EDITORIAL

We're entering our second year of ***CPD*** programmes in SA Family Practice. From now on however, we will be presenting you an entirely South African, Family Medicine produced and orientated "Caring for Patients and their Disorders" programme.

This month focuses on 'prevention'. I have extensively quoted from the 1996 Report of the U.S. Preventive Services Task Force (USPSTF): 'Guide to Clinical Preventive Services'[1]. This report uses an evidence-based approach to determine the effectiveness of 176 preventive services. The USPSTF recommends only those preventive services with demonstrated effectiveness in preventing disease, disability or death. The preventive services were also all evaluated on the basis of interventions that are used in actual clinical practice. Where relevant I have also quoted the original sources.

In rigorously evaluating the merits of prevention measures, the 10-member USPSTF rejected the traditional emphasis on a standardized annual physical examination as an effective tool for improving the health of patients. Instead, they emphasized that the content and the frequency of the periodic health exam need to be tailored to the age, health risks and preferences of each patient.

A summary of the recommendations
Specific measures with proven benefits included:

- periodic screening for high blood pressure and cervical cancer,
- counselling about tobacco, alcohol and other lifestyle issues,
- scheduled vaccinations.

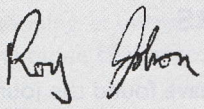
In contrast, the Task Force found little evidence of preventive benefits from tests often included in routine checkups, such as blood tests for diabetes, thyroid disease or anaemia, chest x-rays, electrocardiograms and urine tests.

The Task Force noted the considerable cost of the widespread use of many unproven tests and procedures, such as routine electrocardiograms in healthy adults and ultrasound scans in low-risk pregnancies.

The whole report can be downloaded from the website of the Office of Disease Prevention and Health Promotion, (which forms part of the Department of Health and Human Services in the USA.)

http://odphp.osophs.dhhs.gov/pubs/guidecps/default.htm

A major challenge for Family Physicians in South Africa is to produce evidence-based guidelines for ***this*** region. Apart from building on existing publications, this would require producing research and publishing evidence that can be rigorously evaluated. Our guidelines should probably also include more data on the 'cost-effectiveness' of different interventions – an area which the USPSTF openly states that it did not directly address.



Roy Jobson

Prevention

INTRODUCTION

Family Medicine practitioners sometimes think of 'Prevention' as something that other people primarily do. For some it is synonymous only with 'Pap smears'. Immunisation has, by and large, been delegated to nursing colleagues. Those screening activities such as insurance and 'pre-employment' medicals are also often carried out by a third party. The universal problem of 'lack of time' counteracts even the best attempts at preventive counselling. 'Opportunistic health promotion'[2], however, has been a defined aspect of our function for some time, and is confirmed by the USPSTF in the following words:

Doctors and nurses should try to deliver prevention messages and services during every encounter with their patients, especially for high-risk patients who are often the least likely to see clinicians for routine checkups[1].

One of the five areas of action in the broader concept of health promotion – outlined in the extraordinarily profound 1986 document 'Ottawa Charter for Health Promotion'[3] – is to 'reorient health services'. This is the area that most directly affects Family Physicians. The relevant portion reads:

The health sector must move increasingly in a health promotion direction, beyond its responsibility for providing clinical and curative services. Health services need to embrace an expanded mandate which is sensitive [to] and respects cultural needs.[3]

Clearly, we have a long way to go in South Africa – especially in our rural areas – and our first priority must still be to improve, upgrade and escalate the provision of clinical and curative services.

The challenge we face however is to incorporate 'prevention' into daily practice as part of our everyday consultations, as well as to advocate for prevention to be recognised as a valid activity and legitimate component of the **systems** within which we work. If we do not do this ourselves, it is feasible that outside interests will do so, and doctors (including Family Physicians) will once again be left out in the cold – dictated to by third parties.

Three main areas of preventive services can be delineated[1]:

- Screening
- Counselling
- Immunisation/Chemoprophylaxis

1. Screening
   Screening tests are those preventive services in which a test or standardized examination procedure is used to identify patients requiring special intervention. Non-standardised historical questions, such as asking patients whether they smoke, and tests involving symptomatic patients are not screening tests[1].

2. Counselling
   Counselling interventions are those in which the patient receives information and advice regarding personal behaviors (e.g. diet) that could reduce the risk of subsequent illness or injury. Counselling that addresses the health-related behaviors of persons who have already developed signs and symptoms of the target condition is not considered 'prevention'[1].

3. Immunisation/Chemoprophylaxis
   Immunisations include vaccines and immunoglobulins (passive immunisation) taken by persons with no evidence of infectious disease. Chemoprophylaxis as primary prevention refers to the use of drugs or biologic agents taken by asymptomatic persons to reduce the risk of developing a disease[1].

Our four patient vignettes each demonstrate an aspect of these categories.

Patient 1

Jim Meyer aged 42 is a local farmer. His wife was tragically murdered just over a year ago. He brings you a cutting from a rather dated Sunday newspaper's 'medical column' – written by a well known university academic – which states that it is vital for all men over 40 to have an annual prostate check and a blood test to see if they have prostate cancer. He has a fear of cancer and says he wants you to 'check him out'. He has no urinary symptoms and there is no family history of prostate cancer.

Question 1

What is the evidence for 'checking him out'?

.....

Answer 1

As Mr Meyer is asymptomatic, this would be a screening exercise. The evidence for screening for prostate cancer with digital rectal examinations (DRE), serum tumor markers (prostate-specific antigen – PSA) or transrectal ultrasound (TRUS) is not convincing.

Question 2

What is the evidence for a DRE of the prostate gland to screen for prostate cancer?

.....

Answer 2

DRE is the oldest screening test for prostate cancer. Its sensitivity is limited (increased false negatives) because the examining finger can palpate only the posterior and lateral aspects of the gland[4]. 25-35% of tumors occur in portions of the prostate not accessible to the examining finger. Stage A tumors are anyway, by definition, non-palpable. Some studies report that DRE has a sensitivity of 55-68% in detecting prostate cancer in asymptomatic men[5, 6], but in other studies values as low as 18-22% have been reported[7,8]. The DRE also has limited specificity, producing an increased proportion of false-positive results. **NB:** this information about DRE replaces that in the 'Men's Health' section, SA Family Practice, Volume 21, No 1. September 1999:28.

Question 3

What is the evidence for using PSA as a screening test for prostate cancer?

.....

Answer 3

PSA is not specific for prostate cancer and may be elevated in any prostate disease (prostatitis, benign prostatic hyperplasia, urinary tract infection) giving many false positives. In prostate cancer itself, PSA may not even be elevated, giving a false negative.

Research correlating tumour volume, patient age, and sequential rates of change with PSA have all been carried out. None of these, at this time, are convincing enough to recommend PSA as a screening test for prostate cancer.

Further information

Early detection and treatment does not necessarily convey any benefit in terms of mortality and may contribute to an increase in morbidity. Of men with clinical prostate cancer, 2/3 will die from a cause other than prostate cancer. Impotence and incontinence are dramatic side effects of many treatment options. Both total prostatectomy and radical radiotherapy are potentially curative treatments. However, both have a peri-operative mortality of 0.5%. The reported incidence of impotence after prostatectomy varies between 20% and 85%, depending on definitions for impotence and whether bilateral nerve-sparing techniques are used. Other complications include incontinence (2-27%), urethral stricture (10-18%), thromboembolism (10%), and permanent rectal injuries (3%).

You bear Mr Meyer's recent bereavement in mind when he says he 'doesn't give a damn' about possible impotency if he is found to have a cancer and requires treatment.

Question 4

Mr Meyer insists you go ahead with the tests. What do you do?

.....

Answer 4

While your advice is soundly based on scientific evidence, patient anxiety and earnest requests have to be considered. A basic tenet of Evidence-Based Medicine is that it incorporates individual clinical expertise. This includes the more thoughtful identification and compassionate use of individual patient's predicaments, rights and preferences in making clinical decisions about their care[9].

Screening is more likely to be chosen by men with strong fears of prostate cancer and by those who can accept the risks of incontinence, impotence, and other treatment complications. Screening is less likely to be chosen by men who are sceptical of the risks of cancer and the effectiveness of treatment and who

have strong fears that treatment complications will jeopardize their quality of life[1].

Further History
You do the tests. DRE and PSA are both normal and you advise Mr Meyer accordingly.

Twelve months later he learns that his oldest brother aged 52 has just been diagnosed as having prostate cancer. He and his 74 year old father come to see you. Mr Meyer has met another woman to whom he is to be married in the near future.

Question 5

What can you do now?

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Answer 5
Mr Meyer is now in a higher risk category. First degree relatives have a two-fold increase in the risk of developing prostate cancer. Second degree relatives have a 1.7 increased risk. Although he has a higher chance of developing prostate cancer, the PSA is still a non-specific test, and treatment may not improve the outcome even if you detect a cancer. You discuss this with him as before. You decide together that another DRE would be sufficient. This time the prospect of impotency is not acceptable. (The DRE is negative.)

In terms of his father: most men over age 70, with a life expectancy of just over 10 years, are more likely to die of causes other than prostate cancer. Subjecting these men to the risks of biopsy and treatment is often unwarranted, and many proponents of prostate screening recommend against screening after age 70. In spite of this, radical prostatectomy rates for men aged 70-79 have increased dramatically, and the trend appears to be continuing.

A recent analysis of annual screening after age 50 concluded that screening would result in an average **loss** of 0.7 quality-adjusted life-years per patient screened[10].

Nevertheless, Mr Meyer Snr also insists on having at least a DRE. His prostate, not unexpectedly, is slightly enlarged but otherwise normal. He is not having any urinary symptoms however.

You watch in amusement as the two men leave shaking their heads and talking about the awful experience of having a 'finger up my bum'.

In Summary:
No current evidence indicates that screening for prostate cancer results in reduced morbidity or mortality. This is partly because few studies have prospectively examined the health outcomes of screening.

The natural history of prostate cancer is presently too poorly understood to determine with certainty which cancers are destined to produce clinical symptoms or affect survival, which cancers will grow aggressively, and which will remain latent. Prostate cancer has a complex biology with many unanswered questions about heterogeneity, tumor-host interactions, and prognostic stratification.

In terms of widespread screening:
i) it would subject many men to anxiety from abnormal test results and the discomfort of prostate biopsies;
ii) aggressive treatment for screen-detected cancers would expose thousands of men to the risks of incontinence, impotence, death, and other sequelae without clear evidence of benefit. Decision-analysis models suggest that the negative impact of these complications on quality of life may outweigh the potential benefits of treatment, – although the designs and assumptions of these models are controversial.

The absence of proof that screening can reduce mortality from prostate cancer, together with the clear potential that screening will increase treatment-related morbidity, argues against a policy of routine screening for prostate cancer in asymptomatic men.

COUNSELLING

Objectives of patient education and counselling related to primary prevention are i) changing health behaviours and ii) improving health status. Counselling patients about personal health practices (smoking, diet, physical activity, drinking, injury prevention and sexual practices) remains one of the most underused, but important, parts of the health visit.[1]

Clinicians face important barriers to implementing counselling interventions, such as insufficient reimbursement, provider uncertainty about how to counsel effectively, varying interest on the part of patient or staff, and lack of organizational/system support to facilitate the delivery of patient education.[1]

A growing body of evidence suggests that when people have the confidence that they can improve their health

themselves, they are more likely to do so than those without such confidence.[11] This has been termed 'perceived self-efficacy.'[12]

Patient Education/Counselling Strategies

1. Frame the teaching to match the patient's perceptions.
Consider and incorporate, where possible, the beliefs and concerns of the patient.

2. Fully inform patients of the purposes and expected effects of interventions and when to expect these effects.
Beneficial effects from the intervention may avoid discouragement when immediate benefits are not forthcoming.

3. Suggest small changes rather than large ones.
The rationale for this suggestion comes from self-efficacy theory. Successful persuasion involves not only increasing a patient's faith in her or his capabilities, but also structuring interventions so that people are likely to experience success.

4. Be specific.
Specific informational instructions generally lead to better compliance

5. It is sometimes easier to add new behaviors than to eliminate established behaviors.
For example, if weight loss is a concern, suggesting that the patient begin moderate physical activity may be more effective than suggesting a change in current dietary patterns.

6. Link new behaviors to old behaviors.
For example, taking twice daily prescribed medications when brushing the teeth.

7. Use the power of the profession.
Patients see clinicians as health experts, and they regard what the clinician says as important. The clinician need not be afraid to tell a patient, "I want you to stop smoking." These direct messages are powerful, especially if they are simple and specific.[13] Multiple studies have demonstrated that clinicians' individual attention and feedback are more useful than the news media or other communication channels in changing patient knowledge and behavior. (See patient scenario 2 for an example.)

8. Get explicit commitments from the patient.
By asking patients to describe how the intended regimen will be followed encourages them to begin to think about how to integrate this new behavior into their daily schedule.

9. Use a combination of strategies.
Educational efforts that integrate individual counselling, group classes, audiovisual aids, written materials, and community resources are more likely to be effective than those employing a single technique.

10. Involve other staff.
A team approach facilitates patient education.

11. Refer.
In a busy practice, it may not be possible to do complete patient education and counselling. In some situations, patients are best served by appropriate referrals if these are available and trustworthy.

12. Monitor progress through follow-up contact.
The effectiveness of clinician counselling is improved by follow up within the next few weeks – to evaluate progress, reinforce successes, and identify and respond to problems.

Patient 2

The Modiselle family are part of the 'new middle class', and have recently joined your practice. Seth has a job as 'director' in the local department of housing. He has spearheaded a project which has made a visible difference to the local township. It is a Sunday morning and they come driving up to your surgery in their luxury double-cab 4x4. The whole family piles out. You were looking out of the window as they arrived and noticed that neither Seth nor Mrs Modiselle were wearing seat-belts and that the latest addition to the family, 13-month old Christina was sitting on Mrs Modiselle's lap. Mr Modiselle produces a medical aid card and asks you to do a 'check-up' on the whole family.

You ask him if there are any particular problems. He says that everyone seems to be healthy, but that they haven't used his medical aid for a long time and he thinks that a check-up would be a good idea.

Question 1
How do you respond?

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Answer 1
This will depend entirely on your personality, and your own 'policy' in terms of non-emergency visits on a Sunday. You could ask him if there are any other reasons for needing the check-up.

Further History
He says he believes a check-up will prevent any of them from getting ill in the near future.

Question 2
How do you respond to this?

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Answer 2
One option would be to respectfully yet firmly explain to him that you are only available for 'emergencies' on Sundays (if this is your policy), and that he should make an appointment during your normal working hours (which you detail) for this kind of consultation. (You also need to decide if it is the appropriate time to find out about his particular medical aid's policy on the number of GP visits per year.)

Further History
You then say that as their doctor you have some advice for him that could potentially save his life and those of his family members – and that you will give it to him for free. He asks what you mean, and you tell him that by always wearing his seat-belt and making sure his family does the same, he can do more to prevent both death and severe injury than any 'check-up' is likely to do. Furthermore you suggest that he makes it a priority to buy a good quality baby car-seat for Christina, and point out how dangerous it is for her to sit on her mother's lap in a moving vehicle.

Question 3
What is the evidence for the use of safety belts and other occupant restraints?

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Answer 3
Use of occupant restraints reduces the risk of motor vehicle injury and death. The efficacy of safety belts has been demonstrated in a variety of study designs that include

- laboratory experiments (using human volunteers, cadavers, and crash dummies)
- post-crash comparisons of injuries sustained by restrained and unrestrained occupants
- post-crash judgments by crash analysts regarding the probable effects of restraints had they been used. It has been estimated on the basis of such evidence that the proper use of lap and shoulder belts can decrease the risk of moderate to serious injury to front seat occupants by up to 55% and can reduce crash mortality by 40-50%.

Child safety seats are also effective. Recent studies suggest that child safety seats can reduce serious injury by up to 67% and mortality by as much as 71%. Child restraints may reduce non-crash injuries (e.g. those due to sudden stops) to child passengers by preventing both falls within the vehicle and being thrown out of the vehicle.

However, the efficacy of child safety seats is reduced by improper use and such misuse has been reported in up to two thirds of children. One caution: The safety of child safety seats used in combination with air bags is unknown. Laboratory crash test data indicate a potential for injury to an infant placed in a car seat in the front seat of a vehicle equipped with a passenger-side air bag.

IMMUNISATION

Patient 3

Baby Kekeletso is two and a half months old. She has been brought to your weekly clinic visit by her grandmother because the baby's mother is 'too weak' to bring her in herself. Kekeletso was delivered by a traditional midwife. The grandmother is worried because Kekeletso never had any 'injections' and does not possess a 'Road to Health' card. Kekeletso is being bottle-fed and looks reasonably well-nourished. Clearly the grandmother is the baby's primary caregiver. When you examine her however, you find that her weight is below the third percentile and her milestones are delayed. She also has oral thrush.

Question 1
You suspect Kekeletso may be HIV positive. How do you go about proving or disproving this?

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Answer 1
You have to act on your suspicion as although only approximately 30% of babies born to infected mothers will be infected, all are likely to be ELISA positive. The test measures maternal antibodies that crossed the placenta during pregnancy. A PCR in a baby less than three months of age can give a false negative result.

Question 2
What will you do about her immunisation schedule?

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Answer 2

She has already missed two sets of immunisation – birth and 6 weeks. (Table I)[14] The procedure is to make up any immunisations that she has missed and continue normally. She has thrush however, which may be indicative of AIDS, so the BCG could be omitted. You would give her OPV, DPT, Hepatitis B, and Hib, and treat her oral thrush.

Table I: Immunisation Schedule (Department of Health)

AGE	VACCINE DOSE*
At birth	BCG, OPV0
6 weeks	OPV1, DPT1, HepB1, Hib1
10 weeks	OPV2, DPT2, HepB2, Hib2
14 weeks	OPV3, DPT3, HepB3, Hib3
9 months	Measles1
18 months	Measles2, OPV4, DPT4
5 years	OPV5, DT

*The number that follows the immunisation name (e.g. DPT3) indicates the dose number of that immunisation.

BCG–tuberculosis vaccine
OPV – oral polio vaccine
DPT – diphtheria, pertussis (whooping cough) and tetanus vaccine
HepB–hepatitisB vaccine
Hib – Haemophilus influenza B vaccine
DT – diphtheria and tetanus vaccine
TT – tetanus toxoid

An **effective dose** is one given on time with unspoiled vaccine.

Question 3

How do you ensure that the vaccines taken to or kept in the clinic are effective?

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Answer 3

Become obsessive about maintaining the cold chain. Maintaining the cold chain means keeping vaccines at the correct temperature throughout distribution, storage and use.

1. Correct storage in the fridge (at the hospital or major centre):

- top shelf - measles and polio vaccines in the coldest part
- middle shelf - BCG, DPT, DT, HepB, Hib and TT vaccines (do not freeze) with sufficient diluent for the BCG and measles
- do not let DPT, DT, HepB, Hib and TT vaccines touch the evaporator plate at the back of the fridge – they are destroyed by freezing
- do not keep vaccines in the fridge door
- store the same kind of vaccines together in one tray
- new vaccines should be placed at the back of the shelf so that older vaccines are used first
- leave about 5 cm space between each tray to allow the cold air to circulate
- bottles filled with salt water stored in the bottom of the fridge help keep the fridge contents cold when the door is opened
- do not keep food in the same fridge as the vaccines to avoid unnecessary opening of the door
- monitor and record temperature twice daily (preferably with a maximum and minimum thermometer)
- keep the fridge temperature at 2–8°C

2. Use a cold box to keep the vaccines cold during transport and immunisation

Correct packing of a cold box:

- ice packs are placed on the bottom, at the sides and on top
- if there are not enough ice packs then place available ice packs at the sides and on top of the vaccines
- DPT, DT, TT, HepB and Hib vaccines must not be allowed to freeze – wrap them in paper to protect them
- keep measles and polio vaccines very cold – place on bottom of the cold box, next to the ice packs
- BCG can be placed anywhere in the box
- keep the lid firmly closed and the box out of the sun
- keep a thermometer in the cold box with the vaccines and the temperature 2–8°C
- live vaccines (BCG, OPV, measles) contain weakened organisms and are very sensitive to heat, sunlight and skin antiseptics

3. Cautions

- do not use vaccines that have expired or missed the cold chain
- never allow diphtheria, pertussis, tetanus or Hepatitis B vaccines to freeze – it destroys them: See Table II.

i) If you think that the vaccine has frozen, shake the vial and place it in a cool place where there is enough light to see, but not in direct sunlight. Wait 15 minutes. If the solution is still smooth and cloudy, it can be used.

ii) If the solution at the top is clear, and there is a sediment at the bottom, do not use it.

A Well Packed Domestic Refrigrator

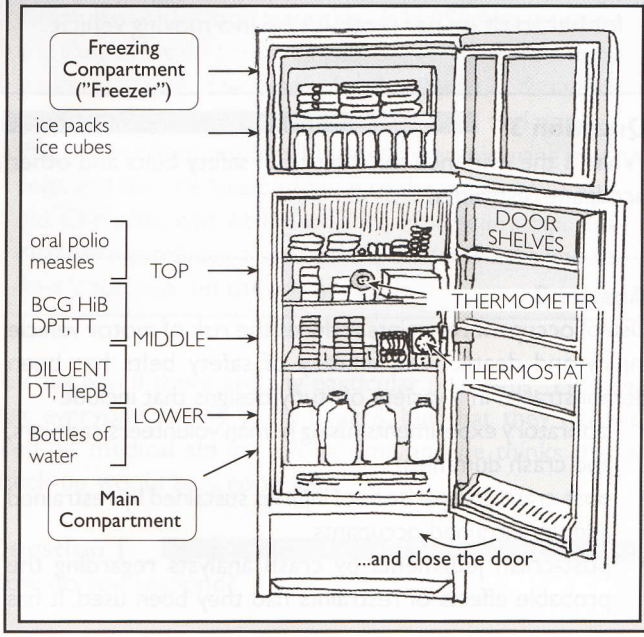

Table II: *Vaccine shake test*

This vaccine is still potent. It may be used	Time	This vaccine is ineffective. Do not use it.
The temperature of this vaccine was always kept between 2°C and 8°C	'Before' (DPT, Hep B, DT or TT	The temperature of this vaccine has fallen below 0°C and has lost its efficacy
The liquid in the container is smooth and cloudy	Now	The liquid in the container contains little particles
The liquid is still smooth and cloudy	After 15 minutes	The liquid is clear at the top. There is a sediment at the bottom of the container
The liquid begins to clear at the top, but there is no sediment	After 30 minutes	The liquid begins to clear at the top. There is thick sediment at the bottom of the container

CHEMOPROPHYLAXIS[15]

Patient 4

A tearful Mrs Selina van Rooyen is three months pregnant. Her mother has just died of a stroke in Mozambique, and is to be buried within the next few days. Selina wants to know what the risks of malaria are and whether she shouldn't just 'take a chance' because she will only be in the area for 'one or two days' at the most, and she's scared of taking any medications so early in her pregnancy. She's also suffering from quite severe 'morning sickness' and just the memory of the 'bitterness' of the malaria prophylaxis she used before makes her want to vomit.

Question 1

How do you respond to her suggestion of just 'taking a chance'?

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Answer 1

Recognise that she is distressed at the loss of her mother, that she is worried about the trip and her pregnancy and acknowledge these. However be quite firm that it would not be wise to take any chances against malaria. She is at increased risk of severe malarial disease because of the pregnancy, and chloroquine-resistant malaria is more prevalent.

Question 2

What advice would you give her about personal protection?

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Answer 2

She should take precautions against being bitten. This would include staying indoors at dusk and dawn; wearing light-coloured clothes that cover her body completely – including her arms and legs – and are impregnated with a synthetic pyrethroid insecticide; applying insect repellants to any exposed skin surfaces, e.g. back of hands, top of feet; sleeping under mosquito nets impregnated with pyrethroid insecticides; being meticulous about closing window and door screens; burning mosquito coils or electric vapourising mats.

Question 3

What chemoprophylaxis would you recommend and how would you prescribe it?

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Answer 3

The 'chloroquine and proguanil' combination. You would prescribe chloroquine 300mg (two tablets) weekly and proguanil 200mg (two tablets) daily. Her first dose should be taken immediately, and continue for four weeks after returning. You suggest she takes the medication with a small amount of food if possible. If she is actually vomiting from her morning sickness she may have to repeat the dose if it comes up within the first hour.

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