Secondly, the nature of the experience gives the illusion of control. During the development of fatigue, alertness waxes and wanes, so that the overall and inevitable decline in performance capacity is not necessarily recognised. Changes in stimulation (increasing ventilation, going for a walk, etc) appear to restore alertness, when in fact they are temporary interruptions of a continuing decline in alertness. People do not necessarily associate fatigue and sleepiness with falling asleep.[14]

Thirdly, there is no simple objective test of fatigue, equivalent to a breath analyser for alcohol, that can be applied after an injury has occurred. The contribution of fatigue needs to be inferred (as Philip et al have done[1]). The inference is based on well established causal factors implicating fatigue in performance impairment such as time awake, prior wake-rest schedule, time of day, and characteristics of the crash or other injury-causing event.

There is also the practical issue of determining the level of fatigue at which performance poses a real risk. How do we set standards for fatigue? How much fatigue is too much? We recently compared the effects of sleep deprivation and alcohol intoxication and found that after 17-19 hours without sleep, starting from waking at about 0600 hours, individuals' performance was equivalent to or worse than at 0.05% blood alcohol concentration.[15] In other words, commonly experienced levels of sleep deprivation—one extended day for a well rested individual—had a profound effect on performance. At around 2230-2430, well before reaching the circadian trough in alertness, performance levels were low enough to be considered incompatible with safe driving in many countries.

Fatigue is not new. Nor is knowledge about its potential for harm. Convincing evidence about the size of the risk and actual consequences has been slower to accumulate. While the evidence base needs to be strengthened, we already know enough to issue some cautions. Driving and working after extended wakefulness, after a night without sleep, after sleep has been restricted, or at vulnerable times of the day and night all contribute to fatigue. The effects of such conditions are exacerbated by alcohol.[14] Public awareness of the potential hazards of fatigue and its causes needs to be raised in general, and among drivers in particular. Employers need to understand, and take responsibility for, the impact of work-rest schedules on performance at work and on performance when driving to and from work. Lack of sleep needs to stop being regarded as a badge of honour and seen for the serious hazard that it actually is.

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Home delivery: chemotherapy and pizza?

Evidence on safety and acceptability of home chemotherapy is growing

Paper p 826

The past century has seen hospitals become the focus of the healthcare system despite attempts to shift the emphasis of care to the community. Most attempts to move complex and invasive procedures out of hospital completely and into patients' homes remain marginal. One example of this is home chemotherapy, the subject of a randomised trial in this week's issue (p 826).[1]

Home chemotherapy is a service that provides a package of care to support the administration of chemotherapy to patients in their homes by specialist healthcare professionals (usually nurses). It may be distinguished from ambulatory chemotherapy, where patients visit the outpatient department to be connected to portable disposable pumps prefilled with cytotoxic drugs, which are then administered via a central venous catheter for 48 to 168 hours, and from day hospital chemotherapy, where patients visit the hospital daily to have their chemotherapy administered.

In the United Kingdom home chemotherapy is chiefly the domain of a few private "intravenous access" companies, whereas the NHS service is limited to a handful of nurse led projects being piloted in both urban and rural areas. In north America, however, home intravenous therapy was recently the fastest growing segment of the healthcare system.[2]

The most obvious shift in chemotherapy practice in the UK has been from inpatient to outpatient ambulatory therapy, with evident cost savings and enhanced patient satisfaction. If the next logical evolution in service delivery is establishing home chemotherapy, then there are three issues that must be resolved: Is it safe? Given a choice, do patients prefer it? And is it cost effective?

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In their article in this week's issue Borras et al have investigated compliance, satisfaction, and quality of life in patients with colorectal cancer assigned at random to either home based or outpatient chemotherapy.[1] This trial contributes to a small body of literature on home chemotherapy, including three randomised trials.[3–10] Overall, these studies have shown some psychological benefit to patients (and sometimes carers, including parents) mainly from their active participation in the treatment ("helped me to cope," "I felt in control," and "home was less stressful").[8] They also show that the success of any home service depends on the clarity of communication between the multidisciplinary teams in the hospital and community. However, many studies are flawed by their small scale and lack of economic analysis and have failed to show consistent outcomes.

The selection of appropriate patients and chemotherapy regimens for home delivery is crucial to its success. The chemotherapy delivery team, patients, and carers must acquire the necessary skills, knowledge, and back up protocols to ensure patient safety at home.[9 10] In their study of 179 patients undergoing home chemotherapy Lowenthal et al found the service to be safe.[6] Borras et al used fairly conventional chemotherapy regimens, which appeared to be well tolerated in both arms of the trial. Interestingly, patients were less likely to withdraw voluntarily from chemotherapy when it was delivered at home (1/45 *v* 6/42).

Two recent Australian randomised trials show inconsistent results regarding patient preference for home or hospital chemotherapy.[4 5] We therefore need more information to define the profile of patients who should be offered home delivery.

Like Lowenthal et al[6] in Tasmania, Close et al[3] and Holdsworth et al[7] in the US found that a home chemotherapy programme (compared with outpatient care in the first study and inpatient care in the US studies) resulted in monetary savings, whereas the other two Australian groups[4 5] found home delivery to be consistently more expensive.

This week's study by Borras et al contributes to this home versus hospital debate by showing that home chemotherapy for patients with colorectal cancer was safe and highly acceptable to patients (they did not seek the opinion of the carers). They measured the unplanned use of health resources and found no difference in either group in use of primary care or emergency services. The authors claim, "It was fairly obvious that a home programme would require additional resources" but fail to substantiate this with any data on cost effectiveness.

Thus there is a growing body of evidence showing the safety and acceptability of selected, protocol-driven chemotherapy when administered at home by a team of trained nurse specialists supported by hospital based oncologists. Before this approach becomes more widely available, however, more work needs to be performed on patient selection and the cost effectiveness of such a service.

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Obtaining consent for examination and treatment

New government guide covers most of the bases

Most doctors are aware of the importance of obtaining consent from patients for examination and treatment. Yet many are uncertain about what this means and fear that their instincts about what is right may not be enough to protect them from legal challenge. The result of this uncertainty may be reluctance to treat in a difficult case or the expenditure of much time and effort avoiding allegations that adequate consent has not been obtained. Sensitivity to consent has thus been a two edged sword: while patients have been protected from indefensible paternalism, they have at the same time been subjected to unnecessary formalities. In the case of psychiatric treatment, extreme sensitivity to consent has, in some jurisdictions, resulted in the denial of treatment to patients who desperately need it.

In the long running consent saga, the courts have been caught between a desire to protect the rights of patients—a role with which the law feels quite comfortable—and a reluctance to impose impossible requirements on the medical profession. In the United Kingdom the courts have generally tried to control consent based actions[1] but have acknowledged that the competent adult ultimately has the right to refuse a medical intervention if he or she so desires. The controversy and legal uncertainty, then, has largely focused on the disclosure of risk, on cases involving children and those who are mentally compromised,

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