fied physician and maternal preference in the higher section rates among older women,[1 5] and our results would support this speculation. Further investigation is needed into women's views about increased intervention, the variation in rates for caesarean section among obstetricians, and how maternal age influences both of these factors.

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Take home naloxone and the prevention of deaths from opiate overdose: two pilot schemes

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Doctors routinely give naloxone during emergency resuscitation after opiate overdose. The distribution of naloxone to opiate addicts has recently been addressed,[1–4] and a survey of drug users shows extensive support for the provision of supplies to take away.[4] We present the preliminary results of two pilot schemes to provide take home naloxone to opiate users.

Methods and results

The Berlin project

In January 1999 drug users in Berlin were given naloxone to take home. Opiate misusers attending a healthcare project (operating from a mobile van or ambulance) were offered training in emergency resuscitation after overdose, provided with naloxone (two 400 µg ampoules), needles, syringes, an emergency handbook, and information on naloxone. They were asked to report on any use of the drug. After 16 months, 124 opiate misusers had received training in resuscitation and were provided with supplies of naloxone to take away; 40 reported back, with 22 having given emergency naloxone (two on two occasions, one on three, and one on four).

The methods of administration were diverse. Resuscitation occurred both at home (17; 59%) and outdoors (parks, public restrooms) (11; 38%). In 10 instances the individual was unknown to the person resuscitating him or her (35%). Naloxone was given intramuscularly (14 instances; 48%), intravenously (13; 45%), and subcutaneously (2; 7%). One ampoule was the usual dose given (22; 76%). Half an ampoule was given to four people (14%) and both ampoules to three (10%). In 10 (34%) instances naloxone provoked a sudden onset of opiate withdrawal; no other side effects were reported. An ambulance was called for nine (31%). All 29 people recovered. Naloxone was judged appropriate in 26 (90%) cases, of uncertain benefit (no life threatening situation) in two (7%), and pointless in one (cocaine overdose). More risky consumption as a result of the availability of naloxone was not reported.

Case 1 (Berlin)

"Three days ago, I was walking along the canal with a friend of mine. We saw a guy lying on the ground, with two people trying to help him—they were trying to help him breathe by mouth to mouth. When we ran over to them, we could tell it wasn't really working. The guy was blue in the face and hardly breathing any more. I could barely feel his pulse. Right away I gave him one ampoule of naloxone—I didn't think I could find a vein so I just shot it real slow into his upper arm. We tried to give him CPR and we called 911. Then the guy started to wake up and he started to breathe and shake a little bit. He was so thankful, he wanted to give me 50 Marks, but I wouldn't take it. When the medics came I told them I had given him the naloxone. The medics said 'Wow! So you guys have even got naloxone now?' But he thought it was great. He said we had probably just saved the guy's life." The ambulance staff then took the overdose victim to hospital for further observation.

The Jersey project

From October 1998 over the next 16 months naloxone (one minijet ready filled with 800 µg naloxone) was provided to 101 drug misusers in contact with local drug services, with instructions on intramuscular administration and the wider principles of resuscitation from overdose and recovery. Five instances of resuscitation using naloxone were reported, and all fully recovered. No adverse consequences, other than withdrawal symptoms, were reported.

Comment

This is the first published report of lives saved directly by the provision of take home naloxone. The drug was generally used appropriately. In only one case out of 34 was its use inappropriate, with two of doubtful benefit. No unexpected adverse effects were reported.

Ready prepared syringes of naloxone typically cost £3.30-6.70 per 400 µg. Since 10% of distributed doses

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Case 2 (Jersey)

A known drug user rushed into the drug clinic demanding that he was immediately given a naloxone minijet to take away. Although agitated, he was resourceful enough to request that the minijet was assembled for him, and he then departed in haste. Some 20 minutes later he returned, accompanied by a shaken overdose victim who had some 15 minutes earlier been comatose and blue. "I was very nervous putting a big needle in him. I didn't know what would happen, what the result would be, but once I did it there was an immediate result that was a good one. He was dead. He came back to life." The overdose victim was then taken by ambulance to the local accident and emergency department where he was observed and made a full recovery.

were actually given, each use cost around £33-67. Even if lives were saved on only 10% of these occasions, then each would have been saved at a drug cost of £330-670.

The range of doses given raises the possibility that naloxone was being titrated to effect resuscitation without provoking withdrawal. If so, recovery needs monitoring to avoid subsequent relapse into overdose. Some casualty departments and ambulance services now recommend giving naloxone intramuscularly or subcutaneously rather than intravenously because it can be given more quickly and results in less violent recovery.[5] The same advice may apply to administration by peers. In future, family members may be trained to give emergency naloxone,[3] for whom non-intravenous administration would be more realistic.

Early reports are encouraging. No adverse effects have been reported, and 10% of distributed naloxone has saved lives. A study of the wider distribution of take home naloxone is now required.

KD is author on behalf of Ines Loska, Astrid Leicht, Johannes Korporal, Eckhart Holthaus, and Michael de Ridder. BS is author on behalf of colleagues at the drugs services at St Helier.

Contributors: JS originally proposed the distribution of naloxone as a strategy for overdose prevention and brought together the authors. KD and BS were responsible for the collection of the data. All three authors contributed to the final manuscript. KD and BS will act as guarantors for their respective data in the paper.

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Surgeons' attitudes to intraoperative death: questionnaire survey

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Intraoperative death is a situation any surgeon might encounter. A news item in the *BMJ* discusses the outcome of an inquiry by Sheriff Albert Sheenan into an incident that involved the death of a patient having elective surgery. The inquiry recommended that a surgeon should not operate for a period of 24 hours after such an event because "the surgeon is … not in the frame of mind to continue to operate that day."[1]

After the intraoperative death of a trauma patient at our own hospital, we were advised by a defence association that the surgeons involved should not operate for the next 24 hours. Although we considered this advice surprising, as the patient had sustained injuries likely to be fatal irrespective of any intervention, we duly followed it. A later literature search failed to find any references considering the psychological state of surgeons after an intraoperative death. We decided to find out if there is a consensus of opinion among orthopaedic surgeons about how to cope with intraoperative death.

Participants, methods, and results

The proposal to carry out a survey was approved by the regional research ethics committee. Forty four consultants employed in Welsh health trusts and listed in the *British Orthopaedic Association Handbook 1999* were sent questionnaires to be completed anonymously. The questions were related to the surgeons' experiences of intraoperative death, and were based on concerns raised by the Sheenan inquiry and related issues.

Thirty one (70%) questionnaires were completed. Sixteen (53%) acknowledged experience of intraoperative death. Five deaths (31%) were expected trauma deaths, five (31%) were unexpected trauma deaths, and five (31%) were deaths during elective surgery. In one (6%) death the respondent could not recall the category.

Of the 16 surgeons who experienced the intraoperative death of a patient, 13 (81%) performed further operations that day. All those who continued to operate felt their competence had not deteriorated. Only one (6%) did not operate when ordinarily he would have been expected to operate; he did so through personal preference and not as a result of external influences.

Eight (50%) of the surgeons who experienced the death of a patient during surgery felt that some time without operating would have been advisable; of those not experiencing such an event, four (26%) felt that this would be advisable.

None of those experiencing the death of a patient during surgery received or considered counselling. All five experiencing the death of a patient during elective surgery thought counselling should be offered. Four (80%) of those experiencing unexpected intraoperative