voorkómen en corrigeren van houdingsafwijkingen.

De meeste astmapatiënten gebruiken hun auxiliaire ademhalingsspieren; zij gebruiken niet of nauwelijks het diafragma en zij hebben weinig of geen flankexcursies. Het gevolg is dat de ventilatie in de onderkwabben niet maximaal is, waardoor het benutten ervan geringer wordt in een situatie, waarbij de ventilatie door de bronchusvernauwing toch al niet optimaal is.

In de eerste plaats moeten de patiënten leren goed te ontspannen, met name is ontspanning van de schoudergordel, de hals en de keel zeer essentieel. Dit kost vaak veel moeite, omdat de desbetreffende musulatuur bij de auxiliaire ademhaling overmatig wordt gespannen.

In een ontspannen houding moeten de patiënten dan leren hun diafragma op de juiste manier te gebruiken. Dit kan de fysiotherapeut controleren door te voelen of de buik wat boller wordt gemaakt en of de onderste ribben uit elkander worden gebracht tijdens de inspiratie. De patiënten moeten door de neus inademen en langzaam, zo lang mogelijk, de lucht via mond of neus eruit laten lopen zonder dit uitademen te forceren.

Hebben de patiënten zich de diafragmale ademhaling eigen gemaakt, dan moeten zij gaan leren de flanken te gebruiken door middel van het spreiden van de ribben. Dit alles moet natuurlijk geschieden zonder gebruik te maken van het bovenste gedeelte van de thorax. Tenslotte moeten de patiënten deze buik- en slankademhaling combineren in een costo-diafragmale ademhaling. Verder moet er op worden gewezen langdurig en langzaam uit te ademen tenslotte in alle houdingen: rug- en zijligging, zittend, staand en lopend.

Voorkómen en corrigeren van houdingsafwijkingen spreekt voor zichzelf. Hoe vroeger wordt begonnen met deze oefeningen, des te minder kans bestaat er dat ernstige, niet-reversibele kyfoses, kippenborsten en dergelijke ontstaan, die op hun beurt een goede ademtechniek weer bemoeilijken.

Bovendien behoort tot de ademgymnastiek het opvoeren van het uithoudingsvermogen. Een efficiënte ventilatie, waarbij zoveel mogelijk alle delen van de longen en dus ook de basale kwabben worden gebruikt, verhoogt de totale alveolaire gasuitwisseling en maakt het mogelijk meer arbeid te verrichten, zoals ook het geval is bij sportslieden. Het uithoudingsvermogen laat bij veel astmapatiënten nogal te wensen over. Vele kinderen zijn al jong in meer of mindere mate invalide geworden door astma, hoewel dit uiteraard niet uitsluitend door fysieke factoren wordt bepaald.

Een verlengstuk van de training van het uithoudingsvermogen is het laten beoefenen van sport, te beginnen met zwemmen, later gevolgd door andere sporten.

Door deze aanpak kunnen kinderen, die aanvankelijk bij de minste inspanning benauwd werden, worden gerevalideerd tot volledig of althans redelijk aangepaste deelnemers in sport en spel.

*Work Study and Operational Research**

BY MAURICE WOOD, M.B., B.S. M.R.C.G.P.**

I would like to append to the title of my talk the words „in N.H.S. Group General Practice" to show that although the principles of work study are the same in every situation their application and resulting effect are valid only in that individual situation.

Why is this process necessary? Twenty years of national health service have removed the doctors traditional way of decreasing demand on his time, i.e. by restriction of his availability and increasing his fees. We now find a growing population with a steadily increasing demand for medical care being provided by a decreasing or at the very best a static number of doctors. With the increasing demand, there is a false sense of security in known and rigid patterns of work and the effort required to haul oneself out of the rut becomes less and less available. The variability of work flow in general practice makes this particularly difficult, and effort must be made to look at ways of redistributing work, of spreading doctors' skills. This requires the capacity and expertise of delegation, with the responsibility remaining always with the doctor, and it should be remembered that it is essential that the degree of training of the operator should match the skill needed for the act.

I think it would be appropriate here to define work study as "a generic term for that technique used in the examination of human work in all its contexts, which leads systematically to the investigation of all the factors which effect the efficiency and economy of the situation being reviewed, in order to effect improvement".

Work Study can be dived into two main departments: 1. Method Study; 2. Work Measurement. In a medical context the main technique used is Method Study which is best defined as „the critical study of waijs of doing work". We

* Paper presented at the Holland weekend conference 22/23rd March 1969 at Rotterdam.

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can divide this process up into six precise stages.

1. The selection of the work to be studied.
2. The recording of the facts.
3. The analysing of the facts.
4. The development of the new method.
5. The installation of the new method.
6. The maintenance of the new method, and its checking by recording changes in the facts.

Work measurement is concerned with the timing of individual tasks and is appropriate in general practice mainly in dealing with office routines, but the same six stages apply.

Method Study sounds complicated and difficult and could best be illustrated by showing how we introduced a practice nurse into the field of clinical assessment. However, the same principle can be applied to any other aspect of the G.P.'s work, i.e. in the use of appointment systems, the introduction of clerical help or reception help, the reorganisation of office routines, the installation of a practice manager, the attachment of health visitors, of district nurses and of midwives.

It might help us now to discuss the special factors involved in the application of method study to General Practice. First, we must deal with one of the inherent problems of medical practice, i.e. the variation in work load due to seasonal and epidemic variations, due to changes in internal practice arrangements, i.e. the non-availability of doctors due to illness, holiday and other responsibilities. This variation which can increase at epidemic times by a factor of three causes a correspondingly variable performance in the doctor due to the increased stress. Due to pressure of work, he makes arbitrary decisions which may not always be based on the clinical state of his patient but are affected by his need to reduce his work load. Changes in practice responsibility may have to be taken into consideration, e.g. an increase in list size, establishment of screening clinics, hospital attachments, etc.

It is essential that some regular recording processes are initiated. It is only in this way that the development of significant patterns can be recognized in the early stages, and these recordings must refer to all professional work, both doctor and nurse, in addition to the office demand, i.e. the incidence of repeat prescriptions, of telephone calls, of secretarial and research episodes. Quite recently I was approached by a young doctor who said to me, "We have a group practice, purpose built premises, adequate ancillary help, an appointment system, a practice nurse, attached midwives and district nurses, and still we do three minute appointments and visit all day and I can't get my half day started until four o'clock in the afternoon". I am afraid this sad story is simply due to the inability of the members of the practice to adjust to their new methods and to use them effectively. This is because they had not carried out their routine recordings before and after and did not know what was happening until too late. Only by this method can the incipient development of unwanted traits be recognized and corrections applied before the organisation suffers.

To assess the professional work load the minimum basic figures required are: a. the daily incidence of new calls; b. the daily incidence of return calls, c. the daily incidence of consultations, both new and repeat, and, ideally: d. an age and sex register. In almost all practices these figures will be relatively easy to acquire.

After a particular task has been evaluated, not onlij the best way of doing it needs to be assessed, but also the best person to do it. Should it be the doctor, nurse, receptionist or secretary? Substitute one must remember that the degree of training of the operator should match the skill required for the act, in other words, the right person must do the right job, and only then is it economically viable. As an illustration our Dutch colleagues can show us that puerperal care does not demand the attention of the delivery nurse [1]).

Communications can be a problem, particularly in dealing with the office staff. There is a great need to persuade the staff that the new methods will lead to improvement and effort spent in explanation in the beginning before the installation of new methods, will be very worthwhile. One can quote from one's own experience of an office staff of four all doing all the office tasks at the same time and getting in each others way, finding great difficulty in adjusting to a new system, arrived at by method study and work measurement, which required them each to sit in one specific place for a period of $1^1/_2$ hours doing one specific job. In the beginning, when under pressure, they reverted to their original panic but after a period of time the training had its effect and they found themselves that the new method was effective in taking away the strain. Another aspect of communication difficulty is the personal face to face communication in the presence of an increase in either professional or lay staff. Beyond a number which I would place at five, the conflicting demands of several voices at once, virtually stops communication.

The sixth principle of method study, namely, the maintenance and checking of results by recording changes in the facts, is bound up with the problem of accurate assessment. Any change in practice organisation will of itself produce an impression of improvement and the degree of apparent improvement may be false. It is important to remember that it is essential to assess the effect of your new method statistically and to go on assessing this effect.

Any new method established must be economically viable, there must be an economic justification for every change in the pattern. This does not mean that an increase in cost is not worth-

[1]) Drury, Michael. (1967) Lancet II, 826.

while as long as the improvement in efficiency resulting is of adequate degree.

There may be problems and difficulties with patient attitudes towards re-organisation. The personal touch in general practice must not be lost, there must be no ruthless application of business efficiency and at all times the process must be kept at the human level. The patients need to be told what is about to happen, and why, and given some indication of what effects to expect, and in this way trained to respond to the changes, but they must not be allowed to opt out of the new situation — in other words they must not be allowed to find ways of defeating it. *Table 1* shows the results of polls held amongst the patients of various practices in the United Kingdom, on the level of acceptance of an appointment system in general practice and as you see the level of acceptance is in the 80-90% region in each of these investigations. In the case of the Stevenson figures (*table 2*) the poll was carried out because the partners, having been impressed bij the vocal 8% minority had gained the impression that the appointment system was detested and had decided that they must revert to the old system. As you see from this, they would have made a great mistake [2]).

Table 1. Appointment system; patients reaction

		Percentage in favour
Dean et al Birmingham 1965	634 Patients Questioned	98.0%
Grant and Bell London 1965	100 Questionaires	80%
Stevenson 1962	690 Questionaires	86.4%

Table 2. Appointment system; answers to 690 questionaires, 1967.

	Total	Males	Females
Continue appointments	86.4%	90.0%	83.3%
Stop appointments	8.5%	5.7%	10.8%
Don't care	5.1%	4.3%	5.9%

There may also be some difficulties with doctor attitudes and it is essential that in any partnership or group where new methods are being established that all the doctors and, in fact, all the individuals involved must be completely for the new methods and must be willing and prepared to put effort into making them work. Without this no new system can be effective.

[2]) J. S. K. Stevenson. (1966) Brit. med. J. II, 515-518; (1967) Brit. med. J. II, 827-829.

Figure 1
To compare doctor and nurse consultations excluding nursing procedures

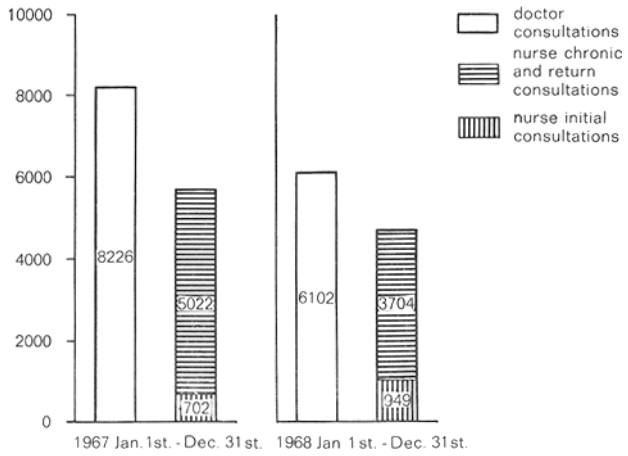
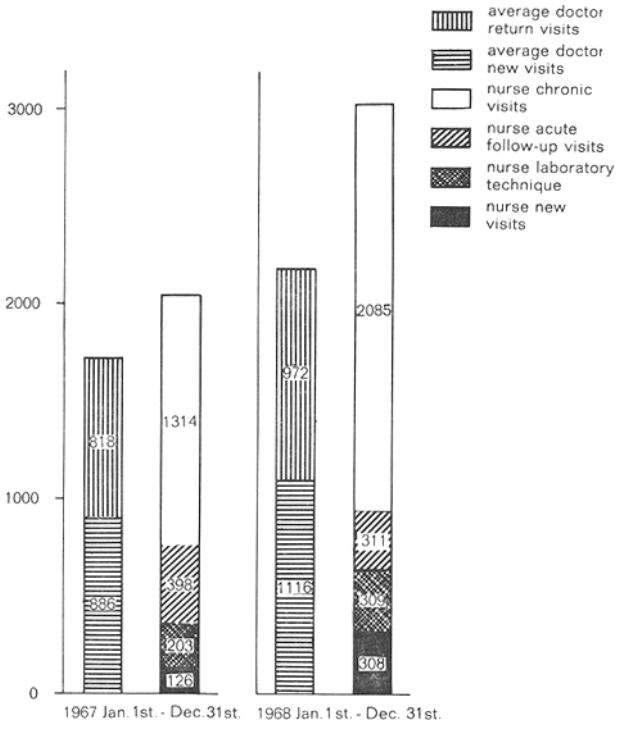


Figure 2
Comparative visiting doctor and nurse



One can now attempt to list the advantages that accrues from the development of new methods. From the patient point of view there may be some reduction in the waiting time in surgery, there may be some increase in the time available for history taking, discussion, or just talking, and for a more detailed physical examination. The doctor time spent on an initial or chronic home visit may increase, i.e. more screening procedures may perhaps be made available, and there should be a halt in the steady reduction in the standard of service which will occur inevitably in the wake of increasing demand.

The doctor should find himself less strained and

more relaxed. He should have more time available for the investigation of disease processes in the general practice environment, and one likes to hope that the result of this will be that his referral rate or even admission rate to hospital will diminish and that, in fact, the general standard of his medical practice will improve. Further, if time is saved it can be used in other aspects of medical practice, e.g. the fulfilling of clinical assistantships, the carrying out of general practice research or even the availability for boards and anaesthetics and responsibilities of that sort. All of these advantages to a greater or less extent were statistically established in our work study investigation on the Practice Nurse.[3])

There may be disadvantages from the patients' point of view. The reduction in the number of patient-doctor contacts, i.e. the nurse carrying out a screening process and thereby doing initial visits and initial consultations will reduce the number of times the average patient will be in contact with his doctor. With appointment systems, the „impulse" consultation is virtually stopped. An effective appointment system demands of the patient an act of assessment and decision, and one might also say that for the patient the immediate and total availability of the doctor is lost.

From the doctors' point of view, the establishment of new methods faces him with the responsibility of a continuing process of assessment and review to keep his organisation up to scratch. As an illustration of this, figure 1 and 2 show that in spite of the increase in practice size for the two years in question, a reduction in the consultations and an increase in the visits occurred. This latter was partly due to the advent of a group of 1500 patients with a mass of undiagnosed pathology and used to a pattern of practice different from ours. The reduction in consultations was by design to allow us to increase the average length of consultations — but the rise in the number of visits was an unexpectedly large effect and an indication of strain in the organisation.

It is a basic fact that doctors will always fill their working day whatever their work load, and Hodgkin and Gilley have shown this very effectively in their article on „Work Study and The Practice Nurse in a Two Man Practice", published bij the Royal College of General Practitioner in September, 1968. They show that this is done unconsciously by over-visiting when the stress is over which may not prevent the ill effects of the arbitary and hurried decisions made during the period of stress.

[3]) Reports from General Practice – The Practice Nurse – Council of R.C.G.P., September 1965.

*Aangeboren en verworven hartaandoeningen door virusinfecties**

DOOR DR. J. B. WILTERDINK**

Samenvatting. Er wordt een overzicht gegeven van virusinfecties die voor het hart van betekenis kunnen zijn. Op de rol van rubellavirus en coxsackievirus bij besmetting tijdens de zwangerschap en vooral van coxsackievirus na de geboorte wordt de nadruk gelegd. Mogelijkheden, maar ook onmogelijkheden, van preventie worden vermeld.

Virusinfecties kunnen tijdens drie perioden aanleiding geven tot schade aan het hart. Deze perioden zijn: tijdens de embryogenese — vroeg in de zwangerschap —; vlak voor de geboorte — laat in de zwangerschap — en na de geboorte — vanaf de zuigelingenleeftijd tot ver in de volwassen leeftijd —.

Virusinfecties tijdens de embryogenese. Er wordt geschat dat op de 1 000 levendgeborenen ongeveer zes zuigelingen met aangeboren hartafwijkingen ter wereld komen. Twee procent hiervan wordt — althans buiten de epidemische jaren — aan rubellavirus toegeschreven. Besmetting van de gravida, vooral tijdens het eerste trimester van de zwangerschap met rubellavirus, kan aanleiding geven tot het ontstaan van afwijkingen bij de vrucht.

De kans op congenitale afwijkingen door rubellavirus wordt sterk uiteenlopend beoordeeld; dit blijkt vooral af te hangen van de wijze van onderzoek. Men kan namelijk — enquêtegewijs — retrospectief te werk gaan; in publikaties waarin een op dergelijke wijze uitgevoerd onderzoek wordt beschreven, worden kansen variërend van twintig tot zeventig procent genoemd. Bij een dergelijke wijze van onderzoek wordt uitgegaan van het met afwijkingen geboren kind; er wordt nagegaan of de moeder zich herinnert in het eerste gedeelte

* Naar een voordracht, gehouden in het kader van de Boerhaavecursus „Actuele aspecten van de cardiologie", Leiden, 1968.

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