

"Looking after the Heavies"

A cost-effective view of the Executive Health Examination

"They that be whole, need not a physician, but they that are sick" — Matthew 9 ; 12

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Summary

The ever-increasing practice of an annual health examination is critically evaluated. The author looks at specific diseases in the screening process and discusses medical, ethical, occupational and financial aspects.



Curriculum Vitae

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SCREENING

The screening process is the identification of clinical vulnerability.¹ Vulnerable people fall into three groups:

first, those who have established disease but are unaware of it, such as someone who harbours an early cervical cancer;

secondly, those who do not appear to have the disease but whose physiological make-up puts them in a group

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that experiences a high disease rate, such as those with coronary risk factors (hypertension and smoking etc);

thirdly, those whose physical condition makes them more vulnerable to certain environments, especially their occupational environment, and here an example would be a possible epileptic who is required to climb ladders or work complicated machines.

Implicit in the process of screening is the existence of a defined population at risk and an assumption that these are asymptomatic². Such screening does therefore not include immunization and health education (primary prevention), aborting existing disease before irreversible damage has occurred (secondary prevention) nor preventing the complications of established disease, (tertiary prevention)³.

Comprehensive screening depends for its justification on the following criteria:^{2,3,4,5}

- The condition should be an important health problem.
- The disease should have an accepted treatment.
- There should be diagnostic and treatment facilities.
- There should be a recognizable pre-symptomatic or latent phase of the disease, treatment of which can change the course of the disease more successfully than in the symptomatic phase.
- There should be a suitable test or examination.
- The screening should be acceptable to the public and the doctor.
- The natural history of the condition should be understood.
- There should be agreement on the groups for treatment.
- The screening test and ensuing treatment should be cost-effective compared with the cost of existing services.
- Casefinding should be a continuous process.

Provided the well patient truly has no symptoms and no relevant family history there are only a few hidden successfully-treated diseases that justify screening. These are hypertension, cancer of the cervix and breast in women, diabetes mellitus, anaemia, colo-rectal malignancies and polyps, smoking- and drinking-related diseases, psychiatric illnesses, and, possibly, hyperparathyroidism and hypothyroidism^{2,5}.

THE EXECUTIVE HEALTH EXAMINATION

The "annual medical check", "periodic multiphasic health check-up" or what is commonly known as the "executive health examination" (EHE), after its major subscribers, is a screening examination done ostensibly to detect asymptomatic disease and risk factors in predominantly middle-aged "white collar" executives. In reality many EHEs in general practice involve more than pure asymptomatic screening as many candidates save up symptoms until their "annual" and also may require tertiary prevention and intervention to prevent further complications of their known diseases.

Most of us perform executive health examinations of varying complexity. I do them too but since

researching the subject I have realized that I have to give serious thought to reforming my approach to the subject. So I would like to be a devil's advocate and throw some doubts on the value of this ever-increasing activity, and through provocation perhaps get some valuable discussion, especially regarding regional and local parameter variations as I have not included any specific screening pertaining to the individual industries. The medical professions have often shown reservations regarding the value of the executive health examination. The business community on the other hand usually views it with greater interest and trust^{2,6,7}. Many large companies have included the periodic executive health examination as part of the terms of employment, on a voluntary or compulsory basis.

Some of the expected advantages to the company, the executive, and the doctor, are:-

1. An indication of the concern of employers for their workers⁸.
2. An improved health profile of company staff and therefore increased efficiency and productivity⁸.
3. A personal reassurance for the executive that he is (one hopes) healthy and unlikely to drop dead within the next year before his subsequent periodic multiphasic health check-up. "Behind this is the belief that a well person can harbour a multitude of hidden diseases and hidden habits. Regular medical attention will detect and control them, producing longer lives and a healthier population¹⁰."
4. Another expected advantage is that a general practitioner or physician will be happy at the thought of having placed some sloppy, nicotine-stained, overweight, overimbibing, hyperlipaemic, gouty, lazy, hypertensive perfectly happy senior executive on the road to boring morning jogs; healthy, tasteless, fat-free, salt-free foods; impotence-creating anti-hypertensives; urticaria-provoking uricosurics; and a life of total abstemious, aseptic misery.
5. A form of generating additional income for the MO attached to the company — perhaps instead of paying him more.
6. A means of justifying the presence of an expensive and sometimes totally inappropriate health care centre with sisters, deputy sisters, nurses, technicians, typists, and receptionists dedicated to the screening of asymptomatic executives who know they should be losing weight, drinking less and taking exercise long before the doctor tells them, while there is not enough health education and occupational health screening of the workplace and the shop-floor workers — who often have a higher morbidity and mortality rate than the upper echelons. It would appear to be a service for the few who can afford the luxury of being told the obvious.

A study by Wright and Bailey¹ on shop-floor workers in the Electrical Trades Union who were submitted to an executive type screening program is of considerable interest. The average age of the group was 12 years younger than their managers and yet on cardiac "risk factor rating" they had a higher rating than their older "executives". In addition 10% had a major correctable abnormality and 16% had a minor one.

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SOUTH AFRICAN EXPERIENCE

In Johannesburg, executive health examinations are done by general practitioners and specialist physicians on their own bona fide patients requesting a full medical check-up, or as part-time or full-time company appointed medical officers. Many firms are now using the services of special executive health examination centres where they send their senior executives for their annual strip, bleed, prostatic tickle, and probably the only exercise session of the year, (up and down the Master's steps), all for R160 or more on the company's expense account.

One such "clinic" begins by the patient filling in a self-administered symptom questionnaire, including a risk factor and brief psychological history. He then has a photo taken in his underpants, and baseline anthropometrical measurements taken — height, weight, chest and abdominal measurements, and skin fold thickness. Laboratory tests (Urinalysis, FBC, ESR, lipogram, uric acid, urea, glucose, gamma GT, bilirubin), lung function studies, X-ray chest, audiometry, visual acuity and ECG follow. The patient only then has a basic physical examination by a physician. At the conclusion the patient is presented with a ring-file containing a summary and recommendation, (including the porno photo of himself), to add to his other beautifully presented reports of previous years to show his wife, mistress, colleagues or general practitioner;

while the company is presented with the bill for an exercise well done.

The draw-back of such an examination is that the doctor does not know the patient, his family or his social circumstances, and is purely a technician acting almost as an automaton doing the same task over and over again — surely not very stimulating. Mike Oppenheim, writing in the *N Engl J Med*¹⁰, says:

"I do not know any doctor who likes performing routine physical examinations. In private practice they are often elaborate and expensive. If they are not stimulating they are at least lucrative. In salaried groups, they tend to get shorter and shorter as the doctor ages. Whether long or short, as long as they include plenty of laboratory tests, patients seem satisfied . . . however, health maintenance requires only a modest amount of skill. A screening examination is a collection of simple tasks done over and over again . . . The greatest problem for the examiner is paying attention."

From many well-controlled studies it is evident that an examination such as that shown above, has very limited value.

ARGUMENTS FOR AND AGAINST THE MULTIPHASIC EHE

Let's look at some of the merits and demerits of the executive health examination or the periodic multi-

It is unethical to reassure the patient who has "passed his medical", that nothing will go wrong until his next check-up.

phasic health check-up in its common form remembering that we are screening asymptomatic, well patients and not doing check-ups on individuals who have a worrying symptom, for then it becomes a consultative examination and not a periodic screen.

DOCTORS' FEELINGS

Let's first look at what doctors themselves feel about having regular examinations on themselves. At a recent meeting of GPs in Johannesburg I enquired how many had ever had a check-up, and only about 10% said "yes". When I asked if their colleagues had done a rectal on them very few said yes. I think that familiarity breeds neglect or embarrassment. Interestingly, when I checked a colleague recently we found totally unexpected asymptomatic cryptogenic liver dysfunction.

What of the doctor's feeling about the EHE in general. A study reported in the *N Engl J Med*⁹ indicates that only 35% of GPs, 25% of family practitioners, and only 13% of primary care internists thought that it was very important for a patient to have an annual physical exam.

IT REASSURES THE PATIENT?

To judge by the number of people who seek this form of check-up, they must be satisfied. But if the EHE in its usual form has very limited value then is it fair to reassure the patient falsely that if he or she (many of our executives are woman now) has passed the medical then almost nothing can go wrong until the next medical or at least in the near future (unless of course he is run over by a bus leaving the medical rooms)? Now this I believe is an unethical and undesirable expectation which we are perpetuating in the minds of our patients but especially in the minds of our company directors who believe they are doing a service to their employees with the multi-phase screen.

In practice, although health maintenance is the declared objective, there are often more hidden motives — to use the doctor as a counsellor or to discuss family, personal and business problems; to seek reassurances regarding undeclared symptoms; or simply to find security, however unrealistic this may logically be⁵. So perhaps in a few it could be argued to be of obvious

Only 10% of a group of GPs in Johannesburg have ever had a check-up.

benefit. Doctors will continue to play the part that society insists on writing for them¹⁰.

It is possible that the EHE can in fact be potentially hazardous. When a doctor screens for symptomatic disease he is giving a presumptive undertaking that identification and subsequent treatment will reduce mortality and morbidity (as per the internationally accepted criteria for screening discussed earlier). But many studies show that this is not so for a number of the diseases screened for in the usual EHE. All they do is reduce the undiagnosed or asymptomatic periods^{2,7,8}. If we want to save our patients from anguish, we do them a disservice if we diagnose early but irreversible disease.

Another hazard may be that after auscultative reassurance that a patient's heart is healthy, he may ignore a chest pain a few days later. It is rather like reassuring someone "Your heart is fine, it will last as long as you live"!

INFORMING THE PATIENT MOTIVATES HIM?

In a study which I am conducting in Johannesburg at present the figures so far do not support this.

Employees over the age of 30 in a very large American-based company have for many years been invited and encouraged to have a free comprehensive medical examination including blood tests, X-ray and ECG. Many have now completed more than one annual check-up. Some go back over a period of 8 years. An important point is that the stress levels in the company are generally very high.

A screening examination every 3-5 years seems adequate for the average person under 50 years.

I have reviewed 100 people with more than one annual EHE, extracting the classical coronary risk factors at each examination. They were, Family history, stress, smoking, alcohol excess, lack of exercise, obesity, hypertension, ECG abnormalities, hyperlipidaemia, cardiovascular disease, hyperuricaemia, and other non-specific findings such as diabetes. Preliminary figures show an alarming, greater than 90% of patients that showed one or more risk factors on at least one occasion. Despite being motivated to improve on any reversible factors by a written report and often personal follow-up, surprisingly few appear to have improved. There was an improvement in only 18%, a deterioration or development of further risk factors in 35%, and 47% remained the same. Others have found a similar resistance to altering established patterns of behaviour^{8,10,11}. Perhaps intensive work-place education and health motivation may well be of greater priority than the perpetuation of a non-effective and costly program of annual check-ups in its present form. One wonders what

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success rate there is in periodic multiphasic health check-ups done by non-associated agencies and executive health centres.

The cost of each examination, which includes the doctor's fee, X-rays, ECG and blood test is R127. This does not include the cost of the nursing staff, capital outlay for the facilities and equipment.

One possible advantage of the examination was that in 5% of the examinations a major, hitherto undiagnosed condition, (other than the risk factors mentioned before) such as diabetes, obstructive airways disease or coronary calcification were detected, and in 9% minor conditions such as varicoceles, UTT's, fibroadenosis of the breast or solar keratoses were found. I have no data as to whether the ultimate morbidity has been affected by the early discovery.

HYPERTENSION

If one considers the criteria for screening discussed earlier then only a few interventions can be seen to qualify. Hypertension screening appears to be worthwhile especially in young hypertensives and the severe hypertensives both of which seem to benefit from treatment of asymptomatic hypertension, particularly in the prevention of cerebro-vascular accidents^{2,5}.

Screening for hypertension has been shown to be feasible in general practice by McWhinney, et al¹³.

One aspect which is not mentioned in the literature which I have reviewed is the frequency with which I see my patients being diagnosed as hypertensive by a specialist physician who sees them annually for a EHE but who, on returning to me, are found to be once more totally normotensive and remain so until they return for their "annual physical".

OTHER CORONARY RISK FACTORS

It has been shown that screening for smoking, obesity, high cholesterol and a low HDL-cholesterol, and personality type, are of value^{1,2} but I believe that unless the patient is willing to change his or her lifestyle and established patterns of behaviour, then screening for these factors serves no purpose. High triglyceride levels are only of value in assessing possible alcoholism together with low urea, high gamma-GT, and high MCV. The use of triglyceride estimation to assess obesity is totally unwarranted when a bath-room scale is available. As Prof Seftel in Johannesburg has said, "only do a tryglyceride to have a bigger lever to convince your patient to stop drinking". If the tryglyceride test is excluded then the patient can have his blood tests on the same day as the examination, without fasting, thus improving compliance in busy businessmen.

The value of the ECG has been greatly questioned due to normal variations and false negative and positive results. It is often suggested that the exercise ECG cannot be said to be negative unless the patient has been stressed to high levels on a treadmill or other apparatus.

Work by Ray Rosenman over a period of 25 years indicates that a more significant predictable effect on mortality and morbidity is whether the subject has a Type A personality rather than if he has any of the other cardiac risk factors¹⁶. Rosenman was the first to postulate the existence of these types¹⁷.

SCREENING FOR COLORECTAL CARCINOMA

Screening by way of the Haemocult test for occult blood has been shown to be of enormous value in the detection of carcinoma in general practice by a study recently completed by ninety five GPs of the SA Academy of Family Practice¹².

There were 5 012 patients invited to participate in the study; 3 422 completed and returned their Haemocult tests.

Ninety nine (99) patients had a positive test and of these 32 had positive tests on retesting. Examination of these 32 patients revealed neoplastic disease in 27 (84% — 12 had carcinomas and 15 had adenomas. Significantly not one of the carcinomas was detected by digital examination, two by rigid sigmoidoscopy, the rest by barium meal and/or colonoscopy. I believe that at R1,01 per haemocult card of 2 tests each, it is a worthwhile and cost-effective screen which involves very little time and is acceptable to all. It is recommended that the screening be done annually with tests being performed daily for 3 days².

Company directors believe they are doing a service to their employees with a multi-phasic screening programme.

CARCINOMA OF THE CERVIX

The PAP smear also appears to satisfy the criteria for screening. There have been recommendations though, based on the effective yield of Papanicolaou smear, to decrease the frequency of this procedure¹⁴. It is now suggested that smears be done at the commencement of sexual activity and be repeated one year later. If both the test are negative it should be repeated at 2-5 year intervals until the age of 50 years when testing can cease, provided all smears have been negative.

CARCINOMA OF THE BREAST

Annual breast palpations have been shown to produce a statistically significant decrease in the mortality in women over 50 years of age. Women should also be encouraged to pursue monthly self-examination².

PSYCHIATRIC ILLNESS

There is strong evidence to indicate the benefit of screening for psychiatric illness in general practice¹⁵. Up to 43% of patients have been shown to have psychiatric disorder — 32% a conspicuous disorder, 11% with a hidden psychiatric disorder. These are significant figures as treatment can assist patients in their prognosis and vulnerability.

We cause our patients unnecessary anguish by diagnosing an irreversible disease too early.

SUGGESTIONS FOR COST EFFECTIVE SCREENING IN A MODIFIED EHE

There is no uniformity amongst authors about what should or should not be done in an executive health examination. Many say it should be entirely scrapped. Even St Matthew possibly foresaw this when he wrote "They that be whole need not a physician, but they that are sick" (Matthew 9 ; 12)

Bruce Douglass of the Mayo Clinic, states¹⁹ :

It would take all of the Pentagon's high speed digital computers and more to develop a formula for the periodic examination of healthy persons which takes into account the factors of age; genetic, environmental, and life-style risks; costs; yield; availability of helpful intervention; acceptability to patient and physician; fluctuations in informed opinion; the differing needs of populations as against individuals; and the recommendations of preventacists, epidemiologists, propetologist, public health officials, health van operators, screeners, risk profilers, Canadian task forces, and the American Cancer Association. Awaiting much-needed research into the many aspects of disease prevention, the confused physician can at this time do no better than to preach early sickness consultation; keep himself apprised of special risks, of new information; and of the hopes, fears, and the expectations of his patients; and, finally, try to devise a preventative scheme for his particular situation which will be both feasible and effective."

1. I believe the procedure should be tailored to the individual at the discretion of the medical officer or general practitioner according to the age, sex, family and previous history, risk factors, life style, and environment.
2. Much of the initial screening could be done by a trained practice nurse or other staff. If the problems being screened for are the accepted few, namely hypertension, carcinoma of breast, cervix, and bowel, diabetes, smoking, alcohol excess, over-weight and lack of exercise, then surely a nurse could take a general health history with specific emphasis on exercise, smoking, drinking, environment, stress and family history. She could take the BP, do a PAP, blood glucose, urine test, distribute a haemocult test and weigh the patient. That leaves the doctor to palpate the breast, follow up any positive risk factors or points in the history, check for any complications of existing known conditions, and attempt to persuade the patient to change any aberrations of life-style, reinforcing what the nurse has started.
3. The screening should be aimed at looking for the diseases and risk factors which I have mentioned above and fulfil the criteria for screening. For instance, lung function tests in asymptomatic individuals would appear to have no value in screening for lung diseases unless there are specific occupational hazards in factories, mines or foundaries, which usually have

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statutory requirements. If a poor peak flow rate were found in a smoker, the test could act only as a lever to encourage non-smoking but would be of no more screening value than eliciting the fact that he smokes.

4. A basic examination should be performed on first contact, and the periodicity of subsequent examinations should be at the discretion of the doctor depending on the finding of abnormalities. It is accepted that a screening examination every 3-5 years is adequate for the average person under 50 years^{8,20}.
5. Women should have PAP smears as discussed.
6. In those over 40 a haemocult test should be done annually.
7. Special investigations should only be undertaken after the examination and assessment and then only those which are specifically indicated.
8. The value of the routine chest X-ray in asymptomatic individuals has been seriously questioned^{7,10}.
9. Haematological and biochemical screening tests in general have, surprisingly, not paid dividends. Such procedures led to a new or significant additional diagnosis in only 8% of hospital admissions and in 17% of patients attending general practitioners.
10. A comprehensive but simple written report should be presented to the patient. In our practice we have found a greater compliance and follow-up rate if this occurs. We also send a report to his personal general practitioner.

The act of seeking a check-up could itself be a presenting symptom.

11. Follow-up by the doctor or, in an industrial setting, by a nurse is vital if the EHE is to be of any value at all. The sister at the American company mentioned before, has recently been following up any abnormality with counselling sessions, dietary advice and weight monitoring, BP checks, stress management sessions and others. The results will probably only show in 10 years time.
12. The ethical aspects and advisability of informing senior managers of the health of their employers is really dependent on the purpose of the EHE. Workers may withhold symptoms and history for fear of social embarrassment or the effects on promotion if reports are sent to "big Daddy." We use a simple form acknowledging that an examination has been done and that the worker is fit or otherwise to continue work. Although occupational health physicians have a responsibility to the organization which employs them, the interests of the organization are best served by a service which is scrupulously impartial and carefully observes professional ethics.
13. Remember that the act of seeking a check-up could itself be a "presenting symptom" in the supposedly asymptomatic individual with fears regarding his health's vulnerability; it is then the doctor's duty to be sensitive to, and pursue such patient needs and

expectations. Here the EHE has a therapeutic effect. It also emphasizes the necessity to screen for psychological and psychiatric disorders. Unfortunately the allaying of ill-founded fears has not been quantified.

14. The distinction between screening and case finding often becomes blurred and moves towards personal clinical and psychotherapeutic medicine and away from the routine check-up^{5,18}, an obvious advantage of the EHE.

CONCLUSION

The routine medical check-up or executive health examination has a definite place in general and industrial practice but should be tempered away from the multiphasic standardized laundering, radiating and exsanguinating marathons which have become the norm in the post-war years in the United States.

On screening for diseases, H Dobell wrote in 1861²¹

"This appears to me to be the highest, the most ennobled duty of the physician, calling for the most abstruse knowledge of the science of life, the deepest experience of disease, the keenest exercise of the perceptive faculties, the calmest, most farsighted reasoning and the widest judgement — a duty as much above the management of acute disease as to rule an empire is above fighting a pitched battle".

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