six months. (3) Introduce other foods together with continuing, so-called "prolonged" breast-feeding (two to three years) from four to six months together with the most locally appropriate technological contraceptive which has no adverse effect on lactation (for example, especially excluding oestrogen preparations).

Breast milk production from six months to two or more years has been shown to supply a small but very important nutritional supplement.¹⁴ Conversely, breast-feeding alone and unsupplemented into the second year of life has long been recognised as a problem in parts of India¹⁵ and Bangladesh, leading to "late marasmus." From a more flexible viewpoint the appropriate age at which technological contraceptives are needed to reinforce the waning effects of breast-feeding varies with the community and the many details of local infant feeding practices, essentially with their influence on sucking stimulation and prolactin secretion. There is in fact a gradient from the !Kung to the partially breast-fed to the entirely bottle-fed.

In breast-feeding communities the usual length of lactation amenorrhoea in the particular society minus two months seems a reasonable rule-of-thumb for introducing technological contraceptives, allowing for the well recognised anovulation that can occur before menstruation. Indeed, it is our view that the bacteriologically and endocrinologically dangerous time for introducing foods other than human milk, and hence the need for technological contraceptives, may often be later than currently believed. Ultimately this hinges on a balance of risks and benefits.

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- ¹ Harcourt AH, Fossey D, Stewart KJ, Watts DP. *J Reprod Fertil (Suppl)* 1980;28:59-70.
- ² Jelliffe DB, Jelliffe EFP. *J Pediatr* 1972;81:829-30.
- ³ Jelliffe DB, Jelliffe EFP. *Human milk in the modern world*. Oxford: Oxford University Press, 1978.
- ⁴ Short RV. *The biological basis for the contraceptive effects of breast feeding*. Geneva: WHO (in press).
- ⁵ Howell N. *The demography of the Dobe !Kung*. New York: Academic Press, 1979.
- ⁶ Howie PW, McNeilly AS. *Europ J Clin Invest* 1979;9:237-8.
- ⁷ Bongaarts J. *Science* 1980;208:564-9.
- ⁸ Delgado H, Martorell R, Klein RE. *Am J Clin Nutr* 1982;35:1468-76.
- ⁹ Jelliffe DB, Jelliffe EFP. In: Blix G, Hofvander Y, Vahlquist B, eds. *Famine—nutrition and relief operations in times of disaster*. Uppsala: Almqvist and Wiksells, 1971.
- ¹⁰ Howie PW, McNeilly AS, Houston MJ, Cook A, Boyle H. *Br Med J* 1981;283:757-9.
- ¹¹ Kippley SA, Kippley JF. *Breast feeding and natural child spacing*. New York: Harper and Row, 1974.
- ¹² Underwood BA, Hofvander Y. *Acta Paediatr Scand* 1982;294:1-32.
- ¹³ Jelliffe DB. *Infant nutrition in the subtropics and tropics*. Monograph No 29, 1st Ed. Geneva: WHO, 1955.
- ¹⁴ Rohde JE. *Paediatr Indones* 1975;14:198-202.
- ¹⁵ Jelliffe DB. *Pediatrics* 1957;20:128-33.

Sulpiride improves inadequate lactation

SIR,—On reading the research by Professor O Ylikorkala and others (24 July, p 249) I was surprised to find that tests with drugs are being considered useful in improving breast-milk yields, while the usual method used by mothers—that is increasing the number and frequency of nursings—was not mentioned.

The significant factor in the study—the number of nursings a day—was mentioned in the table. None of the babies in the test group was nursed more than seven times a day, and

some as few as four times a day. The average was 5.3 ± 0.3 . There are some babies who can maintain their mother's milk production at a level adequate for growth and contentment on nursings as infrequent as this, but they are rare and should not be considered the norm.

In countries where breast-feeding is unrestricted babies may nurse every hour day and night with little disturbance to the mother. In the less supportive culture of the West embarrassment, ignorance, and the habit of bottle-feeding combine to separate mother and baby and restrict the number of feeds given in the 24-hour period. Still many mothers find it quite possible and very restful and relaxing to nurse their babies upwards of eight times a day.

Mothers often find it helpful to discuss with a group of other mothers the practical problems involved in arranging sleeping quarters so that mother and baby can sleep close together, choosing clothes for discreet nursing away from home, and so on. The emotional support of a friendly peer group can also provide the key to successful lactation in a non-supportive culture. The self-help organisation for breast-feeding mothers, La Leche League (Box BM 3424, London WC1V 6XX), is particularly useful in this context.

This raises the question of why the medical community should be investigating the effects of drugs on lactation rather than the simpler but cheaper management techniques used by women. Doubtless the answer is partly technical, since measurement of breast-milk quantities in the intimacy of successful lactation is impossible. Partly no doubt it is financial since no-one stands to make a profit out of successful breast-feeding (although the benefits to the community in financial terms are evident.) The political aspect should not be ignored, however. Taking politics in its widest sense as relating to power and control, successful breast-feeding managed and supported by women places power in the hands of women. Dependence on drugs for the maintenance of lactation places power (and money) in the hands of corporations. It is worth thinking about.

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SIR,—The study by Dr O Ylikorkala and colleagues on the value of sulpiride to improve lactation performance by increasing prolactin secretion (24 July, p 249) is a valuable contribution to knowledge of substances which can enhance lactation (galactogogues). Throughout the ages methods to improve lactation have occupied much attention in many and widely diverse populations. An ancient Slavonic galactogogue was for the mother to tickle and catch a trout and to swallow it. Larvae of blow flies, cuttlefish soup, dried udder of goat, and even the husband suckling were remedies widely used in not so ancient China.¹ Perhaps the simplest galactogogue, however, is the most effective—the baby who suckles when and as often as it wants to.

The most frequent explanations mothers in Britain give for stopping breast-feeding early and introducing complementary foods are that they are not able to make enough milk (a truly remarkable admission, surely, at a time when our mothers enjoy better health during pregnancy than ever before) and their babies cry after a feed or wake early before the next feed. What many mothers, in company with all too

many doctors and nurses, seem not to realise is that frequent suckling is in fact vital to allow the mother to continue to provide adequate amounts of milk. Studies in Zaire by Delvoye *et al* of lactating mothers between two and 22 months' postpartum have shown that basal prolactin concentrations correlate well with the frequency of suckling.² Suckling more than six times a day results in basal prolactin concentrations which are unchanged for about 12 months. When the number of breast-feedings fall to four to six there is a marked decline in basal prolactin concentrations. The mothers in the Finnish study suckled only an average of five times a day at the time of entry into the study, so is it surprising that breast-feeding performance was so precarious? It would therefore have been interesting had Ylikorkala included a third group—namely, babies who were simply put to the breast more often.

Failure of breast-feeding in Britain does not always lead simply to a change to bottle-feeding. Inadequate breast-feeding is also an important cause of failure to thrive.³ In some of these babies breast-feeding takes place only three or four times a day. On some occasions when these babies are made to feed more often they begin to thrive, indicating improved lactation performance. Natural means of improving milk production need to be considered alongside artificial methods, particularly if the latter result in young babies receiving, in breast milk, drugs whose metabolic effects are not fully understood.

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- ¹ Platt BS, Gin SK. *Arch Dis Child* 1938;13:343-52.
- ² Delvoye P, Demaegd M, Delogne-Desnoek J. *J Biosoc Sci* 1977;9:447-51.
- ³ Davies DP. *Lancet* 1979;ii:541-2.

Postmenopausal osteoporosis

SIR,—Your leading article on postmenopausal osteoporosis (28 August, p 585) highlights the pain and suffering in women that are the result of this process and emphasises the great cost of treatment. That prevention is possible by the administration of oestrogens is now accepted, but whether it will be easy to persuade fit postmenopausal women to take oestrogens and progestogens with the nuisance of monthly withdrawal bleeding remains to be seen. Perhaps those who have undergone hysterectomy would be more willing to take oestrogens, probably with progestogens, for 10-20 years, provided that the fear of breast cancer can be dispelled.

The main difficulty will be to reverse the adverse publicity regarding the risks of thromboembolism, believed to be associated with the ordinary combined oral contraceptive. It is very galling for the practising gynaecologist to have one of his most effective drugs rejected by his patient because of the fear of thrombosis and myocardial infarction; this is especially so when the older woman takes an oestrogen/progestogen preparation not greatly different in dosage for menopausal symptoms.

The dose of oestrogen that may help women depends, I believe, on their biological age. The younger woman requires a reasonable amount to suppress ovulation; her elder sister needs a little less; while the middle-aged woman might continue to take a perimenopausal

pausal pill to control dysfunctional bleeding and hot flushes. If this was an accepted prophylactic many women would avoid hysterectomy for dysfunctional bleeding. Then after the age of 52 the postmenopausal pill containing even less oestrogen would, could, and maybe should be taken for many years to reduce the chances of myocardial infarction and osteoporosis. All this is I suppose contingent on women giving up smoking cigarettes.

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SIR,—I would like to comment on two aspects of the leading article by Dr J C Stevenson and Dr M I Whitehead (28 August, p 585). They strongly advocate the use of long-term oestrogen preventive treatment and accuse doctors of managing the condition "too conservatively." It is important to try to balance the risks against the benefits of treatment.

Benefits although real may not be so great as is claimed. We have at present only three patients out of a practice population of 8300 suffering from disabling clinical osteoporosis: two secondary to rheumatoid arthritis and one to prolonged treatment with corticosteroids. Limb fractures are much commoner, and perhaps half of these could be prevented by oestrogens.

Against these benefits must be set the possible complications of treatment. I do not agree that "The risks of oestrogen treatment have been overstated." A multicentre long-term surveillance of mortality and cancer incidence is in progress under Professor Vessey of the department of community medicine and general practice, Oxford. Most family doctors would prefer to await the conclusions of this research before exposing their patients to unknown risks.

Calcium supplements offer an alternative form of treatment which is probably safe and certainly cheaper. Two studies have shown that calcium is at least partly effective in the treatment of osteoporosis. One of the references quoted by Dr Stevenson and Dr Whitehead¹ in fact showed that calcium was intermediate in effect between oestrogen and placebo. A further study supports this view.²

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¹ Horsmann A, Gallagher JC, Simpson M, Nordin BEC. *Br Med J* 1977;iii:789-92.

² Albanese A, Edelson A, Lorenze E, Woodhall M, Wein E. *NY State J Med* 1975;75:326-36.

SIR,—Two of the recently suggested aetiological factors and possible agents for treatment of osteoporosis not mentioned in the article by Dr J C Stevenson and Dr M I Whitehead (28 August, p 585) are copper and vitamin K.

The link between copper and osteoporosis has been suggested by animal and human data. Copper deficiency in animals has been shown to lead to increased absorption of bone and histological changes similar to those found in patients with osteoporosis.¹ Similarly, bone changes have been noted in infants with copper deficiency, and these revert to normal on copper replacement.² Although no study so far has looked at copper in patients with postmenopausal osteoporosis, it has been

suggested that such a link should be investigated.³

The importance of vitamin K in osteoporosis is suggested by the fact that vitamin K is an essential cofactor for the microsomal enzyme carboxylase, which converts glutamic acid to γ -carboxyglutamic acid,⁴ which is present in the matrix of the bone.⁵ The γ -carboxyglutamic-acid-containing protein in the bone, osteocalcin,⁶ has calcium-binding sites.⁷ In vitamin K deficiency it has been shown that glutamic acid is not carboxylated and the non-carboxylated sites exhibit very weak reaction with calcium ions.⁷ The facts which support its use in osteoporosis are: (1) vitamin K reduces calcium excretion in patients with osteoporosis⁸; (2) increase in osteocalcin results in increase in bone density⁹; (3) osteoporosis of old age or that associated with steroid treatment exhibits increased urinary γ -carboxyglutamic acid, which reflects increased breakdown of osteocalcin, the vitamin-K-dependent protein.¹⁰

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¹ Baxter JH, Van Wyk JJ, Follis RH. *Bull Johns Hopkins Hosp* 1953;93:25-31.

² Ashkenazi A, Levin S, Djaldeiti M, Fishel E, Benvenisti D. *Paediatrics* 1973;52:524-33.

³ Golden MHN, In: Exton-Smith AN, Caird FI, eds. *Metabolic and nutritional disorders in the elderly*. Bristol: John Wright, 1980:45-57.

⁴ Larsen AE, Suttie JW. *Proc Natl Acad Sci* 1978;75:5413-6.

⁵ Stenflo J. *J Biol Chem* 1973;248:6325-32.

⁶ Houschka PV, Lian JB, Gallop PM. *Trends in Biochem Sci* 1978;3:75-8.

⁷ Stenflo J. *J Biol Chem* 1972;247:8167-75.

⁸ Tomita A. *Clin Endocrinol* 1971;19:731-6.

⁹ Lian JB, Reit B, Roufosse AM, Glimcher MJ, Gallop PM. In: Suttie JW, ed. *Vitamin K metabolism and vitamin K dependent proteins*. Baltimore: University Park Press, 1970:237-44.

¹⁰ Gallop PM, Lian JB, Houschka PV. *N Engl J Med* 1981;306:1460-6.

Hypertension: comparison of drug and non-drug treatments

SIR,—The meta-analytic review of hypertensive treatments by Dr Gavin Andrews and others (22 May, p 1523) is informative and necessary for the promulgation of effective non-pharmacological treatment of hypertension. It should, however, be noted that by differentiating treatment modality and effect size much information regarding the potential interactive effects of combined regimens is lost. Thus, the interpretation of Andrew's meta-analysis is limited in scope. It fails to consider the many instances where combining treatment techniques is both desirable and effective. Even in the case of drug treatment, the use of various non-pharmacological adjunctive techniques often potentiates the lowering of blood pressure. Furthermore, the effects of combined non-pharmacological treatment become even more important in light of typical compliance to drug therapy—that is, about 50%.¹

The fact that Andrews *et al* support the use of non-pharmacological interventions for hypertensive patients is highly commended. Yet the approach physicians should take in treating mildly hypertensive patients is not answered solely by the analysis of individual treatment effectiveness. Efficacy of any kind of therapy is regulated by a number of factors above and beyond the specific technique. Therefore, the advocacy of a single regimen to decrease blood pressure in all patients is unwarranted. Whether or not weight reduction, yoga, muscle relaxation, exercise training,

biofeedback, salt restriction, or a combination thereof is most effective depends in part on the individual as well as the practitioner. Factors such as patient expectation, level of compliance, motivation, etc, comprise important variables which are considered all too infrequently.² Therefore, individuation of treatment to the patient is advocated. This would include the integration of various treatment packages with individual patient characteristics. Of course, such a procedure requires more time, but improved effectiveness is the pay off. Whether this question of cost effectiveness is worth while is undoubtedly left up to the individual physician. After all, the treatment of choice must be integrated with his or her personality as well.

Evidence supporting the individuation of treatment in areas outside hypertension, along with the authors' firm conviction that treatment is enhanced through the consideration of personality variables³⁻⁵ (both of the patient and the physician), provided the impetus for this letter.

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¹ Foster SB, Kousch D. *Nursing Clinics of North America* 1981;16:331.

² Frank J. *Persuasion and healing*. Baltimore: Johns Hopkins University Press, 1973.

³ Frank J. *American Journal of Psychotherapy* 1971;25:350-61.

⁴ Strupp HH. *Psychotherapy: Theory, Research, and Practice* 1978;15:314-7.

⁵ Lazarus AA. *Psychotherapy: Theory, Research, and Practice* 1978;15:359-60.

Do alcoholics recover?

SIR,—As Dr WH (7 August, p 443) points out, surely the question is not "Do alcoholics recover?" (3 July, p 3) but "How do (a considerable proportion of) alcoholics recover?" Clearly alcoholics "Do not . . . inevitably slide downhill . . . with few if any recovering"; but even nowadays (though less so than in the past) this utterly false stereotype still contributes to the lack of interest of doctors in the fate and management of alcoholics. Not surprisingly therefore many doctors may indeed "seldom meet recovered alcoholics," but those doctors (such as the members of the British Doctors' Group, referred to by Dr E D McConnell (7 August, p 443)) who assist problem drinkers and, of course, also the members of Alcoholics Anonymous all meet a great many recovered alcoholics. I have been privileged to observe the steady progress of quite a number of alcoholics treated in the Warlingham Park Unit in the 1950s¹⁻³ who have maintained their sobriety and with it a healthy, contented lifestyle (to the great benefit also of their families) for nearly three decades. Incidentally, the treatment results of these patients²—one-third recovered, one-third improved, one-third unchanged—are very much in line with those various studies referred to in your leading article.

Undoubtedly some alcoholics recover without treatment or, as reported by Orford and Edwards,⁴ with the help of detailed, judicious, and informed advice—although these authors' finding that (mainly outpatient) treatment gave no better result than expert "advice" was obtained in a special group of alcoholics—that is, still living with their wives. Whether such results also apply to prognostically less