# Screening and Case Finding

**CME Editor:**
**Dr Chris Ellis**
MD, MFGP

Part I

## Benchmarks for Busy GPs

*Essential CME is a series of topics involving a continuous self learning and appraisal process in family practice for general practitioners, primary care physicians and generalist medical officers.*

*There are five parts to the section.*

*Part One is called* BENCHMARKS FOR THE BUSY GP. *Instead of reading through a long article, a group of GPs will have extracted the important facts on the subject from a general practice perspective.*

*Part Two will be on* SOUTH AFRICAN RURAL GENERAL PRACTICE. *It will deal with the issues arising from practice in remote rural clinics. It will be context related to practising in poverty stricken communities and problem orientated to the specific conditions arising from this context.*

*Part Three is called* TEACHING OLD DOCS NEW TRICKS *and is a mock oral examination for a postgraduate degree in family medicine.*

*Part Four will be a self evaluation section by short* MULTIPLE CHOICE QUESTIONS (MCQS).

*Part Five is a selection of* SOURCES OF INFORMATION *and resources for further reading.*

*Throughout these sections family practice perspectives and theories will be integrated with the clinical aspects. Obviously this CME section cannot cover all that is "essential" in a prescriptive way but aims to help you revise, stimulate your interest and provide some guideposts.*

*This is number thirteen in the series and is on* SCREENING, CASE FINDING AND PREVENTATIVE MEDICINE IN FAMILY PRACTICE.

*This section is not a comprehensive review but a short selection of abstracts to help you focus on important aspects of the subject partly in the form of reminders and memory joggers.*

Prevention is supposed to be everybody's business, but often it is nobody's. Doctors are too busy with the lengthening queues of patients demanding curative services. The government is short of money and the people who are living in the shadow of recession and unemployment are more interested in short term issues and are often unimpressed with events that may never occur in the future.

There is a lot of confusion over the use of the terms screening, case finding and prevention. These are subjects where one starts confused and ends up confused at a higher level. This confusion is not helped by the use of the term "screening" in a casual and inappropriate way to cover everything.

It is now recognised that screening programmes should be based on a sound appraisal of the natural course and prognosis of diseases, if they are to be beneficial and cost-effective. The question is asked: Is prevention really better than cure?

Four levels of prevention can be identified corresponding to the different phases in the development of

disease : primordial, primary, secondary and tertiary.

Primordial prevention is aimed at avoiding the emergence of social, economic and cultural patterns of living that are known to contribute to an elevated risk of disease, eg smoking patterns, air pollution etc.

Primary prevention : is preventing the disease from happening and includes immunization, health education and removal of causal agents (eg sanitation measures, purification of water etc).

Secondary prevention : is to prevent damage from a disease and is focused on identifying presymptomatic disease before damage is done, eg screening for hypertension.

Tertiary prevention : is rehabilitation to limit complications or disability in patients with established disease by regular surveillance, eg trying to prevent diabetic problems by good control, regular fundoscopy, foot care, etc.
(Beaglehole, 1993)

Primary prevention has also been defined as measures taken before an event (eg trying to prevent a myocardial infarction) and Secondary prevention as measures taken after a event to limit damage or prevent recurrence.

Screening can be divided into opportunistic and formal.

There is also the term anticipatory care.

Screening would fall (in the above definitions) as a form of secondary prevention which aims at identifying asymptomatic disease or people at risk for disease.

Anticipatory Care is an approach to medicine that concentrates attention on anticipating and precluding problems. It is an effort to offer all appropriate forms of prevention (however defined) within the consultation and the framework of general practice/primary care. This phrase was coined by a working party of the RCGP (1981) to emphasise the indivisibility of prevention, diagnosis and care.

## METHODS OF SCREENING

These follow two broad lines :

Case finding (opportunistic or anticipatory care) means taking the opportunity when the patient attends on another matter to screen him for the desired characteristic (Sackett and Holland, 1975). This method is simple, involves no extra adminstration or expense and can reach 70% of a practice population in 1 year and 90% in 5 years (UK figures).

True formal screening is the active pursuit of cases by, amongst others, questionnaire, letter, home visits or clinic based initiatives. It is applied to an unselected population e g. a town, to identify those members who are either diseased or at risk for a disease.

Screening/case finding is thus usually a doctor-initiated activity even though it may be one of the expectations of the patient. True screening as defined above is not usually undertaken by the general practitioner in private practice as he does not often go into the community and screen the population. The hospital based GP is better placed to identify and undertake screening. The advent of networking and community-based research will also help in this respect. Any management that follows upon the information offered by the patient, cannot, by definition, be regarded as screening.

Multiphasic screening (or General health screening) involves the use of a variety of screening tests on the same occasion, eg BP, serum cholesterol, blood glucose etc. It normally refers to the routine examination and/or package of investigations performed

on a group of people such as the middle aged patient, pregnant women, babies at six weeks etc..

The Annual Physical Examination (multiphasic screening) is a "poorly thought out strategy for applying modern knowledge of preventive medicine in family practice" (McWhinney, 1989, p.162)

Evidence available has failed to show any benefits of this type of screening. It has been criticised for several reasons, e.g irrelevancy, unnecessary investigations, tests do not have to be repeated every year etc.

The Periodic Health Examination provides a more rational strategy in Family Practice where tests and procedures are grouped into "packages" at intervals determined by sound evidence not arbitrary choices. Many PHEs can be conducting via case finding manoeuvres, e.g blood pressure measurement, and organised by well designed record systems, flow charts etc.

Monophasic screening (or simple screening) focuses on certain conditions such as hypertension, carcinoma of the breast etc.

(references, Palmer, 1992; Stott, 1983; Wilson, 1966; Levenstein 1985, South African Family Practice Manual 2, Routine Health Care Adults)

## Requirements of a screening programme

1. The condition must be common, important and diagnosable by acceptable methods.
2. There should be a pre-symptomatic or latent phase of a disease whose natural history is known, in which treatment can change the course of the disease more successfully than in the symptomatic phase.
3. The test (or program) must be simple and cheap (or at any rate cost-effective).
4. It must be continuous and applied to a group at high risk.
5. The disease should be readily treatable (and adequate facilities available for treatment).
6. The screening tests should be highly sensitive (few false negatives) and highly specific (few false positives).
7. Interventions should be safe, non-invasive and acceptable to the patient and easy to interpret.
8. Benefits should outweigh costs.

Relatively few conditions exist which meet all these requirements.

Sensitive pretest counselling is necessary because both positive and negative results have cost and ethical implications.

## Some possible preventative activities

- Hypertension finding/screening, detection and follow-up.
- Cervical cytology.
- Developmental surveillance.
- Well-woman and well-man clinics.
- Visiting the elderly at home.
- Mammography.
- Blood cholesterol estimation.
- Faecal occult bloods.
- Case finding/Screening for psychiatric disease/alcohol abuse.
- Well person periodical medicals.
- Rhesus antibodies, WR in pregnancy

## Some preventative interventions

- Immunizations/Vaccinations
- Advice on Smoking
- Keep-fit and aerobic programmes
- Weight-watching
- ? Post-menopausal hormone replacement
- ? Calcium supplements
- ? Lifestyle counselling

## Obstacles to prevention by the patient

"It won't happen to me" (the Ostrich Approach)

"I don't believe they know the true facts" (the Sceptic's Approach)

"You go when it's your turn and you can't change that" (the Fatalist's Approach)

"God/the ancestors will protect me" (the Religious approach)

"Life's a risk-you're just as likely to be knocked down crossing the road" (the Philosophical approach)

### Obstacles to prevention by the doctor

"I was trained to treat disease, not as a teacher, it's someone else's job" (the Traditionalist approach)

"The returns on effort are too low" (the Rationalist approach)

"The medical aids don't pay for prevention" (the Economist approach)

"There's no time, the waiting room's full, the staff are busy on other things" (the Disorganised approach)

"Not more paperwork? Not more interference? Not more pronouncements from the academics and politicians? (the Burnt Out approach)

So starting from tomorrow everything is going to be exactly the same. (the Cynic's Approach)

## CERVICAL CASE FINDING/ SCREENING (PAP Smears)

The guidelines for taking PAP smears are often complex and inconsistent. When and how often does one do PAP screening? (see under rural practice section)

The right women are not being screened, in particular the high-risk groups from low social classes are screened the least and need it most (called the Inverse Care Principle, Hart, 1971).

### How to set up a cervical (PAP) case finding/screening programme in your practice or outpatients department.

1. Define objectives and priorities, eg who are you going to screen and how often? (just the over 25 year olds? Only antenatals? The elderly?)

2. Define methods, eg opportunistic smears or a structured approach via well-woman/family planning clinic or a combined approach?

3. Administration, eg all the doctors in the practice or in the OPD? The nursing sisters? When are you going to do it? Every day, one afternoon a week?

4. Establish a Recall System : Identify your practice population or patients to be screened, establish the cervical smear status of your patients, tag the notes or set up a card index system or use a computer, draw up a system to send letters or invitations to attend etc. This stage is the main stumbling block especially in rural practice. Get this right and you are away.

5. Implement the Case finding/Screening, eg devise a plan to clear the backlog (eg temporary extra clinics, extra time put aside initially for intense starting campaign etc)

6. Review every six of twelve months, eg count percentages of target group to have had smears, review the success rate of opportunistic approach?

7. Dealing with the smear results, there must be a fail-safe system to ensure patients get the results especially positive results. Should the patient herself take respon-

sibility and contact the surgery herself? Should all patients be sent a written letter with the results? will they get there? What system will you adopt to make sure patients with positive results are contacted no matter what?

### Some objectives for a well woman clinic

- To screen for cervical cancer
- To screen for breast cancer
- To screen for hypertension
- To screen for gynaecological problems
- To promote family planning
- To give preconceptual counselling
- To teach self examination of the breasts
- To give health education (weight reduction, smoking cessation, healthy diet, advice on cystitis, thrush, premenstrual tension etc)
- To treat STDs and HIV counselling

### Cancer of the breast – The breast self-examination controversy

Breast self-examination has now been challenged and has not been fully evaluated. The evidence for it being a worthwhile preventative exercise is shaky. It may produce unnecessary anxiety especially in younger women where the risk is low and guilt in those who develop cancer and did not self-examine before diagnosis.

### Some objectives of well man clinic

- Weight reduction and healthy diet
- Stress coping strategies
- Safe levels of drinking (alcohol abuse)
- Smoking cessation
- Exercise and fitness
- Screening for hypertension
- Possible urinalysis and lipid estimation

### Case finding/screening for diabetes

The "rule of halves" is thought to apply to most practices :

- Half of a practice's diabetics are unknown
- Half of the known diabetics are not followed up
- Leaving one quarter of the total followed up (often haphazardly)

### Case finding/screening is by routine urinalysis which has a small but definite yield and by case finding/screening high risk groups:

- The obese
- Family history of diabetes
- Those with big babies
- Those with gestational diabetes

### Case finding/screening in hypertension

The "rule of halves" is also believed to operate in most practices for hypertension:

- Half the hypertensives are unknown
- Half the known ones are not treated
- Half those treated are not controlled
- Hence, only one-eight of the hypertensive population receive satisfactory care

Conundrum : Half the controlled might not actually be hypertensive because they were erroneously diagnosed on one reading only etc?

### Opportunistic case finding in general practice has a high yield.

Some practices operate the so called "three box" method. They divide the patients into three groups on the basis of their blood pressure readings:

- a treatment group
- a borderline group
- "normals"

They (the records not the patients) are then filed into three separate boxes and the patients are recalled at different frequencies :

# Reduce the risk factor...

- the treatment group may need to be seen every 4 months
- the borderline annually
- the majority with normal blood pressure every five years

(reference : Palmer, 1992)

## GERIATRIC CASE FINDING/SCREENING

Geriatric screening has recently become a condition of service in the British National Health Service.

The care of the elderly is one of the biggest challenges that will have to be met by medicine in the 21st century.

Preventative measures include advice on smoking and obesity, increase dietary fibre and bowel management, keep-fit activities, mental recreation and regular attention from chiropodists, opticians and dentists. Screening for adequate nutrition is important especially for the elderly living alone.

The spin-offs, especially of home visits, can be improved morale, self-esteem and life satisfaction. Small interventions are on the "today's loose door mat is tomorrow's fractured femur" principle.

Selective screening of high risk groups may be implemented (eg the very old, the recently bereaved, the socially isolated, the immobile, the recently discharged from hospital).

## SCREENING FOR COLORECTAL CANCER

Most deaths from colorectal cancer (93%) occur in people over 55 years of age. Half of all patients present late in the disease.

Most (85-90%)colorectal cancers are not due to hereditary factors.

Groups at risk are those with a relative with bowel cancer, familial adenomatous polyposis, long standing ulcerative colitis and, to a lesser extent, Crohn's disease. Also patients who have had colon cancer before are at a higher risk of additional colorectal tumours.

The evidence so far suggests that a healthy well balanced diet rich in fruit

and vegetables, starch and fibre (especially vegetable fibre) and low in fat and alcohol may offer some protection from large bowel cancer.

Screening is attractive because of the great difference in prognosis between early and late stage disease.

The three principal tests are digital rectal examination, sigmoidoscopy and faecal occult blood.

Digital rectal examination is of limited value as only a small proportion of colorectal tumours are within range of an examining finger.

The efficacy of faecal occult blood testing is currently being assessed in several studies. There is no evidence, at present, for providing such screening routinely to an asymptomatic population.

A good deal of evidence exists to support the belief that sigmoidoscopy may be an effective screening test and the removal of premalignant

### Some controversial statements on routine urine testing

"While routine urine testing remains an essential part of clinical examination, it is not appropriate for case finding"

"Commonly, proteinuria is transient and benign-that is, related to exercise, posture, or minor illness-or is associated with a urinary tract infection. It rarely indicates an early renal or haematological disease that requires treatment or careful surveillance for the onset of treatable complications."

"One repeated criticism of urine analysis screening is that doctors take little notice of the results."

"One study reported that action was taken on fewer than half of the abnormalities found through routine urine analysis"

"Slight proteinuria is an unspecific finding of no diagnostic importance"

"Haematuria has a very high cost in terms of unnecessary investigation"

"Unselective urine testing is a waste of resources and, as often practised, frequently yields misleading results that are ignored or misinterpreted"

*(From Mant & Fowler, BMJ, 1990)*

adenomas could reduce deaths but it is an unacceptable method to the general population.
(Austoker, 1994)

### The Medical Society for the Issuing of Impossible Edicts (MSIIE)

This is one of my favourite societies and always has the imprimatur of a scientific society, consensus group or venerated institute. For example, The United States National Heart and Lung Institute recommended in 1977 that all children over the age of 3 years should have their blood pressure recorded annually. (BMJ, 1985). The mind boggles (for those of you out there who still have unboggled minds) at the effort and time required for the return involved.

Another example is the American Cancer Society. They recommend an annual digital rectal examination for people over 40, an annual faecal occult blood test for people over the age of 50 and sigmoidoscopy every 3-5 years in people over 50. I am told that there are approximately 1,500,000,000 people over the age of 50 in the world. Blood loss from colorectal cancers is not constant but intermittent, and the recommendation is that three to six successive stool specimens should be tested. This would mean between 5,500,000,000 and 9,000,000,000 stool specimens a year.

I think I'll take a shovel to work tomorrow.

Part 2

# South African Rural General Practice

*This section presents a problem orientated approach in the context of rural practice.*

The context is the store at Pungulelwani in the Northern Transkei.

The setting is a remote rural GP or government clinic treating low income or poverty stricken patients.

Your motivation seems to be lacking today. You were never really trained in this sort of medicine and have not been given many protocols to follow. You have become a bit disillusioned with the poor success rate when you have tried a preventative intervention or approach. You lack time and your record system is inadequate. You can't define your practice population. The financial reimbursement is inadequate with no real incentive to extend the service. You would like a health educator and some support either medically or as part of a team.

Hopefully much of this will change soon as many preventative measures are cheap, easy to perform and effective, for instance:

Two of the most effective interventions in this population are advice on smoking and alcohol consumption. It costs nothing except a short amount of time and has been shown to be worthwhile (Russell, 1987; Wallace, 1988 in references).

Two procedures that may have a high yield are blood pressure measurement and urinalysis.

Family planning/contraception is also a major preventative intervention.

Preventative measures can also be introduced in this clinic for STDs, HIV infection, glaucoma and tuberculosis.

Advice on hygiene, water purification and nutrition are also paramount.

Disease prophylaxis such as malaria is also critical in some areas and also the screening of urines for bilharzia may fall into the criteria for worthwhile screening in some communities.

Screening and management of tuberculosis will be addressed in a later Essential CME.

One of the obstacle to prevention in this clinic is the lack of understanding by the patient of disease causation. A balance between non-judgemental acceptance of beliefs about, for instance, spiritual/ancestor involvement and education as to the infective or mechanical cause of disease is required.

## Hypertension

This is a cheap and easy procedure at this clinic or in outpatients and is a peg on which one can hang many hats. Hypertension is commoner and has an increased morbidity and mortality in the Black population. It is an ideal case finding method. The advice one gives for hypertension control eg salt intake, weight reduction, smoking cessation, reduction of alcohol intake, dietary advice etc is also useful for general health and other conditions such as diabetes and heart failure. It can be used to promote continuity of care and also shared care.

## Diabetes

Diabetes is on the increase in the Black population.

The risk of death from cardiovascular disease is three times greater than the

general population, the risk of blindness is twenty five times greater. How do you screen for diabetes?

Ideally test every urine, even more ideally do finger prick blood glucoses. This is just not possible on a monday morning in Africa after the pay day weekend.

Therefore the focus is on "at-risk" groups.

Relatives who have "usugela/sugar", woman who have recurrent abortions, stillbirths or big babies, obesity, recurrent infections, candida, sores on the feet or neuropathy. Also check chronic alcoholics, hypertensives and the elderly.

### Difficulties with urine testing

In rural clinics there is often a logistical problem with no toilet easily available, no basin to wash hands etc. In busy rural hospital outpatients, the design of patient flows is often poor and toilets may not be well placed. The cost of dipstix is also not inconsiderable. A simple protein /glucose/ketones dipstix costs over 60 cents and even small costs become substantial when multiplied by 60 or 100 or more patients a day. (see also controversial statements on urine testing above)

### Carcinoma of the cervix

Cancer of the cervix is the commonest cancer causing death among Black South African women (South African Cancer Registry, 1987). Yet PAP testing is simple, safe, easy to do and generally acceptable to women.

In this clinic the logistics of collection and transport and coordination of the results make the service impossible. It is an administrative and management problem rather than a medical one.

In South Africa there is no PAP screening service except for individual screening by clinics, general practitioners, medical officers and gynaecologists on a discretionary, ad hoc basis.

Population screening at the present time is impossible but is the vision of the New Health system.

Ideally PAP screening should start at the age of 25 years and be done annually for 2 years and then, if these initial screenings are negative, every three years until the age of 60 years (WHO, 1988)

The "next best option" is screening the right women at the right time and at regular intervals.

Where resources are limited aim at screening every woman once in her lifetime at about the age of 40. (WHO, 1988)

28 to 33 years is the peak incidence of preinvasive cancer.

48 years is the peak incidence of the development of cancer.

If more resources are available then aim at screening at around 30 years old. This is a crucial time for many aspects of womens' health and health education and then, depending on the programme's budget:

offer 3 PAP smears in a woman's life every 10 years:
30-35 years
40-45 years
50-55 years

It's not ideal but is the most cost-beneficial.
(De Haeck, 1994; Cooper et al, 1995)

### Gastroenteritis

A major impact can be made by promoting breast feeding, teaching

**WE NEED YOUR HELP**

Your comments on this CME Section are welcome:

We need help to provide an ongoing education that is appropriate to practice. We invite you to make up MCQs or ideas on benchmarks, rural practice etc.

Please return to:

CME Editor.
SA Family Practice
Box 3172
Cramerview 2060

or Fax to 01213-92387

home and personal hygiene (especially hand washing), promoting immunisation (especially measles with its associated diarrhoea) and teaching oral hydration therapy to mothers. Education on water purification, boiling water, avoiding harmful practices such as enemas etc are important.

### Malnutrition in pregnant women and children

Nutrition is "the cornerstone of prevention, the handmaiden of curative medicine and the responsibility of every physician" Protein-calorie malnutrition is common in this clinic and is associated with slow foetal growth, high perinatal mortality and impaired cerebral development. Malnutrition between birth and five can retard growth, impair mental processes and lower resistance to infections. This is a problem of such enormity and complexity that it needs to be addressed by a holistic network of preventative interventions e.g the growth chart, hospital farms, home visits, education, growth monitoring, breast feeding, oral rehydration and immunisation (GOBI), the "referral chain" (Valley Trust project), the community participation approach (Tones, 1979) etc etc.

### The elderly

There are over a million elderly Black people in South Africa and most of them are marginalised and vulnerable, especially the rural elderly. The most important screens are related to social needs. Others are, amongst others, malnutrition, depression, blood pressure, atrial fibrillation, vision and hearing.
(Louw, 1995)

### Prevention of injury and violence

This is an area in which much sociomedical research is taking place at present.

Prevention of injury is carried out on the basis of advice on household safety, accident prevention programmes etc.

Violence is being addressed through collective community measures, involvement in peace initiatives, counselling of people involved in trauma etc.

Contributors to this Section:

CME Editor: Dr Chris Ellis.

Editor: South African Family Practice.
Professor Sam Fehrsen.

Editor: South African Family Practice Manual.
Dr Manfred Teichler.

Contributors have helped in various gestational stages and with various parts of this section.

Family Practitioners:
Professor Pierre de Villiers, Department of Family Medicine, University of Stellenbosch.
Dr Ron Ingle, Department of Family Medicine, Medunsa.
Dr Bev Schweitzer, Department of Family Medicine, University of Cape Town.
Dr Felicia Christians, Lotus River.
Dr Ian Couper, Manguzi Hospital, KwaNgwanase.
Dr Gary Morris, Bergville, Natal.

**Next Issues are:**

May 1995.....Backache

June 1996 .....Alcoholism

July 1995 .....Hypertension

August 1995 .....Urology

September 1995 .....The Difficult Patient

Part 3

# Teaching Old Docs New Tricks

*You have passed the papers and now attend the oral examination. The examiner now asks you the following questions:*

**Question One: What is the positive predictive value of a test?**

Answer: It is the proportion of those detected as positive by the test who truly are positive. In mass screening programmes a test should have a high positive predictive value (and if you got that answer right, you're a better man than I, Gunga Din).

**Question Two: How do you know who in your practice has had their blood pressures checked? Or women who have not had PAP smears or mammograms? Or children who have not been immunised?**

Answer: You attach a coloured tag or sticker to the chart after a particular procedure is done. The tags change colour or shape each year. You do this for special risk patients as well. There are several other record keeping methods eg the age-sex register, computer systems etc that allow you to recall this sort of information.

**Question Three: Where do you get all the time to do all these screening tests? If you are going to screen for hypertension, diabetes, smoking, alcohol abuse, lipids, glaucoma, PAP smears, mammograms, delayed developments, cancer of the colon, tuberculosis etc, etc. How do you find the time?**

Answer: You are not sure how to answer this because you can't even keep up with your normal practice work and the curative and clinical side of your work as well as the general adminstration and financial management etc as it is.

**Question Four: So where are you going to find the time?**

Answer: You reply that you fit it in naturally during the consultation and that all this organisation, age-sex registers, computers etc are unnecessary because as a conscientious Family Doctor you apply these methods whether or not you have fancy recording systems or computers.

The examiner replies that he agrees that preventative care should not be separated from curative care and should be part of a comprehensive and integrated approach. Unfortunately even with practices with strong interests in preventative medicine, patients are missed.

**Question Five: So where are you going to find the time?**

Answer: You have to sit down and plan your approach, prioritize and work out who is to do what. You cannot do everything. Discuss your strategy, get advice, delegate tasks to other staff, put aside time initially to set up the systems and protocols. Strangely time is found and other spin-offs materialise to your overall care. If you want to start today then you can use the five-point plan (Royal College of General Practitioners, 1982):

1. Define objectives and priorities. Do not run before you can walk. Think about launching a pilot screening before setting up the real thing so that all the glitches can come out. Support the medical officer or partner who is the interested one.
2. Define your population. Work out the numbers involved, work out a register or computer programme. Allow someone time off to set the system up, brief staff, hire temporary clerical staff for the initial loading etc.
3. Define methods. Opportunistic or separate clinics to be run by sister or interested doctor etc?
4. Establish a recall system.
5. Review, Updating etc.

# Part 4 Multiple Choice Section (MCQS)

*Multiple choice questions are intended to cover the factual clinical areas of general practice. They also test reasoning ability and understanding of basic facts, principles and concepts. The questions are of the true/false type. In some examinations marks are deducted for incorrect answers or failure to answer while in others marks are not deducted for incorrect answers. These questions are not set in an "examining mode" but rather in an "education mode".*
*Circle T for True or F for False.*

### When screening for developmental delay the following are typical

1. T/F Not responding to name at 1 year
2. T/F No distinct word at 15 months
3. T/F Not walking at 20 months
4. T/F Not sitting alone at 8 months

### The following screening tests or interventions have strong evidence that they are worthwhile as screening tests or interventions (grade A)

5. T/F Counselling and follow up for smoking cessation
6. T/F Measurement of blood pressure
7. T/F Tetanus booster for prevention of tetanus
8. T/F Annual breast examination by doctor for breast cancer over age of 50 years and over age of 35 years if positive family history

### Your next patient could have glaucoma. Early detection prevents vision loss. The following are risk factors for glaucoma

9. T/F Diabetes mellitus
10. T/F Family history of glaucoma
11. T/F Black race
12. T/F Prolonged use of steroids

### In the prevention of breast cancer, the Canadian Task Force on the Periodic Health Examination (1979, 1988) recommends:

13. T/F For women aged forty to forty nine, annual physical examination of the breast (class C)
14. T/F For women aged fifty to fifty nine, annual mammography and physical examination (class A)
15. T/F For women aged sixty and over, annual mammography and physical examination (class B)
16. T/F For women aged forty and over, teaching breast self examination (class C)

### Faecal Occult Blood Tests as a Screening Procedure

17. T/F Have a high sensitivity
18. T/F Screening every two years has lead to a reduction in mortality from colorectal cancer.
19. T/F They are reliable in detecting upper gastrointestinal lesions and rectal lesions
20. T/F Have a reasonable but not high level of acceptability to the general population

**Answers**

1. True
2. False. No distinct word at 18 months is one of the definitions of a late talker.
3. True
4. False One year is the age of referral for not sitting alone.
5. True
6. True
7. True
8. True
9. True
10. True
11. True
12. True
13. True
14. True
15. True
16. True
17. False They have a relatively low sensitivity
18. False Annual screening has, in one study reduced mortality of colorectal cancer (but with a high rate of false positives).
19. False They are less sensitive for upper than lower gastrointestinal lesions and less sensitive for rectal lesions than upper left side lesions.
20. True

Part 5

# Sources and Resources

## BOOKS THAT SOUTH AFRICAN GPs FIND MOST USEFUL TO KEEP IN THEIR ROOMS

The South African Family Practice Manual, published by South African Family Practice.

The Merk Manual of Diagnosis and Therapy. 16th ed. Rahway, New Jersey: Merk Research Laboratories. 1992.

Current Medical Diagnosis & Treatment. Lange Medical Publications/Prentice Hall. published yearly.

The Paediatric Handbook. edited by H de V Heese. Cape Town: Oxford University Press. 1992.

Frere Hospital Handbook by Mitchell, Morris and Meyers. Cape Town: Juta and Co. 1990.

The Diagnosis and Management of Sexually Transmitted Diseases. ed. R Ballard. available from STD Research Unit, SAIMR, Box 1038, Johannesburg 2000.

South African Medicines Formulary. 2nd ed. MASA Publications. 1991.

MIMS Desk Reference. Mims/Times Media Ltd. published yearly.

ECG Made Easy by Hampton J R, Edinburgh: Churchill-Livingstone, 1992.

Pharmacotherapy by C P Venter 2nd ed. Pretoria: MC Publishers, 1993.

Antibiotic Guidelines by Koornhof H J, Liebowitz L D. Pretoria: J L van Schaik, 1991.

Oxford Handbook of Clinical Specialities by Collier J A B, Longmore J M, Harvey J H. 3rd ed. Oxford: Oxford University Press, 1991.

Oxford Handbook of Clinical Medicine (pocket size) by Hope R A, Longmore J M, Moss P A H, Warrens A N. Oxford: Oxford University Press, 1993.

Are there any others that readers would like to recommend (apart from the Farmers Weekly)?

## SOURCES AND RESOURCES

### Specific References to this Section


Austoker J. Screening for colorectal cancer. BMJ 1994;309:382-6.

Cancer Registry of South Africa, Johannesburg: SAIMR, 1987.

Levenstein J H. Screening in General Practice. S A Fam Pract 1985 Feb;38-42. 610.5 SOU

Beaglehole R, Bonita R, Kjellstrom T. Basic Epidemiology. Geneva: WHO, 1993/4.

Cooper D, Baillie R S, Myers J E. Maintaining the health of women in South Africa. CME/VMO 1995;13:127-134. 610.5 SOU

De Haeck K. Women's Health. paper delivered at 9 th Family Practitioners Congress, Cape Town, 1994.

Russell M A H, Stapleton J A, Jackson P H, Hajek P, Belcher M. District Programme to reduce smoking: effect of clinic supported brief intervention by general practitioners. BMJ 1987;295: 1240-1244. 610.5 BRI

Louw S. Guidelines for health screens in the elderly. CME/VMO 1995;13:155-163.

Mant D, Fowler G. Urine analysis for glucose and protein: Are the requirements of the new contract sensible? BMJ 1990;300:1053-1055.

Sackett D L, Holland W W. Controversy in the Detection of Disease. Lancet 1975;ii:375.

South African Family Practice Manual 2. Routine Health Care Adults.

Tones B K. Past Achievement and Future Success. In: Sutherland I, editor. Health Education. Perspectives and Choices. London: George Allen & Unwin, 1979: 240-262.

Wallace P, Cutler S, Haines A. Randomised controlled trial of general practitioner intervention in patients with excessive alcohol consumption. BMJ 1988;297:663-668.

WHO. Cytological screening in the control of cervical cancer. Technical guidelines. Geneva: WHO, 1988.

Wilson J M G. Surveillance and early diagnosis in general practice. In; Teeling-Smith G. ed. Proceedings of Colloquium, London: Office of Health Economics, 1966, 5-10.

Wilson J M G, Junger G. Principles and Practice of Screening for Disease. Public Health Paper no 34. Geneva: WHO, 1968.


### Sources for CME and General Practice CME.


Cambell G.D, Seedat Y.K, Daynes G. Clinical Medicine & Health in Developing Africa. David Philip: Cape Town. 1982. (now needs updating).

CME/VMO South Africa's Continuing Medical Education Monthly. MASA Publications.

Essential Drugs. SAMJ. vol.64. 15 october 1983. p.648,685,686.

Elliot P.G. MRCGP MCQ Practice Papers. Knutsford: Pastest. 1993.

Gambrill E, Moulds A, Fry J, Brooks D. The MRCGP Study Book. 2nd Ed. Oxford: Butterworth-Heinemann. 1988.

Hammond-Tooke D. Rituals and Medicines. Indigenous Healing In South Africa. Johannesburg: AD Donker Ltd, 1989.

Health Promotion at the Community Level. Bracht N. ed. Sage Publications Inc,. 1990.

Martin P, Moulds A J, Kerrigan P J C. Towards better practice. Edinburgh: Churchill Livingstone, 1985.

Mc Daniel S, Campbell T L, Seaburn D B. Family-Orientated Primary Care. A Manual for Medical Providers. New York: Springer-Verlag, 1990.

Mitchell P J, Morris C D W, Meyers O.L. The Frere Hospital Handbook. A guide to Medical Management, Investigation and procedures. Cape Town: Juta & Co. 1990.

Modern Medicine of South Africa, The Communications Group, published monthly.

NHG Standards. Guidelines for General Practice. Dutch College of General Practitioners. The national guidelines of the Dutch College of General Practitioners (NHG) are called the NHG Standards.

Palmer K.T. Notes for the MRCGP. 2nd Ed. London: Blackwell Scientific Publications. 1992.

Pistorius G.J, Pistorius C.W.I. Family Practice Management. Pretoria: Haum.1990.

The Paediatric Handbook. ed. H.de V Heese. Capetown: Oxford University Press. 1992.

Sanders J, Baron R. MRCGP Practice Exams. 2nd Ed. Knutsford: Pastest. 1992.

South African Medicines Formulary. 2nd Ed. Cape Town: MASA Publications. 1991.

South African Family Practice Manual. SA Family Practice.

Update. The Journal of Continuing Education for General Practitioners, George Warman Publications.


### Some of the "Bibles" of Family Practice and Family Medicine.


Balint M. The Doctor, His Patient and the Illness. 2nd Ed. London: Pitman Books Ltd. 1964.

Christie R, Hoffmaster B. Ethical Issues in Family Medicine. Oxford University Press. 1986.

Crouch M.A, Roberts L. The Family in Medical Practice. London: Springer-Verlag. 1987. (out of print).

McWhinney I.R. A Textbook of Family Medicine. New York: Oxford University Press. 1989.

Rakel R.E. Textbook of Family Medicine. 4 th Edition. Philadelphia: W B Saunders Company. 1990.

Stott N.C.H. Primary Health Care. Bridging the Gap between Theory and Practice. Berlin: Springer-Verlag. 1983. (out of print).

*Scheduling status:* *Schedule 4*
*Proprietary name (and dosage form):*

# ZOVIRAX* 200 mg Tablets
# ZOVIRAX* 400 mg Tablets
# ZOVIRAX* 800 DispersableTablets
# ZOVIRAX* Suspension
# ZOVIRAX* DS Suspension

**COMPOSITION**
Each ZOVIRAX 200 mg Tablet contains: acyclovir 200 mg
Each ZOVIRAX 400 mg Tablet contains: acyclovir 400 mg
Each ZOVIRAX 800 Dispersible Tablet contains: acyclovir 800 mg
Each 5 ml of ZOVIRAX Suspension contains : acyclovir 200 mg, methyl hydroxybenzoate 0,1 % m/v and propyl hydroxybenzoate 0,02 % m/v
Each 5 ml of ZOVIRAX DS Suspension contains : acyclovir 400 mg, methyl hydroxybenzoate 0,1 % m/v and propyl hydroxybenzoate 0,02 % m/v

**PHARMACOLOGICAL CLASSIFICATION**
A20.2.8 Antiviral agents

**PHARMACOLOGICAL ACTION**
Acyclovir (ZOVIRAX) is active in vitro against Herpes simplex virus (HSV) types I and II and Varicella-Zoster virus. Acyclovir is phosphorylated after entry into herpes infected cells to the active compound acyclovir triphosphate. The first step in this process is dependent on the presence of the HSV coded thymidine kinase. Acyclovir triphosphate acts as an inhibitor of and substrate for the herpes specified DNA polymerase preventing further viral DNA synthesis without affecting normal cellular processes.

**INDICATIONS**
ZOVIRAX Oral formulations are indicated for the treatment of initial and recurrent Herpes simplex infections of the skin and mucous membranes including initial and recurrent genital Herpes simplex virus infections.
ZOVIRAX Oral formulations are indicated for the suppression of recurrent genital Herpes simplex infections in immunocompetent patients.
ZOVIRAX Oral formulations are indicated for the prophylaxis of Herpes simplex infections in immunocompromised patients.
ZOVIRAX Oral formulations are indicated for the treatment of Herpes zoster (shingles) infections if the lesions are not older than 72 hours.
ZOVIRAX Oral formulations are indicated for the treatment of Varicella-Zoster (Chickenpox) infection within 24 hours after appearance of the typical chickenpox rash.
ZOVIRAX Oral formulations are indicated for the reduction of mortality and risk of developing Herpes virus infections in certain severely immunocompromised patients , namely those with advanced HIV disease (CD4+ counts <200/mm3 including patients with AIDS or ARC) or following bone marrow transplantation. In patients with advanced HIV disease oral ZOVIRAX has been used in conjunction with oral zidovudine. In patients following bone-marrow transplantation oral ZOVIRAX must be preceded by one month's intravenous treatment with ZOVIRAX.

**CONTRA-INDICATIONS**
ZOVIRAX Tablets and ZOVIRAX Suspension are contra-indicated in patients known to be hypersensitive to acyclovir.
Safety in pregnancy and lactation has not been established.

**DOSAGE AND DIRECTIONS FOR USE**
ZOVIRAX 800 Dispersible Tablets may be dispersed in a minimum of 50 ml water or swallowed whole with a little water.
Dosage in adults:
For treatment of initial and recurrent Herpes simplex infections of the skin and mucous membranes: 200 mg ZOVIRAX should be taken five times per day at approximately four hourly intervals, omitting the night time dose. Treatment should continue for 5 days, but in a case of severe initial infection, may have to be extended. In severely immunocompromised patients (e.g. after marrow transplant) or in patients with impaired absorption from the gut, the dose can be doubled to 400 mg or, alternatively, intravenous dosing could be considered. The first dose should be administered as early as possible after the start of an infection, and for recurrent episodes this should preferably be during the prodromal period or when the lesions first appear.
For suppression of recurrent genital Herpes simplex infections in immunocompetent adults:
A dose of 200 mg of acyclovir should be taken four times daily at approximately six-hourly intervals.
Many patients may be conveniently managed on a regimen of 400 mg of oral acyclovir taken twice daily at approximately twelve-hourly intervals. Dosage titration down to 200 mg oral acyclovir taken at approximately eight-hourly intervals, or even twice daily at approximately twelve-hourly intervals, may prove effective. Some patients may experience breakthrough infections on total daily doses of 800 mg acyclovir.
Therapy should be interrupted periodically at intervals of six to twelve months, in order to observe possible changes in the natural history of the disease.
For prophylaxis of Herpes simplex infections in immuno-compromised adults:
200 mg ZOVIRAX should be taken four times daily at approximately six hourly intervals.
In severely immunocompromised patients (e.g. after marrow transplant) or in patients with impaired absorption from the gut the dose can be doubled to 400 mg, or alternatively intravenous dosing could be considered. The duration of prophylactic administration is determined by the duration of the period at risk.
For treatment of Varicella-Zoster infections in adolescents (12 to 18 years):
A dose of 800 mg oral acyclovir should be taken four times daily for five days.
For treatment of Varicella-Zoster and Herpes zoster infections in adults:
A dose of 800 mg oral acyclovir should be taken five times daily at approximately four-hourly intervals, omitting the night-time dose. Treatment should continue for seven days.
In severely immunocompromised patients (e.g. after marrow transplant) or in patients with impaired absorption from the gut, consideration should be given to intravenous dosing. Dosing should begin as early as possible after the start of an infection: treatment yields better results if initiated as soon as possible after rash onset.
Dosage for management of severely immunocompromised patients:
For the management of severely immunocompromised patients , 800 mg ZOVIRAX should be taken four times daily at approximately six hourly intervals. In the management of bone marrow recipients this would be preceded by up to one month's therapy with intravenous ZOVIRAX 500 mg/m2 three times daily. The duration of treatment studied in bone marrow transplant patients was 6 months (from 1 to 7 months post-transplant). In patients with advanced HIV disease , study treatment was 12 months.
Dosage in children:
For the treatment of Herpes simplex infections and prophylaxis of Herpes simplex infections in immunocompromised children
Two years and older- Adult dosage
Below two years- Half the adult dosage.
Orally administered acyclovir in children less than 2 years of age has not been fully studied.
Dosing for Varicella (Chickenpox) may be more accurately calculated as 20 mg ZOVIRAX per kilogram bodymass (not to exceed 800 mg) four times daily. Treatment should continue for five days and should start within 24 hours after appearance of typical chickenpox rash.
Limited data suggest that for management of severely immunocompromised children , over two years of age , the adult dose may be given.
Dosage in the elderly:
In the elderly, total acyclovir body clearance declines in parallel with creatinine clearance. Adequate hydration of elderly patients taking high oral doses of ZOVIRAX should be maintained. Special attention should be given to dosage reduction in elderly patients with impaired renal function.
Dosage in renal impairment:
In the treatment and prophylaxis of Herpes simplex infections in patients with impaired renal function, the recommended oral doses will not lead to accumulation of acyclovir above levels that have been established safe by intravenous infusion. For patients with severe renal impairment (creatinine clearance less than 10 ml/minute) a dose of 200 mg every 12 hours is recommended. In the treatment of Varicella and Herpes Zoster infections, and in the management of severely immunocompromised patients, it is recommended to adjust the dosage to 800 mg twice daily at approximately twelve-hourly intervals for patients with severe renal impairment (creatinine clearance less than 10 ml/minute), and to 800 mg three times daily at intervals of approximately eight hours for patients with moderate renal impairment (creatinine clearance in the range 10-25 ml/minute).

| Normal Dosage (5 times daily) | Creatinine Clearance (ml/min/1,73m$^{2}$) | Adjusted Dosage | |
|---|---|---|---|
| | | Dose (mg) | Dosing interval (hours) |
| 200 mg every 4 hours | >10 | 200 | every 4 hours 5 times daily |
| | 0-10 | 200 | every 12 hours |
| 800 every 4 hours | >25 | 800 | every 4 hours 5 times daily |
| | 10-25 | 800 | every 8 hours |
| | 0-10 | 800 | every 12 hours |

**Further information**
ZOVIRAX Suspension may be diluted with an equal volume of either Syrup or Sorbitol 70 % Solution (Non-crystallising). The diluted product is stable for 4 weeks at 25 (C, but it is recommended that all dilutions are freshly prepared and discarded within 24 hours if unused.

**SIDE-EFFECTS AND SPECIAL PRECAUTIONS**
Skin rashes have been reported in patients receiving ZOVIRAX Oral Formulations the rashes have resolved on withdrawal of the medicine.
Gastro-intestinal effects, including nausea, vomiting, diarrhoea and abdominal pains have been reported in some patients receiving ZOVIRAX Oral formulations. Reversible neurological reactions, notably dizziness, confusional states, hallucinations and somnolence, have occasionally been reported, usually in patients with renal impairment or other predisposing factors. Occasional reports of accelerated diffuse hair loss have been received; the relationship of the event to acyclovir therapy is uncertain. Other events reported in patients receiving oral formulations of ZOVIRAX include, transient rises in bilirubin and liver related enzymes, increases in blood urea and creatinine, small decreases in haematological indices, headaches, reversible neurological reactions and fatigue.

**Interactions:**
Probenecid increases the acyclovir mean half-life and area under the plasma concentration curve. Other drugs affecting renal physiology could potentially influence the pharmacokinetics of acyclovir. However, clinical experience has not identified other drug interactions with acyclovir.
In patients receiving anti-retroviral therapy (oral RETROVIR), no significant increase in toxicity was associated with the addition of ZOVIRAX.

**KNOWN SYMPTOMS OF OVERDOSAGE AND PARTICULARS OF ITS TREATMENT**
See' Side-effects and special precautions∆. No data are available on the consequences of the ingestion of high doses. Single intravenous doses of up to 80 mg/kg have been administered without adverse effects. Acyclovir is dialysable by haemodialysis. Treatment is symptomatic and supportive.

**IDENTIFICATION**
ZOVIRAX 200 mg Tablets:Each pale blue, shield-shaped tablet is impressed with the word 'ZOVIRAX' on one side and a triangle on the obverse. ZOVIRAX 400 mg Tablets:Each pink, shield-shaped tablet is impressed with the word 'ZOVIRAX 400' on one side and a triangle on the obverse.
ZOVIRAX 800 Dispersible Tablets:Each elongated, white, film-coated tablet is impressed with the word 'ZOVIRAX 800' on one side and scored on the obverse. ZOVIRAX Suspension :An off-white, viscous suspension with a banana odour and taste. ZOVIRAX DS Suspension :A homogenous , off-white , thixotropic suspension with a pleasant orange odour and taste.

**PRESENTATION**
ZOVIRAX 200 mg TabletsBlister packs of 25 tablets.
ZOVIRAX 400 mg Tablets: Blister packs of 60, 70 tablets
ZOVIRAX 800 Dispersible Tablets: Blister packs of 35 tablets.
ZOVIRAX Suspension : Glass bottles of 125 ml.
ZOVIRAX DS Suspension : Glass bottles of 100 ml.

**STORAGE INSTRUCTIONS**
Keep out of the reach of children
Protect from light.
ZOVIRAX 200 mg Tablets:Store below 25 (C and in dry place.
ZOVIRAX 400 mg Tablets:Store below 25 (C and in dry place.
ZOVIRAX 800 Dispersible Tablets :Store below 30 (C and in dry place.
ZOVIRAX Suspension :Store below 25 (C.
ZOVIRAX DS Suspension:Store below 25 (C.

**REGISTRATION NUMBERS**
ZOVIRAX 200 mg Tablets: R/20.2.8/37
ZOVIRAX 400 mg Tablets: U/20.2.8/153
ZOVIRAX 800 Dispersible Tablets: 27/20.2.8/0212
: S/20.2.8/236
ZOVIRAX DS Suspension : 27/20.2.8/0213

*Name and Business Address of the Applicant*
Wellcome (Pty) Ltd
68 Rigger Road. Spartan, Kempton Park, 1619
Co. Reg. No. 66/00480/07

*Date of publication of this package insert: 12 July 1994*
**Trademark*