Senior Project Paper

Cataract Referral Letter Generator

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With the population of the United States aging rapidly, many busy eye care practices write numerous cataract referrals each day. It takes time to write these letters even with a "canned" generic letter that is filled in. Usually either the clinician is responsible to write these letters, or the staff is required to write the letter as dictated to them. Either way takes time, and time is a valuable commodity in a managed care environment. It would be helpful if a program were available that would allow the clinician to be free from this task of writing or dictating the letters. My senior project is a program that allows a staff member to use the exam form and type all the information needed for a referral letter into a database. Then, with the push of a button, a referral letter with all the necessary information is generated and can be printed for review and signature by the clinician. This program will save a great deal of time in an environment where many patients are sent in for cataract removal, and it will also save time for the clinician who writes relatively few of these letters.

Microsoft Windows is the current standard for desktop operating systems, and Microsoft Access is arguably the best desktop database manager that has ever been written for Windows. A database manager is a program that provides a graphical front end to a relational database (which in the case of Access is contained within one single file with the *.mdb extension). A relational database allows for non-redundant and efficient storage of information and the subsequent retrieval of that information from as many sources as needed to solve a problem or provide information. The entire application I wrote for my senior project was done using Microsoft Access 2000.

In order to complete this project, I had to use both my knowledge of Access and of clinical optometry. The project would have been very hard to create without a knowledge base in both topics. The first step was to define what the final result of the project should be; in other words, I started from the final report I wanted to generate and

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worked backwards to design the project. After I knew exactly what I wanted in my referral letter, it was time to decide how I would create the data entry forms for the application in such a way that would be easy for an experienced data entry operator to add the data efficiently. Speedy data entry is the key to saving time for both staff and clinicians. After designing the forms, the next step was to design the database where information would be stored. Database design is an art form; it requires an intimate knowledge of the data that will be needed and the foresight to split the data up into tables that will prevent redundancy. The database for this project is well designed and efficient for this type of project.

Following design of the database, the forms and all the fields on the forms must be connected to the database. Each drop down box on a form draws its choices from a table that contains the most common possibilities. These tables can be altered as needed to add new options. This allows for the selection of the most common options for each field and can save a great deal of typing since very few patients suffer from exotic conditions or take exotic medications. Visual basic code was added to each drop down box to allow for on-the-fly additions to the selection tables. This can be a major time saver because for those few patients with exotic conditions you simply type it into the combo box and it asks you if you want to add it to the list.

The final step was to actually write the code responsible for generating the cataract referral letter. This took a very long time due to the fact that the code is complex and the formatting was difficult. Once it was completed, a button was placed on the final patient data entry form, and by pressing this button the database is able to generate the referral letter. It is possible to use any font size or style for the report, although the default Times font is very good for referral letters as it appears strong and professional.

This project was very useful to me in that it gave me an opportunity to study many different referral letters and decide on a style I like. It also gave me the ability to see which information is important to the ophthalmologist who will be receiving the letter. This program could prove useful to any optometrist who wishes to save time by allowing the staff to write the referral letter and then, once the letter is complete, the clinician can simply review and sign it. It is designed to work with Access 2000, but a version is also available for Access 97.