extrapolate these results to humans has proved difficult to resist.

The drug point in this week's journal by Anderson-Hunt and Dennerstein is the first to suggest that oxytocin can stimulate sexual behaviour in humans (p 929).[10] It has several remarkable features. One reason why the psychopharmacology of peptides in humans has been slow to develop is that peptides given peripherally including oxytocin[11] do not usually cross the blood-brain barrier easily.

So how could oxytocin reach the brain of the patient to stimulate her sexual desire? One explanation might be that the effect was a peripheral one; but thousands of women have been given this compound intravenously to induce labour—surely someone would have reported it before, even though endocrine (and environmental) conditions of women in whom labour is induced are different from those of the woman described here. Several years ago reports suggested that substances given as intranasal sprays entered the brain by a privileged route.[12] Though this has proved difficult to establish with certainty, it might be important that, in the case reported, oxytocin was sprayed into the nose.

But there is another oddity. The aphrodisiac effects of the spray were seemingly observed only while the patient was taking the contraceptive steroid levonorgestrel. Levonorgestrel has both progestogenic and oestrogenic actions.[13] In experiments the behavioural effects of oxytocin are relatively slight in the absence of oestrogen. But it must be presumed that the patient secreted her own oestrogen after she stopped taking levonorgestrel. However, levonorgestrel—like some other 19-norprogestins—also has appreciable androgenic activity.[14] Clinical and experimental evidence exists that androgens can stimulate sexual behaviour in women and female monkeys[15-17]: might this have been a factor? Is there synergy between androgens and oxytocin in human sexuality?

As the authors point out, overinterpretation of a single, uncontrolled case should be resisted. We know enough of the hazards of premature conclusions, and of the requirements for well designed studies on substances suspected of having appreciable behavioural effects in humans, to want to see more acceptable evidence. But there is a new psychopharmacology waiting, provided we can develop compounds that reach the brain and act specifically on individual systems that contain peptides. There are signs that this age is about to begin.

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Opportunities for non-fundholders

Nottingham shows the way

See article on p 930

Nearly 25 000 general practitioners currently remain non-fundholders[1] (Scottish Office and Northern Ireland Office, personal communication). They include those who find the prospect of fundholding unacceptable, impractical, or irrelevant but who remain committed to securing the highest quality care possible for their patients.[2] Both the General Medical Services Committee[3] and the Royal College of General Practitioners[4] have encouraged general practitioners to use the internal market to the benefit of their patients, and participation on commissioning or advisory groups has provided opportunities for translating these ambitions into action.

The Nottingham Non-Fundholders Group was formed to make the best use of the opportunities provided by the purchaser-provider system to benefit patients; on p 930 members describe its formation and early achievements.[5] It is not alone; the recently formed National Association of Commissioning General Practitioners identified 42 groups after a single letter to the *BMJ*.[6] Those expressing initial interest represented over 4000 general practitioners responsible for the care of 7·6 million people. The association is aware of a further 25 groups (R Singer, personal communication).

As Graffy and Williams argued, to permit effective purchasing on behalf of non-fundholders, general practitioners must be prepared to cooperate with each other and to mandate representatives to conduct day to day negotiations with purchasing agencies.[7] What is needed is a cadre of committed, enthusiastic general practitioners, determined to make the system work. Many of these doctors will need to acquire new skills[8] to enable them to participate effectively and to take a broader view of health care than the traditional and proper preoccupation with the patient of the moment. Effective purchasing will not become a reality unless purchasing agencies are prepared to work closely with general practitioners and to act on their advice unless there are explicit and compelling reasons to the contrary.

Purchasing agencies must recognise that participating general practitioners will need managerial and financial

support. Such support will include sufficiently accurate information to allow informed, competent decisions and financial recompense for the time and energy required by this new area of work. In addition, representatives of fundholders and non-fundholders will need to cooperate and have access to specialist advice.

The Nottingham group may be succeeding because most of these criteria have been fulfilled, but even when these conditions are achieved some groups will find themselves in difficulty. Clear agreement on the exact status of each group, its scope for action, and the limitations of its power are essential. In contrast with fundholding practices and the newly emerging "multifunds," non-fundholding groups are only advisory to purchasing agencies. Clarity about the nature of this relation should help sustain advisory groups and prevent breakdown in the more difficult debates about resources. Doctors will need to experience early positive results from their work; suspicion that consultation is purely cosmetic will produce early disillusionment. Anecdote and some reports suggest that such disillusionment is not unusual.[7]

Such groups face other problems. The Nottingham group rightly recognises the difference between purchasing and planning, and ways must be found of restoring to every health authority and health board a coherent planning function, involving not only non-fundholding groups but also fundholding practices and multifunds where they exist.

Groups will be motivated by aspirations to guarantee equity of access, but defining and proving inequity has proved difficult. To ensure equity requires rigorous contracting and, better, more accessible information than often seems available to non-fundholders at present. Furthermore, although the debate about inequity has focused on the impact of fundholders' purchasing decisions, unpublished reports suggest that some non-fundholder groups have achieved quicker access to secondary care than fundholders. The profession will surely not tolerate this variety of twotierism.

The climate of continuing change is not conducive to the establishment of satisfactory working practices and good relations, and commissioning groups need a period of stability. The function of a group may be undermined if the agency is simultaneously exploring alternative arrangements to secure advice for general practitioners.

Finally, the leaders of general practitioner advisory groups will need to maintain the validity of their mandate, and therefore of their advice, by frequently rechecking that the arrangements they are negotiating are indeed in line with colleagues' views.

The internal market seems with us for the foreseeable future,[9] and some have argued that general practitioners need to get involved or risk isolation.[10] A period of rigorous evaluation of all systems of purchasing remains essential, but the Nottingham non-fundholders have described a model that may merit wider application.

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Plague in India

Lessons for public health everywhere

See news on p 897

After decades with no confirmed human plague in India, health authorities there are simultaneously responding to outbreaks of bubonic and pneumonic plague in rural and urban populations of the south central and southwestern states of Maharashtra and Gujurat. A major concern is the spread of disease by travellers from these epidemic foci.[1] Worldwide, public health authorities have been trying to prevent the introduction of pneumonic plague within their borders, requiring national disease surveillance and quarantine offices to operate on emergency schedules dealing with a situation with which almost none has any first hand experience.[2]

Public fascination, confusion, and incredulity have been fuelled by press reports. A mass exodus including hospital patients and even staff themselves has occurred from the epicentre of the outbreak of pneumonic plague despite regular pronouncements by the medical community that plague is readily treated with antibiotics. Assurances of the effectiveness of public health measures have seemed incongruous given the explosive spread of disease, which authorities have been slow to confirm and explain. Doctors and public health workers have quickly tried to educate themselves about a disease they had long considered in the past tense. And everyone asks, "How could this happen?"

Plague is caused by infection with *Yersinia pestis*, a bacterium carried by rodents and transmitted by fleas in parts of Asia, Africa, and the Americas.[2] India was one of the countries most affected by the pandemic of plague that began in the latter half of the 19th century, experiencing an estimated 12·5 million deaths during 1889-1950.[4] In recent decades plague in India and elsewhere has retreated to rural, natural foci of infection involving mostly wild rodents and their fleas, with occasional spill over to commensal hosts and humans in villages and towns. Although a number of countries regularly experience endemic plague, its pattern of occurrence is mostly sporadic but with occasional limited outbreaks. In the 1990s outbreaks of both bubonic and pneumonic plague have occurred in Myanmar, Vietnam, Tanzania, Zaire, Peru, and Madagascar.[5] In 1992, 1758 cases with 198 deaths were reported to the World Health Organisation.[5] None of these outbreaks has aroused much attention outside the country of occurrence. What is so different about the current situation in India?

Most human plague is the bubonic form, which results