this context roentgenstereophotogrammetry is a valuable tool and merits a controlled study.

Meanwhile, revision cases have increased from 4% to 54% over the past 14 years in my experience with referrals forming the bulk of these cases. The fact that total throughput has also increased is the result of establishing methods of management and having the support of an excellent team.

Mr Bulstrode is correct that after 25 years the Charnley hip is still the gold standard. With 25 year follow up only two months away the revision rate for mechanical complications in patients given Charnley hips in the centre for hip surgery stands at 3%, and strides have been made since 1962. Interestingly, in the first six years that the method was used, when some 2500 operations had been carried out, there were no revisions for loosening of the components or fracture of the stem. This basic standard has yet to be equalled, let alone surpassed.

The success of the Charnley operation is such that demand and expectations are increasing. It is illogical to imagine that any artificial joint will last for ever, and detailed study of every aspect is essential for the benefit of future patients and surgeons. My experience over the past 18 years has shown that patients appreciate open discussion, indefinite follow up, and revision surgery, provided that they have been taken into confidence at every stage and are informed of the progress being made in this form of treatment.

Failure to grasp this opportunity will be to the detriment of the patients and the profession. Oxford region is to be congratulated on its foresight in appointing a consultant in total hip arthroplasty, revision, and research. Let us hope that the consultant selected will now be offered the necessary support and facilities and that others follow the example. It is by selecting and supporting committed surgeons that progress will be made and problems avoided.

B M WROBLEWSKI

Wrightington Hospital,
Lancashire WN6 9EP

Should sympathomimetics be available over the counter?

SIR,—As a consultant to the United States Food and Drug Administration, I attempted to further the agency's efforts to restrict the availability of amphetamine look alikes containing ephedrine, caffeine, and phenylpropanolamine. I was therefore surprised at the intemperate and incorrect stance taken by Dr Andrew Whitehouse (23 May, p 1308).

My associates and I have recently reviewed the 10 year American experience of amphetamine fakery.[1] By examining the street drug market we found that users' problems were social and moral; there was no evidence that drug dependence was an important issue. Surprisingly, sparse validation exists that the contents of these products are highly toxic. Phenylpropanolamine, an ingredient that has received criticism, has minimal stimulant properties, a fact documented in earlier reports and current experimental reports.[2-4] Recent writers about phenylpropanolamine seldom consult the considerable pharmacological literature comparing the drug with amphetamine.[5] The published reports inevitably show that phenylpropanolamine is as different from amphetamine as night is from day.

Dr Whitehouse cites a few references to illustrate that sympathomimetics are dangerous and even fatal, yet most of these papers discuss products containing sympathomimetics in combination with anticholinergic-antihistamine drugs. I cannot find a convincing report to prove that an overdose of pseudoephedrine or norephedrine (phenylpropanolamine) alone has ever been fatal. I can, however, find proof that a fatal danger of overdose exists with such atropinic drugs as chlorpheniramine, isopropamide, and scopolamine. I believe that it is well documented that toxicity caused by Ornade is secondary to its atropinic ingredients[6]; authors are prone to attribute its toxicity to sympathomimetics. Dr Whitehouse cites a paper that appeared in the *BMJ* with the provocative title "Fatal overdose to phenylpropanolamine."[7] This described a patient who attempted to commit suicide by taking Contac 400, a preparation containing phenylpropanolamine and belladonna alkaloids. The authors obviously (and probably wrongly) attributed death to phenylpropanolamine but did discuss the belladonna. They compounded their erroneous reporting by citing other reports of deaths caused by such combination products (Ru-Tuss and Ornade), implying that the toxicity was solely attributable to phenylpropanolamine.

Dr Whitehouse makes his case for the national problem in the United States by citing two papers by Lake *et al* and one by Dougherty.[8-10] The two papers by Lake *et al* reviewed the possibility that look alikes might contribute to psychiatric illness and contained responsible speculations. These papers are all review articles generated in response to a single case.[11] The young man in question, who had a family history of mania, presented in a manic state after consuming a black capsule with unknown ingredients.

Dougherty's paper is the only publication, to my knowledge, that describes a pattern of habitual use of look alikes with unknown ingredients in three drug abusing patients. Dougherty has suggested (personal communication) that the likely reinforcing ingredient was caffeine as these three and other patients did not enjoy using the products containing only phenylpropanolamine now sold in the United States. In a recent description of patients who may have died because of massive overdoses of look alikes the authors attributed death to caffeine, although ephedrine was also often present; phenylpropanolamine[12] was not.

Contrary to Dr Whitehouse's statement, consumption of over the counter sympathomimetics is not even a minor abuse problem in the United States. The problem in the United States, such as it was, was resolved without making these products available only by prescription. I suggest that such zealous overregulation of a group of products that meet the safety characteristics for over the counter drugs should be avoided in the United Kingdom as well.

JOHN P MORGAN

City University of New York Medical School,
New York 10031

1 Morgan JP, Wesson DR, Puder KS, Smith DE. Duplicitous drugs: the history and recent status of look alike drugs. *J Psychoactive Drugs* 1987;19:21-32.
2 Fairchild MD, Alles GA. The central locomotor simulatory activity and acute toxicity of the ephedrine and norephedrine isomers in mice. *J Pharmacol Exp Ther* 1967;158:135-9.
3 Schulte JW, Reif EC, Bacher JA, Lawrence WS, Tainter ML. Further study of central stimulation from sympathomimetic amines. *J Pharmacol Exp Ther* 1941;71:62-74.
4 Griffiths RR, Brady JV, Snell JP. Relationship between anorectic and reinforcing properties of appetite suppressant drugs: implications for assessment of abuse liability. *Biol Psychiatry* 1978;13:283-90.
5 Puder KS, Morgan JP. Persuading by citation: an analysis of the references of fifty three published reports of phenylpropanolamine's clinical toxicity. *Clin Pharmacol Ther* 1987;42:1-9.
6 Rumack BH, Anderson RJ, Wolfe R, *et al*. Ornade and anticholinergic toxicity: hypertension, hallucinations and arrhythmias. *Clinics in Toxicology* 1974;7:573-81.
7 Logie AW, Scott CM. Fatal overdosage of phenylpropanolamine. *Br Med J* 1984;289:591.
8 Lake CR, Alagna SW, Moriarty K, Quirk RS, Gamble E, Reid A. Use and abuse of look alike stimulant drugs. *Medical Journal of the United States Army* 1985;42:16-20.
9 Lake CR, Quirk RS. CNS stimulants and the look alike drugs. *Psychiatr Clin North Am* 1984;7:689-701.
10 Dougherty RJ. Pseudo speed: look alike or pea shooters. *NY State J Med* 1982;1:74-5.
11 Lake CR, Tenglin R, Chernow B, Holloway HC. Psychomotor stimulant induced mania in a genetically predisposed patient: a review of the literature and report of a case. *J Clin Psychopharmacol* 1983;3:97-100.
12 Garriott JC, Simmons LM, Poklis A, Mackell MA. Five cases of fatal overdoses from caffeine-containing "look-alike" drugs. *J Anal Toxicol* 1985;9:141-3.

AUTHOR'S REPLY—I argued that over the counter sympathomimetics are abused and induce psychoses. Dr Morgan does not address himself to this but takes an opportunity to defend the safety record of phenylpropanolamine, which was just one of the drugs referred to. Furthermore, Dr Morgan does not seem to understand the distinction between drug abuse and drug dependence. He tells us that with respect to look alikes there was no evidence of drug dependence. At no point in the article do I claim that over the counter sympathomimetics are drugs of dependence, but I discuss their abuse. The fact that ephedrine is abused should not be surprising as it has been shown in man to be capable of producing the same subjective and physiological effects as amphetamine under double blind conditions.[1] I am not aware of a similar study of phenylpropanolamine, which is a weaker stimulant of the central nervous system. Such a study would need to assess the subjective effects of phenylpropanolamine alone and in combination with other sympthomimetics and caffeine, as a synergistic reaction between phenylpropanolamine and caffeine has been postulated by Lake *et al*, who pointed out that the likelihood of ingesting phenylpropanolamine with caffeine is high.[2]

Dr Morgan is critical of a report of an overdose of Contac 400, as a result of which a 15 year old girl died, showing the features of the adult respiratory distress syndrome.[3] He rightly points out that the role of belladonna alkaloids should have been examined. I have been unable to find any evidence that anticholinergic drugs alone are associated with the adult respiratory distress syndrome, but a sympathomimetic has been reported to cause this condition.[4-6]

If the problem of abuse of over the counter sympathomimetics in the United States was as minor as Dr Morgan suggests I fail to see why it was necessary to hold congressional hearings about it. Dr Morgan's assessment is at variance with that of Lake *et al*, who state, "Abuse of the stimulant look-alikes represents a serious problem in the United States."[2]

The abuse of over the counter sympathomimetics and the resultant psychoses are well documented,[7-9] and such reports continue to appear.[10-12]

ANDREW WHITEHOUSE

University of Cambridge Clinical School,
Addenbrooke's Hospital,
Cambridge CB2 2QQ

1 Martin WR, Sloan JW, Sapira JD, Jasinski DR. Physiological, subjective and behavioural effects of amphetamine, methamphetamine, ephedrine, phenmetrazine, and methylphenidate in man. *Clin Pharmacol Ther* 1971;12:245-58.
2 Lake CR, Alagna SW, Moriarty K, Quirk RS, Gamble E, Reid A. Use and abuse of look alike stimulant drugs. *Medical Journal of the United States Army* 1985;42:16-20.
3 Logie AW, Scott CM. Fatal overdosage of phenylpropanolamine. *Br Med J* 1984;289:591.
4 Stevens JH, Raffin TA. Adult respiratory distress syndrome. I. Aetiology and mechanisms. *Postgrad Med J* 1984;60:505-13.
5 Davies DM. *Textbook of adverse drug reactions*. Oxford: Oxford University Press, 1981.
6 Marsden P, Sheldon J. Acute poisoning by propylhexedrine. *Br Med J* 1972;i:730.
7 Lake CR, Alagna SW, Quirk S, Moriarty KM, Reid AA. Does phenylpropanolamine cause psychiatric disorders? In: Morgan JP, Kagan DV, eds. *Phenylpropanolamine: risks, benefits and controversies*. New York: Praeger, 1985:285-314.
8 Chapple PAL. New drugs of addiction. *Br Med J* 1965;ii:108.