

Fast and painless data entry

One of the biggest problems of using the computer during surgery consultations is the difficulty of entering information. Moving onto the computer slows most people down at first, adding on average ninety seconds to each consultation. But it's not just time that's the problem: enormous frustration can be produced through not being able to record consultations as quickly and effortlessly as with hand-written notes. Couple that with the idiosyncrasies of the Read codes and the irritation of not being entirely sure how to use the clinical system, and we have the recipe for an emotional and time disaster of giant proportions. No wonder so many practices are still using paper notes and doubling up the work by duplicating important entries on to the computer!

But it needn't be like this. There are many ways to ease the problem of speedy data entry, so much so that a suitably tooled-up practitioner can make notes on the computer more quickly and more comprehensively than he or she can by hand.

To get to this stage you will need to acquire some new skills. Some are techniques that you, the user, need to learn

yourself; other parts of the solution involve setting up the computer so that it does a lot of the routine data entry for you. As with everything concerned with computers, it pays to take the time and trouble both to prepare yourself (and also to set up the computer) so as to minimise your input and maximise your output.

Getting to grips with speedy input is probably the most useful, yet at the same time the most neglected, aspect of using the surgery computer efficiently. Here are three articles about how to do it: firstly, some general advice on speedy input; next, tips from David Wright on how he's solved the problem in his practice; and finally, Bradley Cheek writing on the use of macros to speed up data entry.

These ideas are complementary, not mutually exclusive: learn speedy input, couple it with the use of synonyms and shortcuts, and where possible add the use of macros to automate and speed up your input, and you will soon find that putting in information soon becomes interesting rather than a chore.

John Lockley

Flying fingers—an overview of speedy data entry

Dr John Lockley

General Practitioner



Learn the Read code hierarchy.

You can save a lot of time through understanding the overall layout of the Read codes. For example, to know that chapter 6... deals with (among other things) the administration of pregnancy care whereas chapter L... (in 5-byte Read Codes—K in 4-byte) relates to obstetric conditions helps you sort out quickly which of the two chapters to use when faced with the picking list you obtain after typing in 'Pregnancy'.

An excellent help in working with Read codes is **velocity coding**. With a velocity coded system, after you've given the computer your search 'words', the computer presents you with a picking list *ranked in the order in which your practice uses these codes*. This means that you can type in a small search string such as 'diab' and the computer will present you with 'Diabetic monitoring' as the top selection, (if that's what your practice uses most) neatly relegating 'Diabetic coma' to further down the list, and reducing the need for further key presses or mouse clicks to move to the desired code.

It pays to take the time and trouble both to prepare yourself (and also to set up the computer) so as to minimise your input and maximise your output

If you're one of those doctors who hates putting data into the computer because it's slow, then there are a large number of things that you can do to make life easier for yourself.

Learn to use the keyboard

First and foremost, learn to use the keyboard—not with one or two fingers but with full ten-finger touch-typing. It isn't as difficult as it sounds. Buy one of the typing tutor programmes such as 'Mavis Beacon'—they're very cheap. Practice on it assiduously at home for about three weeks and you'll find that you keyboard speed rockets. From then on, every time you sit at the surgery computer, make a point of typing in a ten-finger touch-typing manner: you'll gain practice (and even more speed) on the job!

Once you're a ten-finger typist you'll be amazed at how quickly and effortlessly you can enter information—and after a time you won't even have to think about the typing itself: it will come as naturally and automatically to you as writing does now.

Velocity coding is an *immense* time-saver and is available on System 5¹ and System 6000 v3 which is soon to be released. Note however that it doesn't operate automatically: from time to time you have to tell the computer to sort its Read codes according to frequency of use, using an ancillary program. This program may take up to eighteen hours to run and will be scheduled for the following Sunday morning (when the practice is not open) if you choose not to run it right away

Minimise your typing

There are several ways to minimise typing.

- **Search on part words.** In searching for patients, addresses and Read codes **you don't have to type in complete words in order to find relevant items**. Most patients can be found by typing in the first three letters of their surname and the first three letters of their first name. Obviously, this depends upon the nature of their surname but quick thought about what sequence of characters to use in each case may, over the day, reduce considerably the amount of typing you do.

For example, you can probably find 'Chantelle Davis' immediately by searching for a surname of 'D' and a first name of 'Chan' because there are relatively few people whose first name begins with 'Chan'.

- **The same principle applies over selecting Read codes.** You may need

¹ Velocity coding has been available on System 5 since 1994 as a User Group supported enhancement. An official upgraded version is being considered for inclusion in v5.7.2.

only to put in the first few characters of the item you are looking for¹. It also helps to use two or more 'words' in your search string—the first to address the Read code index, the second to provide additional information to help cut down the resulting picking list

For example, 'Pat rev' will find 'Patient reviewed', though 'Patie rev' will find it more speedily through cutting down the number of matches between the first 'word' of the parsed input and the Read code index.

Using several 'words' helps enormously in selecting drugs. 'Amoxy' will give you a large picking list, but 'amoxy 500 ca' will give a picking list of just one item—Amoxicillin 500mg Caps.

As with searching for patients' names, searching efficiently for Read codes is a matter of trial and error, getting a feel for the right trade-off between short search strings (so there's less typing but more processing time needed) or longer search strings (which need more typing but need less time to find a match).

- For frequently-used terms, **insert the Read code itself** into the search box—then you bypass the picking list. (This can save *enormous* amounts of time.)
- In the same way, having menu lists (perhaps via a macro²) of **difficult-to-find Read codes** may avoid you having to go through the routine that we all know and hate of inserting a search string, finding an answer that is near to the desired code, then going into the Read code hierarchy and painstakingly moving up and down it until you find the code you want. Direct input via a macro is *much* quicker (and saves having all those irritating post-it notes with codes on stuck round the edge of the VDU.)
- **Use abbreviations, where appropriate, in free-text work.** The use of abbreviations can undoubtedly save time. However... although we all know the classic ones such as Rx, PERL, etc. care has to be used over abbreviations that are not generally known. VMB foxed me for a long time (it stands for very much better!) and older doctors may be less accustomed to the use of mets for metastases or Sx for symptoms. Be particularly careful with any abbreviation that can mean two things—such as PID or IUD. It's better not to use ones like this at all. Remember also that in the fullness of time, when inter-surgery electronic communication of patients' notes becomes a reality, the text on which you are currently working may well be transferred electronically to a computer in a different practice (where your patient has re-registered); so make sure that any abbreviations you use are likely to be understood completely and without confusion by other practitioners.
- There's an additional way of using abbreviations: if the abbreviations are unique sequences of letters which you don't get in ordinary English ('Rx', for example) you can use a **global Macro program** (see below) to expand the abbreviation into its full form, automatically.

Set up your own Read codes

You can set up your own Read codes and shortcuts to existing codes using the Read code Editor. Shortcuts to existing codes have the great advantage that you can use your own synonyms with perhaps three or four unusual characters, which won't match anything else in the Read code index: this means that you can type less and have minimal processing time as you will instantly find the Read code you are searching for (because it comes in a picking list of one item!) Again, this can save enormous amounts of keyboard time³.

To copy text from a Windows program, highlight it and press CTRL-C. To insert this text at another point, put the cursor to the new position and press CTRL-V

Set up your own formulary

Speeding up Read code selection is almost always helped by having a personal or practice formulary, because instead of searching the whole of the Read code hierarchy for a match, the computer is instructed only to search from the limited selection of codes that you've put in the formulary, reducing the picking list in the process. This may only save a few key presses per search, but over the course of days, weeks and months the saving of time and frustration can be considerable.

Automatic entry using SOPHIEs and CDSS

Rather than selecting Read codes by hand or typing free-text directly, it's much quicker to get the computer to code information for you, automatically. A system like this acts temporarily as a **front end**. (A 'front end' is a program, bolted on to a core system, which allows the user to access the core system in a more user-friendly fashion.) A front end in a medical system will allow user-friendly input in medical English, using one or more of a variety of tools such as picking lists, diagrams, check boxes, sliders, etc. Then the front end will interpret the answers, translating the input into computer codes and automatically recording it in the right place.

This is where SOPHIEs can be so powerful. In the time that it takes to a search for a single Read code by hand a user may be able to get through a complete SOPHIE protocol. What's more, the SOPHIE will select the Read codes it uses in a thoroughly consistent manner—which is more than can be said for a disparate group of users each selecting Read codes 'freehand'!

An alternative method, soon to be released, is a program called CDSS, written by the pharmaceutical company MSD. CDSS is a cross between SOPHIEs and PRODIGY and acts like a

partial front end to the system, working in specifically defined areas such as cardiovascular, asthma and diabetes to alert the user to missing information, or the need for further monitoring or prescribing; giving reasons for its advice (if the user wants to see this) and selecting and recording relevant Read codes automatically⁴.

Hooked SOPHIEs

Another way off speeding up data entry is to use hooked SOPHIEs⁵. These SOPHIEs are started automatically, triggered by the user putting in a certain Read code. For example, entering the code for atrial fibrillation could trigger the Atrial Fibrillation SOPHIE which looks for the prescription of aspirin or warfarin in specific age ranges and if it doesn't find an up-to-date entry, warns of the importance of prescribing these agents.

Most hooks have to be set up by the user, but judicious use of them means that instead of having laboriously to remember that you need to carry out an action, or even run a SOPHIE, the hook will start the SOPHIE for you automatically, enabling you to enter or receive information without having to think specifically about doing it.

Hooked SOPHIEs are only available in System 6000, but a slightly modified procedure is available for System 5.

Tricks and tips

If you have a Windows-based system you can save a lot of keyboard work by using simple Windows commands such as CTRL-C and CTRL-V to copy and repeat information. (To copy text, highlight it and press CTRL-C; to place this text in another site, put the cursor to the new position and press CTRL-V⁶.) Both the donor and the recipient program need to be Windows' based for this to work.

The usefulness of this procedure depends on how you choose to enter details about patients. If you want to Read code everything—such as details of each part of your examination ('liver not enlarged', 'no basal creps' etc.)—then you'll just have to do it the long way round, (perhaps with judicious use of SOPHIEs), using one Read code for

¹ Exactly how many letters depends upon the system you are using and whether you are using a four or five-byte Read code set. With a 4-byte set there's no point in typing more than four characters in the first 'word', because that is the length of the keywords provided by the NHS. The keywords for 5-byte Read Codes are up to 10 characters long. Clearly ASTHMA is a valid keyword for 5-byte and is less than 10 long, but ASTH is sufficient for 4-byte. Typing less than four characters for 4-byte Read Codes actually makes the search much slower because it has to find all combinations by padding out to four characters.

² A macro is an automatically-inserted string of characters. See later in this article, and Bradley Cheek's article on Page 12.

³ For details of how to do this, see the article 'Electronic paperless consulting: Part 2' on Page 8.

⁴ See 'News' on Page 23. Also, CDSS will be the subject of an article in next quarter's Torus.

⁵ Hooks will be covered in a future edition of Torus.

⁶ This doesn't work in the early versions of 'Select Read code or Search Text' part of the System 6000 'Add Note' window, but does in v3.

each item of the examination and history. But if, like our practice, you Read code only the overall problem or activity, putting the details of the history and examination in free text, then it is worthwhile thinking about using the Windows' cut, copy and paste mechanisms to speed up this procedure.

For example, it is perfectly feasible to have, constantly running in the background, a Word or Notepad document containing standard phrases and examination details. One of its sentences could read: 'O/E SLR (R)90,(L)90 Power in ankle and knee normal. Ankle and knee jerks normal. Lumbar side-bending normal.'

Then, any time you want to record in detail the examination of someone with lumbago, simply switch to this document, underline this particular paragraph with the mouse, press CTRL-C to copy it, switch to your clinical system and press CTRL-V to place this information into the freetext box. Then amend this free text as needed, according to the examination findings

A refinement of this procedure is to use the AutoText function of Word. Using this you can insert whole paragraphs of information using a few characters followed by the F3 key. Here's how to do it.

1. Prepare Word beforehand

- Start Word
- Type a piece of text that you use frequently—for example, the description of a standard normal chest examination: 'Chest: Air entry equal; auscultation nad; percussion nad'
- Highlight this
- Go to Insert/AutoText/New (Fig. 1.)
- Give a memorable two- or three-character name for this entry—such as 'oc' (for 'On examination, Chest') (Fig. 2.)
- Make as many entries as you want for other standard entries—complex chest examination, abdominal examination; short CNS examination, detailed CNS examination and so on. Just make sure you have a memorable short title for each, then you can call up the full text without needing to pause and think about it.
- Close the Word document: the preparation is finished.

2. To call up the text

To make a speedy yet complex automated text entry for a person with no chest signs, do the following:

- Find the appropriate Read code to cover the entry (perhaps 'Upper respiratory tract infection')
- Switch to Word and a blank document (already running in the background)
- Type the history. When you come to the examination, type OC and then F3
- The complete AutoText entry will be inserted, replacing the 'OC' that you have just typed
- Highlight the whole entry and press CTRL-X to cut it to the clipboard, thus leaving a blank document ready for the next occasion
- Switch to your Torex application, put the cursor where you want the free-text entry to go and press CTRL-V.

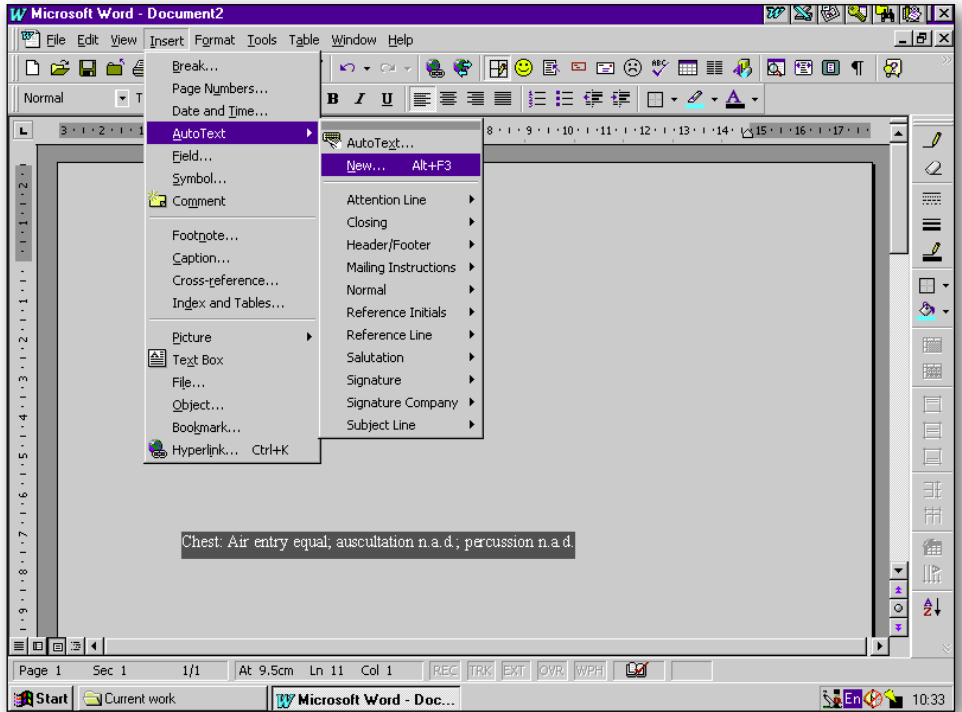


Fig. 1 Creating an autotext entry in Word

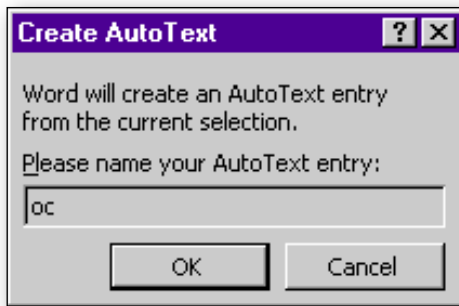


Fig. 2 Giving a short name to the autotext entry

The whole of your free-text entry will be inserted.

This may sound complicated, but in practice it is a remarkably quick procedure. Assuming you've already set up the AutoText function comprehensively¹, a standard examination of a child with a cold and a cough might be recorded as follows in the word processor:-

- 'c/o cold for 2/7 followed by cough and fever last night' (Typed in, literally.)
- / F3
nt F3
ur F3
oc F3
(This expands to 'c/o cold for 2/7 followed by cough and fever last night O/E Temperature 37; ears nad, throat nad, no neck lymphadenopathy; Chest: air entry equal; auscultation nad; percussion nad.')
- Don't forget that you can amend the text in the word processor in any way you want, so that if you wanted to change the entry to include 'a few creps on the right side' you can do it before transferring it to the Torex system. (You can also amend the free-text after you've pasted it into the Torex system, of course.)

- Now cut and paste the whole paragraph to your clinical system (underline, CTRL-X, switch to the clinical system, CTRL-V, taking care not to include any paragraph markers as this may upset the layout of the text in your clinical system).

The great advantage of this method is that you only have to set up the AutoText entries in Word once: they will be permanently available afterwards. (If you change your mind and want to delete or amend AutoText entries, utilise the *Insert/AutoText* window from the Menu bar.)

An alternative method of fast data entry (but one that's just as useful) is to use the AutoCorrect function to replace text as you type. For example, you could use AutoText to replace any isolated examples of 'R' and 'L' (i.e. R or L with a space afterwards) with (R) and (L).

An even better way—use a global macro program.

A macro is a collection of key presses and mouse clicks that is entered automatically, as if typed in directly at the keyboard, when a triggering sequence is initiated. The AutoText function in Word is a macro, but it only works within Word, and to be honest, as far as clinical data entry is concerned, the workarounds I've described are a fudge—a convenient way of getting round some of the shortcomings of direct text entry without going to any extra expense. The real answer to speedy text entry in this manner is to purchase a third-party global macro program, such as Macro Express or Macro Magic, which will work in any Windows System (including your Torex Windows' application) without your

¹ I'm assuming here that you've also set up AutoText entry '/' to read 'O/E', entry 'nt' to expand to Temperature 37.0 C; and 'ur' to 'ears nad, throat nad, no neck lymphadenopathy'.

needing to go into a different program to use it¹.

Voice processing

There's no reason why you shouldn't use voice processing to write free-text entries. With a Windows system, and a voice processor already running in the background, simply switch to the voice processor, dictate the entry you wish to make, correct it (voice processors are not 100% error-free) and transfer the free-text it produces to your clinical system. For someone who can't type quickly this could be a speedy way to input a lot of data.

However, this situation can get fraught.

- It's not easy to use it in the surgery with the patient present².
- Voice processors aren't perfect at recognising speech, and you may find that while you save lots of time through dictation, the time spent making the corrections removes any benefit.

- Voice processor programs need training, and this takes time: they are also trained to a particular voice, so that recognition may drop dramatically if you get a cold.

A number of voice processors are available: ViaVoice and Dragon Dictate are among the front-runners.

Drawings

System 6000 and Premiere can accept drawings. Don't be afraid to use this facility. There are several standard drawing templates that can be loaded and it may be quicker to draw and write upon these than to try to describe the clinical situation as text. As they say, a picture is worth a thousand words, and to a slow typist this principle still remains wonderfully true!

Direct input

Direct entry of other information may save time at the keyboard. Examples include:-

- Use of a digital camera
- Direct input from ECGs and other equipment³
- Pathology links, allowing results to be incorporated directly into the record straight from the lab without any retyping
- Registration and Item of Service links, avoiding the need for secretaries to re-key information
- ...and in the fullness of time, e-mailing of letters from the hospital will allow information to go straight into the patient's record.

¹ See the article on Macros on Page 12. Note that both Macro Express and Macro Magic are for Windows' workstations. Macro Magic will (mostly) operate within a Windows DOS box; Macro Express won't.

² Glyn Hayes and Mike Bainbridge have an hilarious sketch to illustrate this, with the 'doctor' saying 'Up, up', to the voice-driven surgery system, and the 'patient' getting up out of his chair with each command!

³ An article on the direct input of ECGs will appear in the March edition of Torus.