

GOING PAPER LIGHT WITH
PCTI

“ We are now ten months into using PCTI and its value is already having a marked affect on our performance. Our expenses are contained, our activity has increased, our patient care continues to improve and our profit will also be healthy! “

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INTRODUCTION

In December 2003 I undertook a project to find a solution to the two most urgent problems that the Practice was then facing.

The first was the need to store and extract increased information to improve clinical quality of care – this has been exacerbated by the introduction of the new General Medical Service (nGMS) contract, with effect from 1st April 2004.

The second was that the practice had run out of accessible storage space for the keeping of medical records which are essential for the patients continued quality of clinical care.

I reviewed and assessed the effectiveness of existing systems and compared them to others that will provide more effective and efficient methods of handling to cope with the immediate and future demands of the patients and government led directives.

The existing systems were tried and tested and had generally served us well up to now. However, the stresses are now on additional information, more regularly obtained and increased extraction of data to satisfy clinical audits and encourage preventative medicine.

The research showed that paper systems can no longer, effectively and efficiently handle the present and future demands.

As with all other organisations, the vast amount of data required to day can only be handled in one way – electronically.

This in itself created other problems. Whilst all were important to consider, the priority had to be given to the effect it would have on staff – our most valuable asset. From staff questionnaires and resultant feedback, there was a very positive comment in that the staff could see the need to move forward and were sold on the steps that had already been taken in terms of electronic appointments, prescriptions and pathology link results. They saw that it is a change of the tool and not the change of the task in hand in providing a first class medical service in line with current and future demands.

Naturally there were concerns with any change, training and support were of paramount importance. This was addressed with both good initial training, the opportunity to see how other practices had done it and regular reviews encouraging staff suggestions.

Whilst our security and medico legal requirements were sound these are areas that need regular review to ensure that the not only any new requirements are actioned but the existing standards are maintained. For example, with the increasing use of VDU's and the staff spending more time on them, all workstation environments should be checked annually.

Most improvements within a practice involve additional costs but in this case the introduction of electronic records meant in reality a decrease in cost, both in terms of staff and in the longer term space saving.

It was not the intention to reduce hours in the immediate future. The purpose was to utilise the time gained in pro-active work to either offer additional services, or see

patients more often for preventative and monitoring purposes, in line with requirements of the new contract. If we had kept to the old systems this would have necessitated an increase in staff hours/personnel and therefore cost.

The introduction of the PCTI system not only provided the solution to the urgent needs of the practice but also enabled us to be in the position of being able to be an accredited paper-less practice within twelve months.

It also meant that we will be well positioned to take the next step into the NHS plan for an electronic patient record that can be viewed whenever and wherever in the UK the patient happens to need clinical attention.

PRACTICE PROFILE

Caterham Valley is a four-partner practice situated on the North Downs in Surrey, approximately two miles north of Godstone (Jn. 6 on the M25) and eight miles South of Croydon. The practice has a patient list size of approximately 8300 and covers an area containing the villages of Godstone, Woldingham, Whyteleafe and Warlingham, as well as the town of Caterham, home of the "Super 7" sports car. Our surgery was opened in 1998, following relocation from smaller premises. The building is spacious and equipped to a high standard, and also contains a pharmacy, dental practice, chiropractic clinic, chiropody clinic and British Red Cross office.



Organisation

The General Practitioner team comprises the four partners, a retainer and a registrar. The Practice Manager, Richard Dines, oversees a team of five receptionists, two practice nurses and three administrators. Our district nurses and health visitors are all in-house.

The practice staff are all above the age of forty and with the exception of the practice manager, are female. Both practice nurses and two of the five part time receptionists have enjoyed over fifteen years of working in the surgery. There is a good working spirit and atmosphere. The staff also regularly hold personally organised social gatherings outside of the workplace.

We are fully computerised (EMIS), and run a full range of clinics including child health, chronic disease and minor operations. We provide emergency surgeries every weekday and Out-of hours cover is provided by Thamesdoc.

The practice uses the EMIS 5.2 clinical system and QMAS/EMIS Population Manager in order to monitor progress for the new GMS contract.

GETTING STARTED

The need for imminent change to use computers more than paper had now been established. It was therefore important to understand the areas that were affected by such change. A mind mapping exercise was conducted with assistance of a small team from each discipline. It was based on the simple question of how will going paper light affect them and their departments i.e. doctors, nurses, reception and administration. The response was very full and enlightening. From here, the key areas focused on were:

- why medical records are needed
- where the information comes from, how effective it is and effects of the inefficiency of the paper system
- our present position on technology and its effectiveness
- staff perceptions of existing systems and how paper light systems will affect them
- medico legal requirements
- security
- scanning
- implementation

With the areas now clear to focus on it was important to follow a broad plan and this shown in the fishbone diagram in appendix 1

It was broken down into a four-month project with goals for completion of respective tasks by the end of each month. By the end of the first month, December 2003 a team representing each discipline had been created and a mind-map of the areas to be covered established. During January 2004, an assessment of staff perceptions and the present position on existing systems was carried out. In February, demonstrations of scanning and workflow IT systems, plus visits to other practices were undertaken. During March, the findings were assessed and recommendations and conclusions presented to the partners and staff.

Implementation to start scanning and step on the path to a paper light practice was recommended and implemented from April 2004.

WHAT INFORMATION IS NEEDED?

Information is an important tool in healthcare to-day. As the health care agenda switches from treating illness to keeping people healthy so information becomes more and more important.

We not only have to have our own information but be able to swap information with other health agencies e.g. referrals to consultants in hospitals and receipt of reports from them.

The classic information system in primary care has been hundreds of Lloyd George envelopes (known as medical record envelopes or MRE's for short). This was the hub of the system previously used in the practice.

We need to know about our patients and about the activities undertaken to keep them healthy or to restore them to health when they are ill. This means we have to keep information about patients and about procedures.

Patient Information can be grouped under three headings:

1. Basic Information about patients – known as demographic data
2. Information about their medical history
3. Activities and how good the activity is

You have to keep records - but, the increasing amount of information meant that paper records were becoming progressively more difficult to manage and store.

EFFECTS OF THE INEFFICIENCY OF PAPER SYSTEMS ON THE PRIMARY HEALTHCARE TEAM

RECEPTIONISTS

The management of paper for receptionists was very time consuming and caused frustration when the notes that were required were not in the filing drawer or misfiled. In addition many of the notes were tightly jammed.

This often made the job of pulling difficult and often needed physical strength especially when the required notes were at the rear of a top drawer. This can be particularly distressing when notes were wanted for an open surgery when up to forty patients notes have to be pulled very quickly and passed to the doctors. Similarly, if a doctor called for notes these were usually required very quickly as the patient was often waiting. This could cause further frustrations and edginess for all concerned when the notes could not be easily be found.

The pulling of notes and filing was a job that was full of constant interruptions from either patients coming into the practice, telephone calls or clinicians requesting another task done urgently e.g. arranging for an ambulance. The result was that filing appeared to be a job that never had an ending and therefore, there was not the same satisfaction as when a specific job was completed.

DOCTORS AND PRACTICE NURSES

Whilst, the clinicians handwriting within the practice is generally decipherable the notes produced by locums or the notes that have been transferred to us, are sometimes not so easy to understand. This in turn causes delay and gives the patient a poor experience of the professionalism of the clinician. Paper notes, especially for older patients and those with a large medical history, make it difficult to assess past information and significant items may be missing after being torn or lost completely from the records.

Owing to clinician's time constraints or simply forgetting because of lack of a prompt, important information can be missed from the records.

ADMINISTRATION

Audit returns often require significant 'digging' into old papers to establish the correct position on a patient's condition and response to medication. This can be very time consuming and again frustrating when records are not readily to hand or difficult to read through age and condition of the papers. Responding to insurance companies for medical attendants reports is often laborious and in complicated cases they can take up to an hour to complete. Similarly photocopying of notes for solicitors is a task that is tedious and one of the more disliked jobs that has to be done.

ASSESSMENT

The pulling of notes and filing is a job that is tedious, time consuming and often frustrating. This has been verified in discussion with the receptionists. They described filing, like 'painting the Forth bridge'. As soon as they thought the filing had been done, more appeared and they did not have the satisfaction of completing a job. Also the fact that they were never able to focus on it without interruptions was at times 'annoying'.

However, they do enjoy the 'social' aspect of closely working with their receptionist colleagues and interaction with the clinicians (when it isn't too fraught!).

The clinicians main concern was the challenge of the new GMS contract and the need to have information readily to hand. They realised that whilst they have in the past provided a good service to the patients they could not provide the quality of care now demanded nor the evidence of it being done, with a paper system.

The administration team were witnessing increasing numbers of requests for reports and with the new GMS contract the need to call in more patients for review is increasing their workload.

RECOMMENDATIONS

The increasing pressures on all staff through both increased patient demand and the requirements of the new GMS contract meant that we had three options:

1. Do nothing, which will increase pressure on staff still further, resulting in an unhappy workforce, probable resignations and reduced patient satisfaction.
2. Keep to the existing systems but employ more staff. This in effect is not a solution as it is only propping up a system that is not conducive to to-days demands and is very inefficient when compared to specialist medical computer system. In addition not only do we not have the space for paper records we do not have the space for extra staff!
3. To increase efficiency and to cope with the demands of the approach to health care the practice needs to go initially paper light and then paper less. This would enable the practice to work efficiently and effectively to cope with the needs of the patient population. Just as importantly, it would continue to provide the staff with a good and happy place to work. It would induce a greater job satisfaction of actually playing a more part direct part of patient care through increased patient contact.

CONCLUSION

The staff take an immense pride in 'their practice' and want to provide the best possible service to all of their customers i.e. to the patients and each other. Whilst, they have been able to do this so far with well established paper systems the new challenges are on us now and the only way forward to achieve a 'win win' situation for both patients and staff was to take the paper light path.

Change has been forced upon us, but any time there is change, there is opportunity. So it is paramount that an organisation gets energised rather than paralysed' It was therefore essential that new systems are seen to be a benefit to the staff. This would need their involvement and explanation and understanding of the benefits to all stakeholders.

INFORMATION TECHNOLOGY

The practice uses an Egton Medical Information System (commonly referred to as EMIS) which serves 24 PC's throughout the practice.

The PC's were updated 18 months ago to Dell OptiPlex GX240 – P4 1.6GHz and 15-inch flat screens. At the same time the server was replaced with a Compaq Proliant ML350 P111 1.3 Ghz, 512Mb RAM (36). The software included MS Windows 2000, antiviral protection service for two years and Microsoft Office 2000.

New Brother, black and white laser printers with dual trays were purchased and accompany each PC in the clinicians rooms. The advantage of these is that one tray will produce A4 sheets and the other prescriptions. The system is networked which enables printing to be done remotely if required.

ASSESSMENT OF EFFECTIVENESS

INFORMATION TECHNOLOGY (IT)

The EMIS system is well known to the staff. It is reliable with a good back up service and any faults over the last three years (there are only seven recorded in this period) have been minor. The EMIS help desk is quick to respond and can often action any changes needed remotely.

Both the appointment and prescription systems are easy to operate and make changes when required. The staff are very familiar with the systems and would not want to go back to a manual method (see section on partners and staff perception of systems that follows).

Clinical information can be easily and quickly entered onto the system. Over the last twelve months more patient information was being entered onto the electronic system but was also entered onto the paper notes. This meant extra work for the clinicians and administration staff.

The medical records tracking system works well in controlling the whereabouts of a patient's medical notes as the data base administrator can look up the position within seconds.

Providing information to patients to help prevent or control diseases is not only important, but also expected from patients. The wide availability of such information at the touch of a button means that the clinician is able to provide up to date data, without having to keep scores of separate leaflets.

TRAINING ISSUES

All staff have received training from an outside source in e-mail and Internet use as well as from EMIS in respect of systems that they are operating e.g. receptionists the appointment system and administration searches and statistics.

On speaking with the staff it was evident that all of them were very comfortable using IT systems in the course of their normal working day. Problems were rare, but should they need guidance they not only help each other but are good at sharing 'helpful hints' The administration staff, also have a good relationship with other local practices who use EMIS, to exchange knowledge and attend regular EMIS user group meetings.

SUMMARY OF ASSESSMENT

The practice had successfully adopted many IT solutions to many working practices. These were accepted by all members of the PHCT as beneficial, easy to use and they would not want to go back to previously used methods.

The major area that had only been partially brought into using modern information technology was the storage of clinical/medical records.

OPTIONS

1. To stay as we were with one of our most important items of information i.e. medical records, being kept on paper.
2. To put all clinical information on the electronic system.

RECOMMENDATION

To put all clinical information on to the electronic system. This would then alleviate the problem of the severe shortage of filing space. It would also provide us with the ability to extract, relatively easily, the information required to evidence the clinical quality needed under the new GMS contract.

PARTNERS AND STAFF PERCEPTION OF EXISTING SYSTEMS AND INCREASED USE OF COMPUTERS

Was going paper light a big change for Caterham Valley Medical Practice or was it a natural development in a fast changing environment?

Would it be a big surprise to the staff?

Would everyone be on board?

Would the benefits outweigh the disadvantages?

The thought of change for most people is one of initial "how will it affect me" and secondly why can't things stay as they are- I'm happy the way they are!

The first question is inevitable but is the second necessarily so?

With some people perhaps, but with change to every aspect of life now commonplace, attitudes towards change have also progressed (luckily it has otherwise we may still be living in caves!).

What most people want is to be kept informed on a regular basis and to see what the benefits of the change will be for themselves, their customers and the organisation for whom they work.

The reasons for looking into progression to a paper light and eventually a paperless practice were a mixture of being self evident and education into the immediate and future needs of the patients and government.

The self-evident aspect was the physical constraint of being close to capacity in filing space. We were simply running out of room with the last filing drawer being squeezed into the back reception by cutting away skirting board and that is now full with tight fitting MRE's. Although we look to 'thin down' notes whenever possible we were fighting a losing battle.

The proposal and subsequent adoption of the nGMS contract has emphasised the need for an improved quality of care for patients which is recorded and easily audited. It is readily apparent that to be able to comply with these requirements a greater use of information technology (IT) will be needed. Without it, it would be very difficult if not nearly impossible to comply with the requirements.

In order to keep the staff informed of the developments a meeting was held in March 2003 to convey the key areas of the nGMS contract and its requirements of the practice. As more was known and confirmed the information was passed to the staff on a regular basis culminating in an away day in October where the new contract and the progress to a paper light practice was aired. From this a team comprising of the practice manager, a receptionist and administrator and a GP was set up to investigate the best way forward to introduce a scanning system into the practice. Although this was a change in handling information it was envisaged that fundamentally the essence of each job, be it clinician, receptionist or administrator would not change. It is a far better tool in terms of efficiency and to help perform the key objective of the practice i.e. improving the health of the patients.

The view of the staff and their attitude towards this modification was fundamental in the implementation and success of the exercise.

To establish this, two questionnaires were jointly issued to GP's, reception, practice nurses, and administration. The first related to existing systems and the second to being 'paper light' plus a request for comments.

Sixteen questionnaires were issued and fifteen returned which indicates a very healthy interest in what is happening in the practice and my appreciation of their input.

Whilst the questions were the same for the paper light survey they varied slightly for the existing systems questionnaire to reflect areas most relevant to them.

SUMMARY OF RESULTS

- The existing paper systems work well
- The majority agreed that it was difficult to pull notes (100% reception who do 95% of the extraction)
- There was a diversity of opinion whether or not notes were difficult to read. I followed this result up in a group meeting with a representative from each discipline. The reason why they believed that reading the notes was not a problem was the fact that as a team they had been together for some years and had learned to understand each other's writing. However, the converse was the case for notes transferred to us.
- The majority thought that the notes were often torn or badly creased. However the doctors were not so emphatic and this was due to the fact that the notes were usually repaired or straightened out by the receptionist prior to passing to the doctor.
- The majority agreed that room for filing notes is close to capacity.
- The majority agreed that time pulling notes could be better spent helping improve service to patients.
- The clinicians agreed unanimously that time spent on dual entry could be better used.
- The majority felt that it was difficult to meet the required clinical qualities with data being partly on computer and part on paper notes.
- Everyone agreed that we could not easily produce clinical governance, audit and health promotion information without a computer.
- All agreed that the electronic prescription and appointment systems were fast and easy to use with flexibility to allow changes to be made easily.
- By a large majority all staff would not wish to go back to a paper system. (The survey was conducted on an anonymous basis but one member of staff did afterwards suggest that she had incorrectly answered this question and certainly would not want to go back to a paper system).

PAPER LIGHT QUESTIONNAIRE

The majority of questions were common to all disciplines. Reception were asked to complete only those questions more specific to them and administration responding to analysis of data rather than consultations.

SUMMARY OF RESULTS

There is a slight balance in the belief that being paper light will not benefit the patients. On discussing this with a representative group of staff, the feeling was that we already provide a very good service and without actually operating a paper light system they could not readily see an improvement.

However, a large majority thought that being paper light would be of benefit to the practice.

In contradiction to first question the majority (60%) felt that greater use of IT would help them to provide a better service to patients.

80% thought that the advantages of being paper light will outweigh the disadvantages. No one disagreed.

Without exception, there was overall strong agreement that the doctors and staff will be comfortable in all uses of a paper light system and they would adjust well. Similarly most were looking forward to reducing the amounts of paper.

COMMENTS FROM THE PAPER LIGHT SURVEY

Comments from the staff provide very important feedback not only to understand their feelings and perception but also to learn what will need to be done in order to either get them or keep them on board.

The responses that tie in with the practice management thoughts and are in line with the NHS plan for Information Technology provide a useful confirmation that the staff are supportive of the changes. Those which are not, indicate that the vision has not been well communicated, simply not understood or need revisiting because they are not as good as they should be.

What will be the advantages of going paper light?

- time saving
- storage space saved
- information stored in appropriate place
- more easily accessible information
- greater efficiency
- step towards an integrated NHS patient information system

What are your concerns?

- System crashing
- Information not entered on computer
- Cross over period

- Access to old records
- Loss of personal touch when managing patients
- Being tied to a computer screen
- Doctors being stuck in their room all day/people contact

What would you like to see happen in the transition to a paper light?

- Working together, sorting out problems as they occur
- Meetings needed to make sure everyone is aware of systems and changes being made.
- Everyone comfortable with it and trained properly
- Directory as to who is responsible/protocols

What wouldn't you like to see happen in the transition to a paper light practice?

- Doctors 'hidden away' and loss of contact with reception staff
- Responsibility solely on one department
- Starting without full explanations or understanding
- Sudden change with no back up or appropriate prior groundwork

ASSESSMENT OF FINDINGS

- The staff have a positive attitude to going paper light
- The benefits to the patients at this juncture are not clear, mainly due to the fact that patient satisfaction is already high.
- However, the benefits to the practice are generally well understood.
- The concerns, what the staff would and would not like to see happen, are all areas that one would expect to encounter and must be acknowledged, understood and actioned.

RECOMMENDATIONS

- The positive attitude must be maintained through regular updating of plans and developments with the benefits reconfirmed.
- Scanning of all clinical items would be a major change to present systems and the operation of this will require consultation and training for all users plus clear protocols in its use.
- The benefits to the patients has to be explained to the staff together with overall NHS philosophy for modernisation and IT
- The existing EMIS system is not as 'user friendly' as others. We know that they are currently looking to get their 'windows' based system up to standard and when fully tested and launched this will reduce the problems considerably.
- In practice the EMIS system has very rarely 'crashed' and when it has done this has been for a matter of minutes only. All necessary back up is taken and a protocol is in place for the action to be taken should such an incident occur.
- All clinicians to be very familiar with the correct Read codes and templates and macros constructed to aid the input of data.
- All change must be well planned and all parties involved with the planning and implementation to ensure understanding.

- The changes need to be on a step-by-step basis with thorough training to enable everyone to become comfortable with the new systems.
- The paper records need to be readily available but only on a needs be basis.
- Doctors to test working with only computer records during the emergency surgery held on a Saturday morning (on average there are only 12 patients). This will enable them to actually experience working without notes during consultations.
- The concern of isolation among staff has to be acknowledged but in essence it should release more time to discuss patient and practice issues. This will have to be monitored closely.

CONCLUSION

The staff were well set for the practice to move forward to going paper light but would need careful and considerate handling. 'Wins' would need to be acknowledged and celebrated. Problem areas would need to be quickly investigated and remedies sought.

PATHOLOGY LINKS

This is a good example of where we have already become 'paper light' and how we set about introducing the change.

The practice started to use the electronic report messaging system in February 2003. This enables us to receive pathology results for haematology, biochemistry and microbiology through a computer link.

This was the first national clinical application to use the NHSnet infrastructure and is an important step towards the wider goal of transferable medical records.

The introduction of pathology links brought with it several benefits, including:

- Enhanced efficiency through streamlining of the pathology report process
- Faster advice of result to patients thus helping to minimise stress of waiting and improving any further action time
- Improved data quality through the reduction in re-keying results at the practice
- Reduction in time spent locally searching for records, as results are available and accessible to all appropriate practice staff immediately upon receipt
- Improved tracking and auditing of results reporting
- Capability to set alert facilities to highlight results that are beyond the normal
- Improved local clinical analysis using nationally agreed clinical codes
- Improved legibility of results and reduction in telephone queries from the practice to the lab.

IS IT A SUCCESS?

Both the implementation and its day-to-day operation can be considered very successful for the following reasons:

- There was a good lead in period of three months prior to connection thereby giving time to consider the action that needed to be done.
- The EDI manager was well tuned into the system and was able to work with others to help them get up to speed quickly
- The benefits as listed above could be clearly seen by all staff
- The basic training was given to all members of the staff who might be involved with the samples and results
- It is easy to follow and more straight forward than perhaps initially envisaged
- The doctors were enthusiastic as they had an input on the pick list for comments on practice notes and results
- Good relationship with the IT manager at the hospital
- Good relationship with other practices to exchange information-
- Paper back ups are still produced to provide reassurance in case of IT breakdown. However, in reality they are not frequently referred to
- Breakdowns are becoming less frequent and usually put right within a few hours thus causing limited delay.

RECOMMENDATIONS

The successful introduction of pathology links formed a good model on which to base the introduction of scanning and the development of a paper light and eventually a paper less practice. It was therefore recommended that we followed the same structure as above.

CONCLUSION

We have earned our success in establishing an improved and effective results system through understanding the needs, explaining the rationale and the support of the staff.

In return both the patients and ourselves have benefited from a speedier and overall more reliable service. Furthermore, it is good to again receive comments from the staff of 'I wouldn't want to go back to the old system'!

CONVINCING THE STAFF

We have a well-motivated and dedicated staff who really do achieve a great deal of satisfaction from their work. They enjoy each other's company and their contact with the patients.

Therefore it was vital that with the change to a paper light system we maintained this level.

Moving from a paper system to an electronic one is really only changing the tool to do the job. The product required is still the same except that you have a better tool to the job, which in this case is to treat patients and improve the quality of patient care. It may be compared to drilling ten holes with a hand drill taking the same time to drill a hundred with a power drill. The job is the same but it can be done more effectively and efficiently using electronic methods. Hence increased demand can be satisfied without stress or extra resources and without losing the involvement with the team, which is a key motivational factor.

Electronic records do not only enable more information to be recorded and easily evaluated, they also release more time from hours of paper managing to spending more time with patients which is the second major motivating factor.

Variety in the jobs are still achieved or even enhanced as the principle purpose of the job of improving patient health not only remains but has an increased emphasis. The practice will still have the occasional irate patient but with an improved and speedier service due to Information technology e.g. with pathology links enabling results to come back the next day, even this improves.

ACTION TAKEN

Through regular meetings with staff the emphasis was put on 'change of tool' rather than change of job.

Every assistance in the form of good initial training followed by on the job training and support was given to staff

Job profiles were amended to reflect any change e.g. to pull Medical Record Envelopes to be changed to 'using the electronic work flow system for storing medical records'.

Partners and the practice manager reviewed the procedures of any changes implemented following both informal and formal meeting with staff. Any suggestions were acknowledged and implemented when possible.

Staff annual appraisals recognised the change of systems and new skills learnt.

CONCLUSION

By maintaining the motivation of the staff and the immediate realisation of the benefits and simplicity of PCTI system was introduced with few problems and indeed enthusiasm.

MEDICO LEGAL REQUIREMENTS

The principles of information governance for the NHS are derived from a host of requirements. To ensure that we were keeping on the right track in our pursuit to a paper light practice each one was reviewed and actioned as necessary. These included:

- Computer Misuse Act 1990
- Access to Health Records Act 1990
- Caldicott Report 1997
- Data Protection Act 1998
- Human Rights Act 1998
- Freedom of Information Act 2000
- Health and Social Care Act 2001
- Electronic Communications Act 2000
- BS7799
- Display Screens Equipment Regulations 1992

SECURITY

We already had a great deal of dependence on the computer system and we therefore needed security systems and procedures that were tailored to our dependence on computerised records and computer related working practices.

Both physical security and protection of data are of the up most importance and both of these critical areas were analysed and reviewed.

The physical security involved looking at locks, staff only areas, burglar and fire alarms as well as tape and disk storage in a fire proof safe. Data protection review looked at protection of the data e.g. the system being compliant with the General Medical Practice Computer Systems Requirements For Accreditation (RFA), RAID (Redundant Array of Independent Disks) to protect against hard disk failure and UPS (Uninterruptible Power Supplies), back up and tape validation.

DISASTER RECOVERY

A disaster recovery plan for loss of, or damage to, hardware, software or data was put in place.

CONCLUSION

We have a good track record on overall security. The increased use of electronic data will put an even greater emphasis on the need to protect our highly confidential information from both inadvertent error and outsiders trying to 'hack in'.

THE NEW GENERAL MEDICAL SERVICES CONTRACT (nGMS)

Whilst the new contract does not require information to be kept on computer without it, the task of keeping data and even more relevant extracting it for audit purposes would be extremely difficult and very inefficient, if not very close to being impossible.

An essential element in complying with the new contract and being paid for the work that has been done is the accurate and timely input of the required data.

Ever assistance in the form of training, encouragement and the use of computer 'aids' such as templates and macros are needed to help all members of the PHCT to record the data as necessary.

The nGMS was one of the primary triggers in the practice becoming paper light and eventually paperless.

SCANNING

Scanners are of vital importance to the paper light practice as they allow you to make electronic copies of any paperwork that arrives in hard copy. This can then be stored electronically with the patients' notes or as administrative records. The scanner needed to work with the clinical system must complement the specialist software provided, either by the GP system supplier or one of the independent companies that offer effective scanning solutions to the GP computing market.

Such scanners need to be fast and have efficient sheet-feeders, to enable multiple sheets of papers to be inserted and scanned automatically.

Prior to the installation of the PCTI system we did not scan any items at all and this was to become a major step toward the goal of becoming paper light.

INVESTIGATION

There are three areas which need careful consideration:

HARDWARE

- 1) its compatibility with EMIS
- 2) how much space does it take up
- 3) ease of use
- 4) capacity
- 5) speed
- 6) reliability

HOW THE SYSTEM OPERATES

What is involved in the process?

Who is involved?

When is the scanning done?

Where is it done?

What are the advantages?

What are the disadvantages?

WHAT IS THE COST BENEFIT?

Method

A small team comprising of a member from each discipline was formed to look into this aspect of becoming paper light.

The most popular scanner used by neighbouring surgeries was a stand alone scanner which was used after the paper had been actioned.

Another was the PCTI Solutions System which looked to promise more than the systems installed close to us.

Visits to two sites using the stand alone scanners produced similar results and the systems, although different, both involved a lot of paper handling.

Hardware

- The scanners were fairly bulky measuring 500mm x 340mm
- They could hold between twenty to fifty sheets in one load but could only copy one side at a time. This meant holding these back and doing them at the end of the run. They needed to be input twice.
- Each item took twenty seconds to scan.

Process

For both sites that were visited, their scanning operations involved a fairly lengthy and laborious system of 'do's and don'ts' that the operator had to follow.

One of the practices was able to advise that on average they scanned eighty items per day and it took the inputting clerk an hour to process 20 items. This was an equivalent of twenty hours per week.

The process involved the paper copy being sent to the doctor for reviewing and giving instructions as to action required e.g. file, Read code or make an appointment before the items were past to the clerk for scanning. (Only clinical items are scanned).

Scanning is done in the administration office by either a designated clerk or in her absence a member of the administration team. Once scanned and all other entry data was completed the papers are filed and kept in strict date order for one year

Advantages of Scanning

- The correspondence is permanently recorded on to the individual patient's record.
- The clinician very rarely calls for old paper notes and none are pulled prior to an appointment.
- The receptionists in not having to pull notes and return these to filing cabinets save a considerable amount of time and there is no filing of correspondence.

Disadvantages

- The scanners were slow in operation and could not copy both sides.
- The system was very time consuming and did not take away any of the paper trail other than not being filed in the paper notes.
- There was little time saved if any between conventional paper finding and filing and the scanning process.
- Papers could still easily be 'lost' or difficult to find prior to scanning.

Overview of the Stand Alone Scanning System

It is both tedious and time consuming with one of the practices employing one additional member of staff for 20 hours per week just to do the scanning (annual cost approximately £7,280 at £7 per hour).

Whilst it does eventually provide attachment of correspondence to a medical record it does not take away the initial 'paper chase' and the problems that can ensue from it. It is in effect, initially doubling the work hence the need to employ more staff. This is a major factor in reducing any cost benefit there may be in scanning. There must be a better way!

PCTI Solutions Document Management System

This was initially demonstrated in our own surgery to all doctors and the representative group from within each discipline. The findings were as follows.

Hardware

- A Fujitsu 25ppm Duplex Scanner measuring 300mm x 168mm
- Capable of copying both sides of paper
- Feed at a rate twenty per minute (one every three seconds)
- Guaranteed replacement within 24 hours in the event of failure

Process

This is more than just scanning items onto the medical record as outlined above. It is a complete paper management system designed for the EMIS clinical system. It allows documents to be sent to 'electronic in-trays' of a set of recipients. They may action, annotate and even highlight before sending to the next recipient in the workflow.

In essence, it allows you to replicate the manual process of passing patient letters electronically. The letter is scanned and filed into EMIS and sent on a workflow – Dr A's in-tray, followed by Dr B's in-tray and so on. The first recipient in that workflow has immediate access to the document. The recipient may annotate the letter utilising tools such as highlighter, note attachment or electronic rubber stamp and then forward it to the next. This is repeated until all recipients have seen the document. The final recipient responds to any actions or notes placed on the document.

What Can It Do?

It scans paper-based documents quickly, with a high definition and can store both patient and non-patient documents (the latter to be considered at a later stage). Documents are captured, including typed letters and results, and stamp documents with user definable stamps e.g. the same that we use for incoming mail as shown in appendix 3 but electronically.

The item can be easily recognised within the system through a simple store description, hospital department, consultant and key word.

The system provides an audit trail for all documents, document comments and users. Rapid retrieval and viewing of all documents through search facilities and document browsing means that the delay and frustration of finding paper notes will be a thing of the past. In addition, the item in question can be viewed by a number of the team members at the same if required e.g. a doctor could discuss a clinical point with a nurse from their own rooms whilst looking at the same information on their own VDU screens.

The demonstration went very smoothly and achieved the claims made. However, demonstrations are never quite like seeing the system in actual use and to satisfy this need, the small team visited a practice in Mid Surrey who has been using the system for a year.

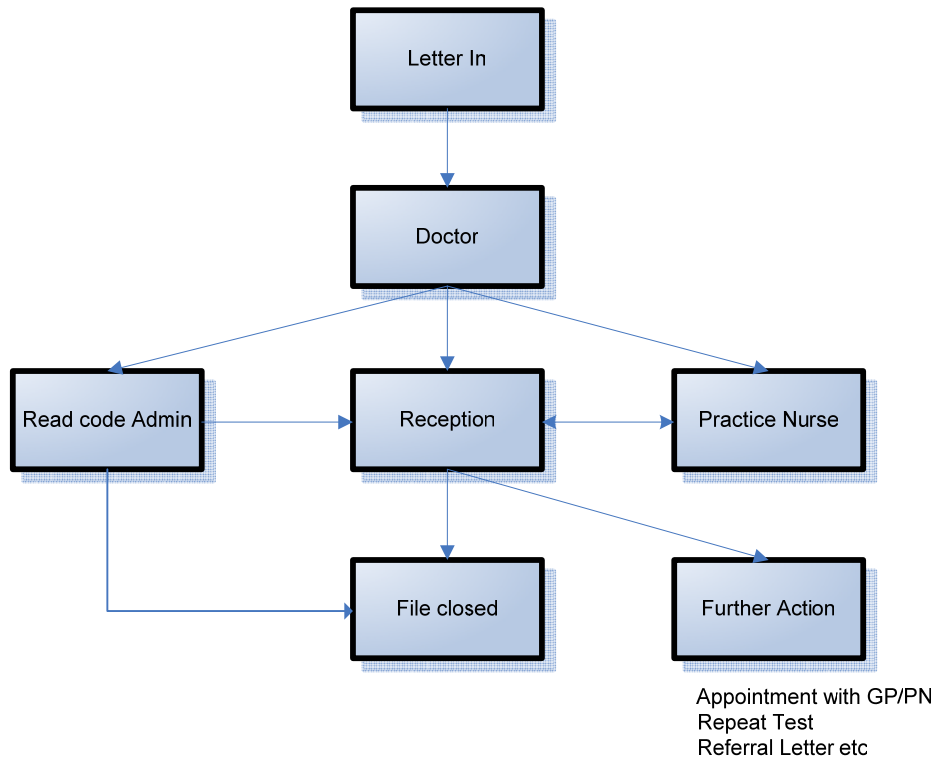
In essence the day-to-day running was as smooth as had been suggested. The broad sequence was:

- The post was opened by the receptionist/scanning clerk who removed any staples from the papers.
- Only clinical items were scanned
- The scanner was fast and efficient as claimed with a remarkably good quality image
- Different size papers and even 'dog eared' items scanned well

- The entry of data and numbering and identification of each item and took an average total of one minute per item.
- The items were in the system and followed the workflow as described above.

Feedback from the practice manager and one of the partners confirmed that they found their way round the system very quickly and easily. They soon got into the habit of having everything on the screen rather than referring to notes and certainly would not go back to using a paper system (this was enthusiastically endorsed by the receptionist). In reality, they very rarely have to call for the old paper notes. Having considered our own local needs I recommended and which was subsequently adopted, that our workflow using this system would be as follows

WORKFLOW DIAGRAM



Workflow Group to have following members:

- 1 Doctor for action
- 2 Standby locum if regular GP not available
- 3 Read code admin
- 4 Reception
- 5 Practice Nurse

COST BENEFIT ANALYSIS

An analysis of the cost of the first and subsequent years for installing and subsequent use of the system is in appendix 2

ASSESSMENT OF FINDINGS ON THE PCTI SYSTEM

It will actually reduce costs compared with paper notes and filing and save practice staff time through

- Reduced storage space required
- Filing time
- Retrieval time
- Re-filing time

The integrity of our information will improve through

- Minimising loss of information and documents
- Eliminating document damage
- Reducing the risk of misfiling
- Electronic document backup reducing the risk of catastrophic loss of information through flood, fire or theft.
- Ensuring the documents are always available

It will also increase our efficiency and effectiveness by allowing us to

- Retrieve documents much more quickly and efficiently
- Dramatically improve the availability of information
- Improve information security (no more notes left in consulting rooms)
- Increase collaboration and discussion through workflow with the ability for multiple user access
- Help to improve working lives of the staff and doctors by reducing frustration of missing documents.
- Increasing the level of service to the patients through less time being spent on note pulling and filing.

This system does just what we need it to do – substantially reduces the amount of paper within the practice and helps to ensure that the required clinical data is on the computer and which can be easily retrieved.

The system in the first year costs £2,937.50, including an annual maintenance/support fee of £468.83 which will be the annual cost thereafter.

The cost benefit is very clear, purely as it stands, but is even more persuasive when costs are compared to those incurred in keeping and maintaining paper records.

The existing cost has been calculated at £16,736.76 with £9,750.00 being staff cost and £5,525 storage space cost. (full details are given in appendix 3). In a straight

comparison this means that by scanning documents and going paper light there is an annual saving of over £12,000, or to put it another way, electronic records would cost only 27% of what it costs to hold paper records. This is, of course, a direct comparison figure and does not take into account the fact that the old paper notes will continue to be kept for sometime as an added security measure and comfort of clinicians. However, the comparison is certainly a huge motivation factor.

Action

Despite the fact that many items of paper correspondence that we receive are produced on a computer and can in theory (and most likely in practice too!) be sent electronically the fact is that they are not. It will take several years before the habit of using hard copy mail is little used. Until that time, it was imperative that we turned this into electronic data, by means of scanning. This not only enabled us to become more effective and efficient to provide improved patient care also keep costs to acceptable levels.

With at least three hours per day saved on paper management, this meant a saving in staff hours of 780 per year, which at cost of £7.50 per hour equates to £5,850 (considerably more than the cost of the scanning). However, in view of the extra workload that the new GMS contract will bring I recommended that for the moment we keep the existing staff hours. We used it to advantage in increasing patient contact, gathering additional information and handling the increased volume of activity which at present has risen by 15% owing to the new GMS contract requirements. What was initially considered as going to be an extra expense is contained in existing costs with the addition of tremendous advantages in our information management.

We not only introduced scanning at the earliest opportunity but also a system that will take us quickly from the paper light position to early accreditation for paper less status with the Primary Care Trust.

Thus the PCTI system was installed in April 2004 to coincide with the nGMS contract.

TAKING THE STEPS ON THE PATH TO THE PAPER LIGHT PRACTICE

I have used the term paper light rather than paper less as in reality no organisation is truly the latter. For many years yet, paper and electronic records will be used together but the balance will change with time and to some extent also be dependent on 'suppliers and customers' being more electronic record and communication orientated. This is perhaps comparable to when the first telephones were introduced. As more and more phones were installed communication by this method increased until now nearly everyone in the UK has a telephone.

Benefits for the Practice of Computerisation

In an earlier section, relating to staff perception on the introduction of a paper light system, the majority felt that it would be beneficial to the practice. It was therefore important to establish with them what they thought these would actually be viz:

- Helps to improve patient care, for the individual patient and for groups of patients.
- Raises awareness of the needs of the practice population as a whole and allows the practice to look at the needs of specific groups of patients e.g. asthma sufferers.
- Support for the legal requirement to have an accurate historical record of care.
- Makes it easier to identify groups to target for particular interventions and packages of care (e.g. chronic disease register)
- Supports the decision-making process
- Audit of better data gives a more accurate reflection of the care provided and the feed back of data will be more meaningful.
- Encourages the practice to work as a team – clinicians, administration and reception can see the rewards of their labours through improving results.
- Supports practice development, appraisal and continuous professional development by having facts and figures readily to hand.
- Facilitates proactive rather than reactive work.
- Reduces duplication of work and increases efficiency within the practice.
- Gives confidence to move away from duplicate systems (e.g. dual paper and computer records as we have now)
- Gives supporting evidence when bidding for funds

The benefit to the patient was less certain but on further discussion and reflection it was thought that:

- If the practice is more efficient and effective then improved information and more time can only help to improve patient care.
- Fast, accurate and detailed information will increase the patient's confidence in the service being offered.
- IT improves speed and reliability of patient centered communication across NHS boundaries – the pathology links is a good example of how this has improved the results service.

I had now established the benefits of going paper light, medico-legal, security the existing operations and the ramifications of the new GMS contract. aspects. I also

had the agreement of partners and staff that it is appropriate and beneficial to pursue a paper light course.

The pathway cannot begin without recording demographic (registration) data for all patients and this has been done for over five years with the practice use of a GP/Health Authority Registration Link and the recording electronically of all standard demographic details and changes on the computer.

Gathering information is one thing but recording it is another and the emphasis must be on the quality. For the last two years we have been part of PRIMIS (Primary Care Information Scheme). The overall aim of the scheme is to help practices make better use of clinical systems and to improve the quality of information. This in turn helps us to improve audit and review of quality of care provided and plan future services. In recording clinical data on the computer, the ultimate aim must be electronic records that can be relied on.

This implies that all clinicians record their actions in response to problems presented at all patient contacts.

There were however some obstacles to this on the grounds that 'I am not a typist' but it is the ultimate aim for a safe transition to a paper light/paper less practice. (It should be noted that in most other professions or commerce the number of secretaries and purely 'admin' people has reduced dramatically. Recording information or communicating with third parties is down to the instigator of the information receipt or request).

It was therefore important that from the outset the following principles were adopted:

The primary purpose of recording information is to support patient care. It is therefore essential that the information is recorded routinely to help with the consistency of information and completeness.

All clinicians participate in data recording. In this way the full practice population is available as a denominator. Without this, clinical audit, practice planning and commissioning is difficult and would lead to inaccurate rates of incidence and prevalence of disease.

All clinicians enter their own data directly onto the computer system. This not only reduces the problem of transcription error and legibility it also helps to reduce the time to get the information on. Doing when 'fresh in the mind' also helps with accuracy.

All occurrences of the data set should be recorded to ensure completeness. To obtain a full picture of practice morbidity, data needs to be captured from locums, trainees, phone calls, home visits and out of hours providers.

Consistent recording of problems. Each episode of illness should be coded with only one diagnosis code, to avoid multiple diagnoses being counted. For example, a clinician should not record asthma in one instance and asthmatic bronchitis in another, unless the diagnosis has actually changed.

Use a Read code list. This is useful in ensuring consistency within the practice. Many argue that the Read codes are too extensive and unnecessarily complicated whilst

others that they are very necessary to deal with what after all is a very complex subject. A guide of Read coding for clinicians to follow within the practice, aids data consistency and accuracy and the new GMS contract templates that have been constructed by EMIS will also be a valuable asset.

Regular feedback and audit of data quality. Unless data quality is regularly audited and the findings of the audits acted upon, the data will lack credibility in analysis.

ASSESSMENT

The introduction of the new contract and the time spent at meetings and reading from medical press has left no one in doubt as to the importance of recording information.

For the six months in preparation for both the new contract and the prospect of going paper light the clinicians had been looking to enter clinical data on both paper records and computer records. Some were better than others but peer pressure has brought them up to an even standard. In fact the one was the slowest to 'toe the line' has been heard to say how easy it is and 'isn't it great'!

It is now widely accepted that the best person to enter the data is the one that is extracting the information at the time.

The introduction of more user-friendly templates and macros helped the clinicians to capture the information, quickly and easily.

Locums and trainees are supplied with an induction pack and part of the induction includes a session on the system in consultation mode to enable information from the consultation to be recorded at the time. Evidence shows that they have been particularly diligent in this respect.

Consistency in recording is improving according to the PRIMIS audits.

The improvement in data quality over the last year has been down to the fact that there is a greater consistency in Read coding which has helped by the production of an 'aide memoire'.

The introduction of the new GMS contract has further sharpened the mind for the need of quality data. Due to the new contract being based on improvement in patient care and possibly because the practice maintenance and increase in practice income is more dependent on it!

RECOMMENDATIONS FOR DATA COLLECTION

- The momentum that exists to keep to the discipline of accurate recording must be kept by regular expression at partner and staff meetings and benefits continuously revisited.
- The baseline assessment of our position on clinical quality must continue with PRIMIS data extraction and feedback reports every six months.

- A clinician together with the practice manager to lead the practice in the development of IT and eventual move to becoming a PCT recognised paper less practice within twelve months. This will require not only compliance with the strict guidelines but also carrying the staff to support the transition and understand and appreciate the benefits.

It was evident that the practice nurses needed training and encouragement to use the system. A dedicated training session led by a doctor on the use of the new templates was essential. The session reminded the practice nurses of the importance of their role in the care of the patients and the need to accurately and effectively record the information as an equally important part of patient care and their responsibility to the patient.

Retrospective data recording

Whilst the old paper records will be kept for many years as a long term back up it is important to include retrospective information on conditions of interest to the practice (e.g. chronic disease management as part of the new GMS contract).

CONCLUSION

By dual recording of data on both paper records and the computer over a six month period we had gained valuable experience in becoming more computer orientated and less dependent on the paper notes. Following the successful pilot of being 'paper note less' on Saturday morning surgeries, within a few weeks they were referred to only occasionally at all consultation sessions.

KEY OPTIONS AND RECOMMENDATIONS

Throughout this project I tried to keep clearly focused on immediate and urgent needs that the practice had, namely:

To record and easily retrieve information to improve clinical quality as required by the new contract;

AND

To solve the problem of the lack of space, in retaining the required information.

OPTIONS

To do nothing - but this would have meant that we would not be able to store the additional information through pure lack of suitable filing space and making retrieval even more difficult than it was.

Extend the building to create more filing space – technically this would be impossible as we are adjacent to private property.

To change the method of storage and retrieval of information from paper to an electronic format – commonly known as going paper-light – this would involve a new culture and careful change management.

RECOMMENDATION

The need for information and the volume required in all areas of life, be they business, or medical are increasing by the minute. To-day electronic storage of information is the only cost effective solution to not only the storage of data but also the means of providing quick tangible knowledge. In the case of primary healthcare, this may be in two basic forms. Either in the formation and actioning of disease registers e.g. all patients in the practice population with chronic heart disease or complete information about an individual patient to be able to provide quality clinical care.

In view of the evidence produced in this project I recommended that the practice started to become paper-light with effect from April 2004. This involved:

- During mid March 2004 the PCTI system is purchased and all staff trained on the use and benefits of the system.
- From 1st April 2004, all clinical correspondence coming into the practice was scanned onto the system.
- All new information including consultations being recorded on electronic records and not paper notes.
- Notes would not be pulled for open surgery but they would be for appointments. This will be reviewed on a monthly basis with a view to stop all note pulling (except for exceptional cases) within six months. In fact it was within a month!
- All aspects of medico legal, security requirements and most importantly staff morale to be regularly monitored and appropriate action taken as needed.

- The existing clinical information that is actually required to be transferred from paper records, was agreed and is to be actioned by April 2005.
- By the end of 2005 to seek accreditation from the PCT to become a 'paper-less' practice i.e. destroying of paper records.

CONCLUSION

The practice will only be able to fulfill its future obligations to the practice population if information is stored and retrieved electronically.

Immediate transfer to using electronic records will solve the urgent problem of a lack of space.

We are now ten months into using PCTI and its value is already having a marked affect on our performance. Our expenses are contained, our activity has increased, our patient care continues to improve and our profit will also be healthy!

I still vividly recall the day when a member of staff said – " we couldn't cope now without PCTI – proof of the pudding indeed!

WHAT PCTI HAS DONE FOR THE PRACTICE

The system has now been fully operational for ten months and its adoption has fulfilled its potential in:

- increasing efficiency
- saving space
- saving cost
- assisting in improving the quality of patient care
- allowing the existing reception staff to handle an increasing workload .
- reducing the frustration of 'lost' and difficulties of retrieving information from paper notes.

INCREASED EFFICIENCY

With the introduction of the new contract it became apparent that the patient 'activity' had increased.

Measuring 2004 activity against 2003 during a six month period it was found that the following changes had occurred:

Incoming telephone calls	up by 10.0%
Number of clinician consultations	up by 7.65%
Number of prescription items	up by 11.00%
Number of referrals	up by 24%

In addition during 2004 we have had a very successful QoF visit which in itself encountered many hours of additional work by all members of the health care team.

The same high standard of patient satisfaction was also achieved as witnessed by a very good patient survey.

In comparison with three other practices in the area our ratio of Full Time Equivalent staff to the number of patients and to Full Time Equivalent GP's was markedly superior.

All of this has been achieved without the need to engage more staff or provide extra hours to existing staff which has been largely brought about by the introduction of the PCTI system.

STAFF FEEDBACK

- All staff quickly became familiar with the system and found it straightforward to use. So much so that a mature temporary receptionist immediately took the opportunity to use it and is now the 'favourite' part of her job!
- The system is flexible allowing it to be tailored to the practice requirements by means of our own picking list.
- It is great not to have to go after missing notes.
- We couldn't cope now without PCTI
- Although we have seldom had to call the help desk when we did they were very helpful.

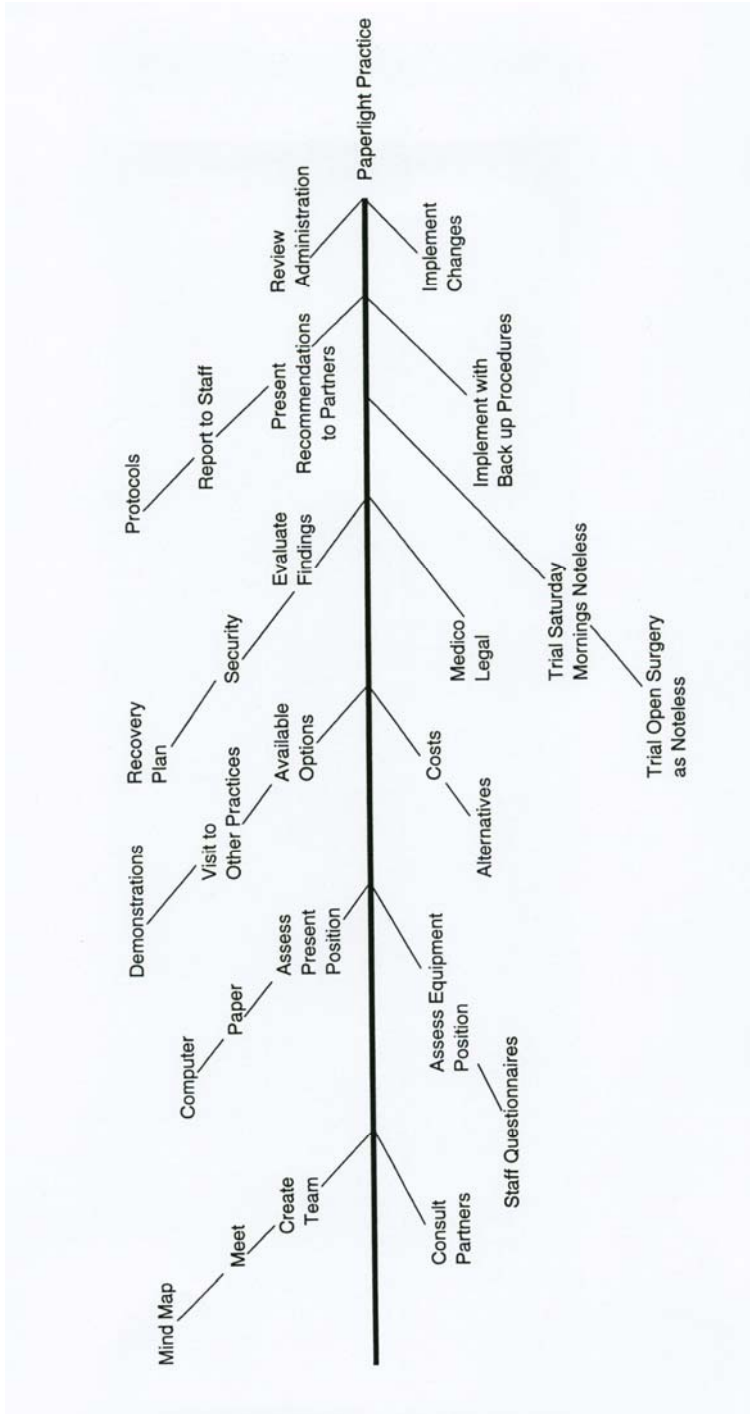
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APPENDIX

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3. COST OF KEEPING AND MAINTAINING PAPER RECORDS

FISHBONE DIAGRAM

PURSuing A PAPERLIGHT PRACTICE



APPENDIX 2

COST BENEFIT ANALYSIS OF CHANGING TO THE PCTI SYSTEM

First Year Costs	Item Amount			Second year and annual costs thereafter	
HARDWARE & SOFTWARE		TOTAL		TOTAL	
PCTI software and scanner	£1,375.00			£0.00	
Installation Charge	£350.00			£0.00	
Training Course	£350.00			£0.00	
Annual maintenance/support	£399.00			£399.00	
Carriage	£26.00			£0.00	
NET AMOUNT	£2,500.00			£399.00	
Plus VAT	£437.50			£69.83	
TOTAL		£2,937.50			£468.83
Cost of opening Post per year	£1,462.50	£1,462.50		£1,462.50	£1,462.50
Cost of scanning items onto system per year	£2,730.00	£2,730.00		£2,730.00	£2,730.00
TOTAL FIRST YEAR		£7,130.00		TOTAL FOR EACH YEAR SUBSEQUENTLY	£4,661.33

Explanation of costings

The cost of opening the post is based on it taking 45 minutes per day at an hourly rate of £7.50 to include employers National Insurance and Pension contributions

The cost of scanning is based on an average number of items scanned each day as 84 and each item taking one minute to scan in. The hourly staff rate is £7.50 as calculated for the post opening.

The benefits of this system are given in the text of the project report.

The partners have categorically stated that any time saved will not result in redundancy or reduction in staff hours. The time will be used to improve patient service and improve the working lives of the staff.

This cost benefit analysis should also be reviewed in the direct comparison to the annual cost of the existing paper system. The figures assume that the practice population will remain constant and there is no escalation in staff costs

APPENDIX 3

COST OF KEEPING AND MAINTAINING PAPER RECORDS.

Annual Costs	Amount
Cost of opening post	£ 1,462.50
Cost of pulling and replacing notes and filing	£9,750.00
Space taken up by filing	£5,525.26
Cost of MRE's	£0.00
TOTAL	£16,737.76

Explanation of costings

The cost of opening the post is based on it taking 45 minutes per day at an hourly rate of £7.50 to include employers National insurance and Pension contributions.

The cost of pulling and replacing notes and filing is based on the average daily time of five hours and four minutes that it takes to perform this task calculated on the hourly rate of £7.50 as above

The space for housing paper records is based on the area it takes up within the practice. Filing consumes an area of 21 square metres of the total practice area of 542 square metres i.e. 3.87%. The annual rent and service charge is £142,771.64 and 3.87% of this figure is £5,525.26.

MRE's are supplied free of charge