Whenever doubt exists, catheterisation will, of course, be required to corroborate or disprove the assessment made by non-invasive means; and we must remember that the latter could not have been contemplated without the pioneering work of Claude Bernard and his successors in animals and of Forssmann and those who followed him in man.

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Contact tracing

Tracing contacts of patients with sexually transmitted diseases plays a vital part in their control. Sadly, however, in the past the methods used to trace contacts were both heavy handed and unsuccessful. The Contagious Diseases Acts of 1864 and 1866 allowed for the compulsory registration and admission to hospital of women "judged" by the police to be prostitutes; and under the notorious Defence Regulation 33B, introduced in 1942, a compulsory medical examination could be performed on any individual (invariably a woman) named by at least two others as a possible source of infection. Sense prevailed, and after the second world war the tracing of sexual contacts became non-authoritarian and informal.

Nevertheless, since the inception of the National Health Service the authorities have been slow to recognise the need for specially trained individuals to carry out contact tracing. Initially this work was performed by doctors, often ineffectively[1 2] and rarely by trained staff fully integrated into the clinic.[3] The pattern is different now: a recent survey in England and Wales showed that contact tracing was performed by designated non-medical personnel in 77% of clinics,[4] but that in only half of these clinics was someone specifically employed for contact tracing. In the remainder the duties were carried out by nursing staff, already busy, or by health visitors, who either attended clinic sessions as well as carrying out general health visitor duties or did not attend sessions but could be called upon to do so.

Even though more clinics have acquired contact tracing facilities, the ideal is still far away: all clinics should eventually employ staff specifically designated for this task. Contact tracing should, indeed, be recognised as an integral part of the management and control of sexually transmitted diseases. Interviewing these patients requires tact, sensitivity, and special communication skills; these skills need to be identified and appropriate training programmes created to teach them. Surprisingly, these tasks have not been tackled up to now and contact tracers have had no common, if any, training. The recent *Handbook on Contact Tracing in Sexually Transmitted Diseases*[5] has analysed (for the first time) the process of contact tracing and by implication the types of skills and training required. The Department of Health and Social Security has responded quickly to this publication by designing and organising a series of one-week training programmes, the first of which was held in February in Harrogate. In time all those in post should be able to attend one of these courses, and a BTH (been to Harrogate) will become an essential additional qualification for those practising contact tracing. Admirable though this development is, attendance at a one-week course may hardly be seen as adequate training. No co-ordinated and planned basic qualifying course exists for those entering contact tracing, and such a training programme should be the next priority.

The final problem that needs addressing is the 14% annual turnover of contact tracers. Even though 60% of contact tracers have a nursing background, this qualification should not be a prerequisite for entry. Encouraging recruitment of individuals from varied backgrounds, specifically trained to carry out contact tracing, may help to slow the turnover. Job satisfaction is crucial. The current work of the contact tracer is too limited and ways need to be found to extend this. For example, health education is important in controlling the sexually transmitted diseases. Some contact tracers see this as part of their job. Certainly this need should be recognised as should the part that contact tracers can play in lecturing within the community, particularly in schools (or preparing teachers to do so). But changes of that kind cannot happen until individuals are trained in the teaching of young people—as well as the other skills required to carry out the essential job of contact tracing.

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Therapeutic potential of cannabinoids

Extracts of the plant *Cannabis sativa* have been used for medicinal purposes for several-thousand years. The major active psychotropic principle, delta-9-tetrahydrocannabinol, produces prominent effects on the central nervous and cardiovascular systems. The actions of tetrahydrocannabinol include euphoria, drowsiness, short-term impairment of memory, temporal disorientation, confusion, and depersonalisation. Higher doses of tetrahydrocannabinol result in hallucinations and delusions, and anxiety may replace euphoria. Effects on other systems include conjunctival suffusion, tachycardia,

and hypotension. These properties severely limit the therapeutic potential of tetrahydrocannabinol and attempts have been made to synthesise derivatives that retain its clinically useful properties but have less effect on the psychotropic and cardiovascular systems. Among these synthetic cannabinoids are nabilone and levonantradol, which have been investigated clinically in the prevention of nausea and vomiting induced by cytotoxic drugs.

Sallan and his colleagues[1] reported that tetrahydrocannabinol is more effective than prochlorperazine in reducing the nausea and vomiting associated with cytotoxic treatment: these symptoms occurred during only 43 of 79 courses of cytotoxic drug treatment when accompanied by tetrahydrocannabinol, compared with 63 of 79 courses when prochlorperazine was given. In a double-blind, randomised, cross-over study Orr[2] and his colleagues observed nausea and vomiting in 15 of 55 courses of chemotherapy with tetrahydrocannabinol, 47 of 55 courses when patients received prochlorperazine, and 50 of 55 in the placebo group. Similar results were found in children given cytotoxic chemotherapy, tetrahydrocannabinol reducing nausea and vomiting much more effectively than metoclopramide or prochlorperazine[3]; and tetrahydrocannabinol can now be regarded as a proved antiemetic.[4 5] These studies have also shown, however, that there are substantial adverse effects from tetrahydrocannabinol (at the dosages used) on the central nervous and cardiovascular systems and that these effects may be greater with increasing age. Indeed, the toxicity of tetrahydrocannabinol precludes its routine use in cancer chemotherapy.[6 7] Interestingly, one recent study suggested that the psychological effects of cannabinoids may be reduced when these are combined with phenothiazine antiemetics.[8 9]

Two large cross-over trials have shown that nabilone (6 mg and 8 mg daily) is superior to prochlorperazine (30-40 mg daily) for suppressing nausea and vomiting due to cytotoxic chemotherapy.[10 11] In both studies adverse effects were prominent after nabilone—particularly drowsiness, dry mouth, "dizziness," and hypotension. Psychotic reactions occurred in four of 213 patients. Patients were prepared, however, to tolerate the adverse effects of nabilone to avoid the emetic effects of the cytotoxic drugs. Early dose-ranging studies with levonantradol suggest that this cannabinoid also possesses appreciable antiemetic properties.[12 13] Like nabilone, however, it produces adverse effects on the central nervous system and hypotension.

Clinical trials of this kind are easy to criticise but difficult to undertake. Not only are there too many variables for comfort (for instance, patients' age, disease, and cytotoxic drug combinations) but the development of adverse reactions, particularly with cannabinoids, may enable patients to distinguish between treatments. Moreover, most studies of cannabinoids have compared them with prochlorperazine and not with high-dose metoclopramide.[14] Finally, we need to be reasonably confident that these agents do not attenuate the actions of the cytotoxic drugs themselves. While studies in animals have so far shown that this is unlikely, the knowledge that marijuana can influence hepatic drug metabolism is a cause of some concern.[15]

In some experiments on animals tetrahydrocannabinol, nabilone, and levonantradol have been shown to possess analgesic activity. Tetrahydrocannabinol has been claimed to reduce pain in patients with cancer,[16] though at doses that produce serious adverse effects. Intramuscular levonantradol has been reported to be more effective than placebo in the relief of postoperative and traumatic pain, though the authors of that report were unable to show a dose-response relation.[17] Tetrahydrocannabinol has been shown to have anticonvulsant properties in animals. Two naturally occurring cannabinoids—cannabidiol and cannabinol—also have anticonvulsant actions without producing psychological effects,[18] but these compounds do not seem to have been studied in man. Tetrahydrocannabinol is said to have a bronchodilator action in asthmatics[19] and to reduce intraocular pressure in patients with glaucoma.[18 20]

The cannabinoids possess considerable potential, then, as therapeutic agents. Though there may be a place for the newer synthetic derivatives in the management of nausea and vomiting induced by cytotoxic drugs, further development is needed to dissociate their adverse effects from their therapeutic actions. The history of medicinal chemistry over the past 50 years suggests that this may not be an unrealistic goal.

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