the quality of their experience. The quality of the educational environment has frequently been identified as crucial to effective learning.[8] During the training period students were generally well supervised except during the first year when three students reported that they were completely unsupervised. This can be explained by the fact that the training period was planned in a hurry the first year, and some head nurses were not aware at the beginning of the training period that they would receive dental students in their department. Experiencing inappropriate attitudes and intolerance from medical and nursing staff was reported by some students and has been described in other studies.[1,8] Medical staff often have a poor understanding of the dental student's needs.[10] A better preparation of the students and the hospital staff is required for the dental students' hospital rotation to be more profitable. Improved information about the educational objectives of the course and what to expect from dental students is essential. Students' opinion on the number of supervisors needed is balanced. Having only one tutor is the best way to ensure adequate supervision during the training period. The one-to-one teaching provided a valuable opportunity to learn basic clinical skills in a "safe environment."[6] Nevertheless, supervision by several persons provided the students with a multitude and diversity of experiences. A number of tasks were carried out by students, especially tasks, like injections, requiring careful supervision. This real clinical role performed by our students was certainly the most important factor that led the majority of them to enjoy this training period and realize that it would be useful for their dental training.

The response rates to the questionnaires were higher than those of other studies done in France to investigate changes in undergraduate education.[15] There are two possible explanations for that. The first is that students who did not answer the questionnaire immediately received several reminders. Because answers to questionnaires are anonymous, the reminders were general and sent to all students by a special note on the second-year and sixth-year notice boards or via the faculty internal video. The second explanation is that, in our school, students are extensively involved in the quality assurance process of the faculty. Each year they are asked to give their opinion on certain courses and training periods or on the curriculum, and the response rate is very high.

One of the best aspects of the hospital rotation is familiarizing dental students with the hospital environment and giving them a sense of belonging to the health care world.[1] Sixth-year dental students judged this period useful for their studies. Nevertheless, they sometimes felt they were "in the way" of doctors and nurses and recommended that the period could be shortened. Moreover, there is an increasing trend in medicine to shift substantial amounts of teaching to nonhospital settings due to the fact that hospitals might not accurately reflect the morbidity of the population or contemporary patterns of health care.[16] That is why our faculty proposed to link this medical hospital training period to another rotation in a private dental practice and with the same objectives (strict implementation of hygiene rules, communication with the patients, identification of the different members of the working team). In France, after the competitive exam at the end of the first year, those who score highest get to select first in terms of which career they desire to enter. Thus, a large number of students enter the second year of dental studies unwillingly or without knowing what the job of a dentist really is because medicine was their first preference. Linking these two training periods will certainly show them what their future role in the health care system as dentists will be and enable some who are not prepared for a dental career to make changes early in their training.

In conclusion, our study shows that an early clinical experience in a medical hospital can be useful for dental students to learn correct implementation of hygiene rules, communication with patient, and basic nursing care tasks. However, the usefulness of such an experience depends a lot upon the supervision that the students receive during this period.

Most American dental schools have hospital rotations as an elective experience or as a component of the senior-year comprehensive care program. Experiences of hospital rotation early in the dental curriculum are very scarce. The Competencies for the New Dentist[17] state that dentists are expected to enhance and promote the total health of patients and that professional development should begin on the first day of dental school. For that reason, our experience of a hospital-based rotation would have an impact on dental education.

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