An audit comparing the discrepancies between a verbal enquiry, a written history, and an electronic medical history questionnaire: a suggested medical history/social history form for clinical practice

Précis A comprehensive medical/social history is an essential part of proper patient management.

Abstract
In everyday practice, dentists are confronted with an increasing number of patients with complex medical problems. There is divergence of opinion among dentists regarding how to obtain a thorough medical/social history.

Purpose: The objective of this audit is to produce a standardised medical history in order to identify the medically compromised patient attending the general dental practitioner. At present in the Dublin Dental School and Hospital, there are three different methods: a verbal enquiry, a written or an electronic questionnaire. This study was undertaken to identify any differences or discrepancies between each of the three methods in eliciting the medical history, and to determine whether one method was superior to the others. The results are used to recommend the most accurate method for obtaining a thorough health history for practitioners, both in a hospital and a general practice setting.

Method: One hundred and fifty charts within the Dublin Dental School and Hospital of all new patients at a randomly chosen clinic were selected and then audited: 50 charts from the oral and maxillofacial surgery assessment clinics (written pro forma questionnaire), 50 from the oral medicine clinic (consultant verbal enquiry), and 50 from A&E (electronic questionnaire) were compared to determine if an adequate medical history was taken, and to detect differences and discrepancies in patients’ medical histories. The records pertained to 91 females and 59 males. The age distribution was 5-87 years for females and 3-85 years for males. The mean age was 45 years for females and 42 years for males.

Results: The written patient-administered pro forma questionnaire, combined with verbal verification by the clinician/consultant, proved to be the most useful and consistent method for detecting medical problems in dental patients. The consultant verbal enquiry alone showed more inconsistency than the other two methods. Based on these results, a modified questionnaire for use within all departments in the Dental Hospital has been proposed. This may also be suitable for use by general dental practitioners in their practice setting.

Conclusion: It is incumbent on the clinician/dentist to evaluate each patient’s general health prior to delivering treatment in order to avoid unnecessary and preventable complications. The use of written patient-administered pro forma questionnaires is beneficial but must be verified by the examining clinician/dentist and assessed at each new visit (6-12 monthly) to be contemporaneous.
Medical history
1. Do you have any heart conditions, e.g., rheumatic fever/congenital heart defects/heart murmurs/previous endocarditis/other?
2. Have you ever had chest problems, e.g., bronchitis/asthma/pneumonia/other?
3. Have you ever had any of the following: epilepsy/diabetes/jaundice/hepatitis/liver disease?
4. Do you, or any member of your family, have a history of bleeding, in particular after extractions?
5. Are you taking any medications at present, either prescribed or over-the-counter drugs, e.g., systemic steroids/other?
6. Do you have any allergies, including allergies to medicines, e.g., penicillin/aspirin/hay fever/eczema/latex/metal/other?
7. Have you ever been prescribed or taken over-the-counter slimming tablets?
8. Have you ever been prescribed human growth hormone?
9. Have you, or any of your family, had GA problems?
10. Do you or any members of your family have sickle cell disease?
11. Are you, or do you think you could be, pregnant?
12. Are you taking the oral contraceptive pill (OCP)?
13. Are you receiving medical care at the moment, or have you had a serious illness in the past?
14. Have you been in hospital in the past?
15. Do you know of any other relevant medical history we have not already covered?

Social history
1. Do you drink alcohol? If yes, how many units per week?
2. Do you smoke? Cigarette/pipe/cigar/other? Number of units?
3. What are your family circumstances?
4. Are you employed at present?

Introduction
A logical and well organised approach should be followed to record a patient’s medical history. As the population continues to age, dentists are now more likely to be faced with an increasing number of patients with complex medical problems. Dental patients more frequently undergo local anaesthesia, sedation and more advanced dental procedures. Studies have shown that medical emergencies do occur in medically compromised patients attending general dental practice.1-3 Within the Departments of Oral & Maxillofacial Surgery and Oral Medicine, and the Accident and Emergency (A&E) Unit, there are currently three different medical history systems in operation:

An electronic medical history questionnaire administered by the clinician in A&E (Figure 1);

A verbal enquiry by the clinician/consultant in oral medicine; and,

A written patient-administered pro forma questionnaire, followed by a verbal verification, within oral and maxillofacial surgery clinics (Figure 2).

These methods all have advantages and disadvantages but no research/audit basis. There is no agreement in the literature as to whether a written patient-administered pro forma medical history questionnaire or a verbal dialogue history is the most reliable method for collecting this information.4-7 However, studies have shown that patient-administered pro forma questionnaires are more efficient, consistent and useful for subsequent documentation.4,6,7 The EMRRH (European Medical Risk Related History) was found to be a useful tool in the detection of medically compromised patients in 10 European countries.8 Some of these questionnaires can be very extensive and time consuming, and must be perceived by the clinician and patient to be of clinical/social value.

Aim
The objectives of this audit were to produce a standardised medical history, to identify any differences or discrepancies between each of the
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FIGURE 3: Topics about which questions were asked most frequently in all three questionnaires.

FIGURE 4: Differences in results between clinics relating to cardiovascular system, pulmonary system, bleeding and allergies.

methods, and to determine if one method was superior to the others. The results will be used to recommend a method for obtaining a thorough health history for practitioners.

Materials and methods

A total of 150 charts were studied; 50 charts from the oral and maxillofacial surgery (OMFS) assessment clinics (written pro forma questionnaire), 50 from the oral medicine clinic (verbal enquiry), and 50 from A&E (electronic questionnaire) were compared to detect any differences and discrepancies. The computerised questionnaire on Salud (a system for managing dental information in the Hospital) was used as the benchmark in this study. This questionnaire was approved by the Clinical Committee within the Hospital in 2004. The questionnaire is shown in Figure 1. The differences and discrepancies included variations in the aspects of the medical history covered in each of the three methods and the extent to which each method was completed. The most efficient method was determined by the degree to which each question was completed. The OMFS written pro forma questionnaire is a list of questions previously designed by the consultants within that specialty as representing important medical information related to the majority of OMFS surgeries. The questionnaire consists of a number of ‘yes’ or ‘no’ questions designed to detect medical problems. No set list of questions is followed within the oral medicine clinic and the medical history completed is entirely dependent on the examining clinician/consultant interrogation. Charts of 50 new patients in each arm of the study were selected from random clinics over a three-month period. The authors were unaware of the diagnosis/medical history, age or gender of the patients prior to the ‘clinic’ selection.

Results

One hundred and fifty patient charts were audited. The patient population was 61% female and 39% male. The age distribution was 5-87 years for females and 3-85 years for males. The mean age was 45 years for females and 42 years for males. The study found that all three types of health history assessment addressed life-threatening conditions like heart problems (146), chest problems (138) and allergies (142). The next most common topics included bleeding (121), epilepsy (128), diabetes (134), liver problems (138) and current medications (122). The least mentioned subjects were previous hospitalisations (116), pregnancy (44) and use of the oral contraceptive pill (OCP) (42) (Figure 3). Information on infectious diseases like AIDS and hepatitis B, and the use of recreational drugs, was not often requested.

Considerable discrepancies were noted between the verbally administered questionnaire and the electronic questionnaire. There was a wide variation between the three different questionnaires in the type and frequency of questions asked. Topics that were asked most frequently were questions relating to heart problems, chest problems and allergies. The written pro forma questionnaire combined with verbal verification was the most accurate method, with heart problems, chest problems and allergies asked in 100% of cases. The electronic questionnaire on Salud also proved to be an efficient method with heart problems asked in 100% of patients, chest problems in 96% and allergies in 98%. The verbal dialogue history was the least efficient method, with 92% of patients being questioned on heart problems, 80% on chest problems and 86% on allergies. In relation to bleeding, the written patient-administered pro forma questionnaire was the most efficient with 98% of patients interrogated. The electronic questionnaire followed at 92%. The verbal enquiry requested this information in only 52% of patients (Figure 4).

In questions relating to epilepsy, diabetes, jaundice and hepatitis the written pro forma questionnaire combined with verbal verification was superior, with queries made regarding epilepsy in 98% of charts, diabetes in 100% and jaundice/hepatitis in 100%. The dentist-administered electronic questionnaire combined all these topics as a single question and this was asked in 94% of cases. Again, the verbal enquiry proved to be the least efficient, with values obtained for epilepsy, diabetes and jaundice/hepatitis being 64%, 74% and 82%, respectively. The study demonstrated that 58.7% of patients were taking medication on a daily basis. However, there appeared to be a huge
discrepancy within all three questionnaires in relation to this topic. The verbal questionnaire in the oral medicine clinic achieved the greatest result with 100% of patients knowing the name of the drug and 52% knowing the dosage. However, this is based on the clinician researching the British National Formulary (BNF) and adding to the list. The Salud system also performed well, with 100% recalling the name, but only 40% recalling the dosages. The written pro forma questionnaire alone performed quite poorly. Only 70% of patients knew the name and 15% knew the dosages. However, this value did increase after verbal enquiry in the clinic with these values increasing to 81% and 36%, respectively.

A major flaw was noted in the medications question on Salud. Because the question was not of a simple ‘yes/no’ type, in cases where the patient was not taking medications, the question appeared on the system as if it was ‘not asked’ by the examining dentist. This accounted for the very high 52% of ‘not asked’ results. This might expose the hospital/clinician to medico-legal action if something important were missed and interpreted as not done.

Pregnancy and OCP results are shown only for women. Men made some interesting comments in the written pro forma questionnaire! There were a total of 17 women of child-bearing age in the electronic history on Salud and 96% of patients in the OMFS patient-administered pro forma questionnaire. However, in 70% of cases, this question was asked in the clinic.

Some 82% of patients in the electronic history on Salud and 96% of patients in the OMFS patient-administered pro forma questionnaire were asked about any other relevant medical history they wished to discuss, which was not already covered. Only 12% of patients were asked this question verbally in the oral medicine clinic.

The social history is an important aspect of a dental examination. The frequency of questions relating to smoking, alcohol consumption and employment scored high within all questionnaires (Figure 5). A&E was the least efficient of the three. The patient-administered pro forma questionnaire combined with verbal verification was the most consistent of the three methods, with a 98% and 96% response on questions concerning smoking and alcohol, respectively. The verbal enquiry also proved to be efficient on these topics, with smoking and alcohol habits being interrogated in 86% and 82% of cases. This is in comparison to the electronic questionnaire, where smoking was asked in 82% of patients and alcohol in 76%.

Analysis of GDP and GP details showed that the written pro forma questionnaire was the most consistent method for recording this information, with 92% and 72% of patients providing information on their GP and GDP, respectively. Only 30% of patients were asked for GP details and 54% for GDP details on Salud. A mere 24% of patients were questioned on their GP details and 68% on their GDP details in the verbal enquiry questionnaire (Figure 6).

The study revealed considerable variation between questionnaires in the type of questions asked. Topics more frequently asked in the verbal dialogue in the oral medicine clinic, but not the other two, included kidney problems (54%), GIT (50%), musculoskeletal (28%), neurological (22%), endocrine (18%), family history (18%), dermatological (12%) and anaemia (6%) (Figure 7). OMFS patients were further questioned on arthritis (100%) and previous steroid use (94%). In the A&E electronic record, enquiries were made into topics such as slimming medications (28%), sickle cell disease (40%), human growth hormone (66%) and
These questions were frequently skipped by the majority of examining dentists in the A&E clinic.

**Discussion**

The medical/social history is an essential part of patient care. It is incumbent on the clinician to obtain relevant patient history for the safe practice of dentistry. If the questionnaire/discussion is considered difficult to use or time-consuming, for example the EMRRH questionnaire, the clinician might miss important patient information. Any medical problem that is missed might be of importance for the dental treatment. Indeed, reports have confirmed that medical emergencies occur in medically complex patients attending general dental practice. It was apparent that the patient-administered questionnaire, combined with verbal verification by the dentist, has proved to be the most useful method for detecting medical problems in dental patients. The verbal enquiry alone by the clinician showed more inconsistencies than the other two methods.

The questionnaire alone was not sufficient. Ten out of the 50 questionnaires had blank answers, highlighting the need to personally verify blank answers in the clinic. Patients do not always provide accurate or complete health information. The patient may not understand the terminology or may judge some conditions as unimportant or fail to recall significant facts at the time the questionnaire is completed. Brady and Martinoff in 1980 found that 32% of patients did not answer self-administered questionnaires correctly. The use of written patient-administered questionnaire is beneficial and may encourage more truthful responses to sensitive questions. They can be filled in privately by the patient prior to the clinic or face to face with the clinician. The clinician can expand on any area that needs exploration. Although the verbal history makes it possible to explain questions and provide a good insight into patients’ responses, it is time-consuming and relies on the clinician’s memory, time and alertness. Within the Oral Medicine clinic, there was no systematic recording of relevant medical history and this was wholly dependent on the operator’s preference. Important topics were frequently missed. Handwriting was also illegible in many charts. An advantage of using the electronic or patient-administered questionnaire is to avoid illegible handwriting issues. Although the electronic questionnaire did yield good results, in many areas it did not. Ideally, it should be the most accurate, as a qualified dentist is asking and explaining the questions to the patient and seeking a positive response in the verbal questioning. Information on infectious diseases like AIDS, hepatitis and TB were often not asked in any of the three methods. Most of these conditions are not relevant in the vast majority of dental clinics, but ideally the information should be sought. Differences were encountered within all three questionnaires in relation to the medications (drugs) recorded. The issue of medication is particularly critical as an ever-increasing percentage of the population is taking at least one drug on a daily basis. The current drug history records the impact of any problem identified on other parts of the medical history. It may identify the existence of problems not highlighted by the patient. Checking a patient’s medication (including dosages) is of vital importance. All medications should be checked against the British National Formulary. The electronic record gives the opportunity to electronically link to a drug’s compendium.

A modified pro forma questionnaire for use in all departments in the Hospital has been proposed (Figure 8). This may be of use to GDPs in their practice setting. This modified questionnaire includes further questions on previous hospitalisation, HIV/hepatitis C status and use of recreational drugs. Bisphosphonate therapy and previous radiotherapy have recently been added to the OMFS questionnaire. Questions relating to slimming tablets, growth hormone, sickle cell disease and GA have been removed. The questionnaire invites the patient to add any further relevant information, allowing the patient to identify problems or diseases not addressed in the questionnaire. The patient and clinician sign the questionnaire on the date it is completed. It was discovered that the medical histories in the oral medicine clinic and Salud were not signed by the patient. The medical questionnaire should be reviewed at each new visit (6-12 monthly) to incorporate new findings. It is a matter of clinical judgement how often the updating of the patient’s medical history should take the form of a further written questionnaire or whether it is sufficient for it to be verified verbally. If verified verbally, the medical history questionnaire should be signed and dated by both the clinician and patient.

Although the patient-administered pro forma questionnaire is the most useful, efficient method of carrying out a preliminary screening for medical conditions, it should be combined with verbal enquiry into...
Conclusion
This study was an audit of three different methods being used in a clinical setting and highlights the importance of audit to advise us of what we are doing rather than what we think we are doing. It is apparent that in order to achieve the maximum yield of information, a written patient-administered pro forma questionnaire should always be verified by an examining dentist. It is the responsibility of the dentist to identify patients with medical problems that would put them at risk during dental treatment. The medical questionnaire should be reviewed at each new visit (6-12 monthly) to incorporate new findings. This study has now enabled the DDSH to interpret a medical history pro forma in the electronic dental record, which can be signed by the patient, giving it ‘authority’.

References