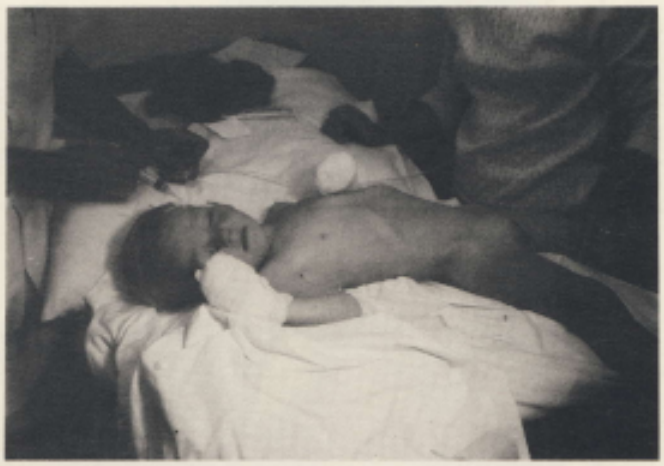
The management of infectious diseases in general practice

by Professor Erik Glatthaar



It would be presumptious of me to attempt to cover the full spectrum of the management of infectious diseases in general practice. This is also unnecessary.

I would therefore like to take a close look at the rapidly changing picture of infectious diseases as it affects all of us today and discuss the measures we should employ in general practice to prevent and contain communicable diseases.

Man manipulates the environment to cater for his indolence and in this process has compromised it with the result that there has been a spin off that he can't handle. The old enemies of man (plague, anthrax, malaria, etc) that have been dormant for so long are active again and threaten man's very existence and life style.

Man's encroachment on nature has unleashed new enemies so far unknown to man and apparently up to now transmitted in nature without man's assistance (Marburg, Lassa, etc). Man has inadvertently stepped into the cycle of transmission and is now faced with formidable foes without effective weapons.

In effect there is now again constant warfare between microorganisms and man. Man has to shift his battle field and the emphasis in disease control.

All this makes it imperative for all of us to culture a new awareness of communicable diseases and to never again relax our eternal vigilance and surveillance against these diseases.

Your role lies in effective prevention, early diagnosis and correct management and I will now discuss these aspects in more detail:

Prevention:

The ideal immunization schedule is summarized as follows:

IMMUNIZATION SCHEDULE

AGE	VACCINE:
Newborn	BCG
3 months	Polio, DPT, BCG*
4½ months	Polio, DPT
6 months	Polio, DPT, Measles
12 months	Polio
15 months	Measles
18 months	D P T
5 years	D T.

*Only if no evidence of recent vaccination.

Although most immunizations are administered at Municipal and State clinics, many practioners prefer to tend their own patients. This is, of course, perfectly acceptable provided the recommended schedule is followed and the child is furnished with proper documentation as required for school entry and other purposes.

Measles immunization should be commenced at 6 months as still too many children contract the disease early in life. This protects 60-70% of children. It is of course always preferably to administer M.M.R.

BCG-vaccine is not available in single doses and special apparatus is required for its administration. I would therefore like to recommend that administration of this vaccine be left to the health authorities.

Routine cholera immunization is not recommended except if required by the country being visited.

Cholera immunization provides approximately 50% protection against the severe form of cholera; this limited protection to the individual is of short duration (i.e. 3-6 months). It does not prevent infection and therefore, contributes nothing to controlling the spread of the disease.

The fourth dose of polio does not strictly apply to Whites and Asians and was introduced because of immunization breakthroughs in mainly Blacks and Coloureds due to the interference of antibodies in mothers' milk and the high exposure of these children to other enterovirusses.

The Department was accused of discrimination when it recommended the 4th dose for Blacks and Coloureds only and was therefore compelled to apply the 4th dose to all population groups.

Early diagnosis and correct management:

(a) Malaria:

Malaria is endemic in the following districts i.e. in RSA: Messina, Soutpansberg, Lataba, Pilgrimsrest, White River, Nelspruit, Barberton, Piet Retief and the Kruger National Park; in Venda: Sibasa, Vuvani, Dzanini; in Ga-Zankulu: Malamulele, Giyani, Ritavi 2, Mahla; in Lebowa: Balabedo, Naphuro 2, and Mapulaneng; in Kwa-Zulu: Ingwavume, Ngotshe and Uvombo; the whole of Ka-Ngwane. Transmission occurs throughout the year.

It is amazing how many visitors to these regions still contract malaria in spite of repeated warnings and requests to take chemoprophylaxis. In this regard it is important to know that the Department recommends only tablets containing 150mg Chloroquin and 15mg Pyrimethamine (e.g. Daraclor) for adults and children and Chloroquin syrup for babies. Tablets containing Pyrimethamine only are of limited value and also more toxic due to met-haemoglobin that may develop. Chemoprophylaxis is of course not foolproof

P. falciparum is responsible for ± 95% of infestations in Eastern Transvaal, but P. vivax and the other plasmodia do occur. P. falciparum infestations go through the liver only once, whereas in the case of other plasmodia the liver cycle is repeated over and over.

Chloroquin and Pyrimethamine act on the parasite in the circulation and will thus eliminate all infestations from the blood and thus also prevent clinical manifestations.

However, in infestations other than P. falciparum symptoms may occur after cessation of chemoprophylaxis because the liver stage was not eliminated.

Any fever with rigors and recurring at regular intervals must be viewed with suspicion. The history will assist greatly in making a diagnosis but of course, not always, as happened recently when an infected mosquito was transported by combi to Johannesburg.

Think malaria and take the trouble of sending smears for investigation if the clinical picture is suggestive of the disease.

You may spare yourself considerable embarrasment and perhaps the patient's life.

(b) Cholera:

It was indeed sad day for South Africa when it was announced recently that we now have cholera in the Republic. Actually we had been expecting the disease for some time now and it is perhaps strange that it took so long coming (or did it?).

Cholera is not only here, it is here to stay and the reason for this is that the El Tor biotype (serotype Inaba) that is causing the present epidemic, causes clinically overt disease in only 25% of patients and severe disease in only 2%. The remaining 75% are asymptomatic carriers.

The infected person, both symptomatic and asymptomatic, excretes vibrio for approximately *2 weeks* if left untreated.

Clinically the patients develop a sudden severe diarrhoea and vomiting. The stools are watery, brown initially and becoming clear watery with white flakes (rice-water stools).

There is abdominal discomfort and the patient has a bloated feeling. Adults never have fever, but children may be feverish. Stools never contain blood.

Our urgent appeal to all practitioners is

(1) Always consider cholera in any case with gastrointestinal upset (especially diarrhoea) and always attempt bacteriological diagnosis.
(2) Make sure to record the patients address.
(3) In severe cases commence rehydration immediately i.e. before admission to hospital.

African Haemorrhagic Fevers:

Many conditions may cause haemorrhage. The term African Haemorrhagic Fevers refers to a specific group of viral diseases occuring mainly in Africa. Most of them are Class 4 Agents i.e.

(i) The conditions they cause result in a significant mortality and
(ii) No vaccine or antimicrobial agent is availabe to combat the conditions.

In South Africa we are mainly interested in Congo fever, Dengue fever, Ebola fever, Lassa fever, Marburg fever and Rift Valley fever. (See Table 1).

The symptoms and signs common to all are:

Pyrexia (which may be excessive)
Macular-papular rash
Haemorrhagic manifestations (in skin, gastro intestinal tract etc).

It is the responsibility of all of us to have a constant awareness of these diseases and to consider them in differential diagnoses. In suspect patients enquire about recent travels and hunting trips. If in doubt about a case, consult the Department of Health. I do not advocate an alarmist attitude, merely awareness to ensure early diagnosis and rapid containment.

If you have a patient with signs and symptoms highly suggestive of suffering, from an African heamorrhagic fever, do not move the patient. Immediately contact the authorities and restrict contact with the patient to as few persons as possible. Wear protective clothing, masks and gloves. Remember infection is usually by contact and not inhalation. *Make a list of all contacts* for follow-up surveillance.

(c) Rabies:

In view of the serious rabies situation in many parts of the country and the publicity the disease has enjoyed, it is worthwhile spending a few minutes on the subject.

No matter what the Department of Health may say on the matter it is the individual doctor who must make the final decission of whether to treat or not.

Administration of anti-rabies (HDCV) vaccine should be initiated as soon as possible in all persons who are considered definitely at risk, namely -

(1) A person bitten by a wild animal of a species known to be a vector of rabies, particularly if such animal makes an unprovoked attack.

(2) A person bitten by a farm animal (horse, cow, pig, etc) which has, or develops, an illness suggestive of rabies, or any person who in handling or treating such an animal suffers a wound which becomes contaminated with the animal's saliva.

(3) A person bitten by a dog or cat in an area where rabies is enzootic and where the animal exhibits clinical signs suggestive of rabies, or develops such signs within the next few days, particularly if the attack was an unprovoked one.

(4) A person attacked and scratched by any member of the cat family (wild or domestic) under circumstances suspicious of rabies, where the skin is definitely penetrated (bleeding).

(5) A person who has a pre-existing wound not more than 24 hours old contaminated with saliva from the rabid animal or who receives such saliva in his or her eyes or mouth or other mucous membranes.

The handling of the person exposed to rabies is set out as follows:

(1) Local treatment of wounds:
First Aid:
Wash wound thoroughly with: water or soap and water or detergent.

Wound R_X by Doctor:
(a) Adequate cleansing of the wound.
(b) Thorough treatment with 20% soft soap or the application of a quaternary ammonium compound or other substance of proven lethal effect on the rabies virus.

Where soap has been used to clean the wounds, all traces of it should be removed before the application of quaternary ammonium compounds because soap neutralizes the activity of such compounds.

Compounds that have been demonstrated to have a specific lethal effect on rabies virus in vitro include the following:-

Quaternary Ammonium Compounds -
1,0% (1:100) benzalkonium chloride (Zephiran)
1,0% (1:100) methyl benzethonium chloride (Hyamine)
1,0% (1:100) benzethonium chloride (Solamine)

Other substances -
43-70% ethanol; tincture of thiomersal; tincture of iodine and up to 0,01% (1:10 000) aqueous solutions of iodine; 20% Soap solutions.
(c) Topical applications of antirabies serum.
(d) Administration, where indicated, of antitetanus procedure and of antibiotics and drugs to control other infections than rabies.
(e) Suturing of wound not advised.
(f) Infiltration of antirabies serum around and in the wound. Of the total dose 50% should be given in this manner, the remainder intramuscularly.

(2) **Antirabies serum** (Rabies immune globuline of human origin) 20 IU/Kg Deep IM once only.

(3) **Antirabies vaccine (H D C V)**
05cc subcutaneous on days, 0, 3, 7, 14, 30 (and 90 if anti-rabies serum was given)

(4) **After adequate pre-exposure immunization:**
Administer vaccine on day 0, 21.
Every attempt should be made to kill the animal and submit the brain to Onderstepoort or to keep it under observation.

(d) Tuberculosis:

I do not want to spend much time on TB. There are, however, four aspects that must be emphasised:

(i) Case-finding and treatment:

As you know we find only one third of the infectious cases in the Republic and we urgently need your and the community's assistance to find the remaining cases.

Our plea to you is to educate your patients regarding TB with the emphasis on symptoms and to have a constant awareness of TB.

For the sake of uniformity we suggest that you concentrate on the following signs and symptoms of TB:

(1) Cough for 3 weeks and longer
(2) Haemoptysis
(3) Loss of weight
(4) Loss of appetite
(5) Pain in chest
(6) Dyspnoea
(7) Night sweats
(8) Lassitude.

All too often a patient is referred to us with advanced TB, following weeks of expensive investigations, only because the Doctor did not consider TB. **To establish the diagnosis we suggest the following:**

Patients with symptoms suggestive of TB:

(1) Chest X-ray
(2) Sputum: 1 Direct microscopy and culture **or** 3 Direct microscopy preferably on consective days (request also culture in case of **one** sputum)

Patients with Pleural effusion suggestive of TB:

(1) Sputum: 1 Direct and culture
(2) Tuberculin test (if negative, unlikely to be TB)
(3) Pleural biopsy

If all tests inconclusive, commence **diagnostic R_X** for TB and review after one month - radiological improvement after therapy may be taken as diagnostic for TB.

(ii) Regular therapy:

Motivate your patients to attend for treatment regularly and for the full period. **Irregular, unsupervised** therapy is still one of our major problems. If no charge is made to the patient by the practitioner we would gladly supply the drugs for administration by the doctor himself.

Treatment could of course also be administered at home under the supervision of a responsible member of the family.

(iii) High risk groups:

You can contribute much to TB-control and your patients well-being by giving special attention to high risk patients in your practice as suggested below:

High risk patients i.r.o. TB:	Preventive measures:
Diabetes Pre/post Gastrectomy Longterm Cortisone R_X	Tuberculin test if (-) give BCG if (+) give INH Regular checks
Old age Alcoholics Stress (Physical, emotional)	Regular checks Investigate any symptoms suggestive of TB
Immuno Suppressive R_X Transplant patients Lingering malignancies	Chemoprophylaxis (INH)
Severe Viral infections	TB awareness Check after 3-4/12

(iv) Interpretation of the tuberculin test

Heaf-test Grade	Mantoux-test Induration	Interpretation/ action
0	0-Less than 5 mm	Negative give BCG
I	5-mm Less than 10 mm	Doubtful give BCG
II	10-mm Less than 14 mm	Positive - not at risk, good protection no action required
III + IV	14 mm plus	Strongly positive, at risk, consider R_X in 0-5 year olds.

(e) Typhoid:

(i) Criteria for diagnosis of typhoid:

As much confusion still exists on this score, I have summarized the criteria for diagnosis as follows:

(1) A **rising** titer - this is diagnostic and/or (2) A titer of 1/200+ (0 antigen) **plus** high fever **plus** relative low WCC (below 6000) **and** clinical picture suggestive of typhoid
and/or (3) A positive culture for S. typhi.

General:

I would **like to stress the importance of notification** in the handling of African Haemorrhagic diseases. As you know **this is your link with the authorities and your input into ensuring** that infectious diseases and other medical conditions are controlled and eliminated. Even the **notification of measles and significance** - at present the numbers are still high but as they come down the authorities will be able to do more focal immunization, and investigate individual each case.

TABLE 1
NOTIFIABLE

HAEMORRHAGIC FEVERS OF AFRICA (HFA)

CONGO FEVER
DENGUE FEVER
EBOLA FEVER
LASSA FEVER
MARBURG FEVER
RIFT VALLEY FEVER

VECTOR/RESERVOIR

ARTHROPOD-BORNE

CONGO FEVER — TICK/MAMMALS
DENGUE FEVER — MOSQUITO/?MONKEYS
RIFT VALLEY FEVER — MOSQUITO/MAMMALS

RODENT-BORNE

LASSA FEVER — MASTOMYS NATALENSIS

UNKNOWN VECTOR/RESERVOIR

MARBURG FEVER*
EBOLA FEVER°

* ASSOCIATION = MONKEYS IS INCORRECT
° ASSOCIATION = BATS SUSPECTED

Your notification helps us measure the effectiveness of our immunization programmes!

Erik Glatthaar, M.B. Ch.B., DPH., DIH., Spec. Prev. Med.

Post-graduate qualifications:
1968 Diploma in Public Health (DPH)
1970 Diploma in Industrial Health (DIH)
1975 Registration as Specialist in Preventive Medicine

Experience:
1962-1964: Houseman and Senior Houseman, Grey's Hospital, Pietermaritzburg
Jan 1965-1966 June: Clinical Assistant, Department of Pathology, University of Pretoria
± July 1966-1974: Assistant Medical Officer of Health, City Council of Pretoria (in charge of Tuberculosis and other communicable diseases)
Jan 1975- June 1977: Senior Research Officer, TB Research Institute, SAMRC.
July 1977-Oct. 1979: Deputy Director (in charge of TB and other communicable diseases) Department of Health
Nov. 1979: Appointed Professor and Head of Department of Community Health, Medunsa.

Publications:
16 Scientific publications.

Other activities/interests:
1. Special interest: Tuberculosis control
2. Chairman of the Co-ordinating Committee on TB Research.
3. Member of the Co-ordinating Committee on Leprosy Research.
4. Member of the Medical Committee and the Technical Advisory Committee of SANTA.
5. Member of the Subcommittee for Health Services for Blacks in White areas (Subcommittee appointed by the Health Matters Advisory Committee)