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► [The impact of take-home naloxone distribution and training on opiate overdose knowledge and response: an evaluation of the THN Project in Wales.](#)

Bennett T., Holloway K.

Drugs: Education, Prevention and Policy: 2012, 19(4), p. 320–328.

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The evaluation which led to the Welsh national programme to distribute naloxone to opiate users and their associates to curb rising overdose deaths, one of several UK studies to give momentum to this peer-based strategy.

SUMMARY Naloxone is a medication administered usually by injection which rapidly reverses the effects of opiate-type drugs such as heroin, including the respiratory depression which can cause what are normally referred to as 'overdose' deaths. In the UK, naloxone-based overdose prevention programmes remain hampered by the prescription-only status of the medication, but in 2005 the law was amended to permit emergency administration by any member of the public. A prescription is written for the opiate user at risk, but the drug can then be kept for them by other people who can legally use it in an emergency, and not just for the named patient. Group directives can also authorise medical staff other than the prescriber to supply naloxone to suitable patients.

In 2011 Wales began a national programme to distribute naloxone based on the results of demonstration schemes, focusing on areas with the highest rates of drug-related deaths. In addition, the four prisons in south Wales began to issue naloxone on release to prisoners who had attended naloxone training. The featured study reports on the evaluation of these schemes. This account also draws on a freely available [research report](#) from the same evaluation project. The project was funded and overseen by the Welsh government and conducted by researchers from the University of Glamorgan.

The demonstration schemes [involved](#) a single one to two hour session during which drug users (or in a few cases their friends or family) were trained to recognise the signs of overdose and how to respond with first aid emergency procedures and by administering naloxone. Courses were conducted mainly by drug treatment service staff as part of their routine duties. Staff generally agreed that recruitment to the courses was slow.

At the end of the sessions a take-home naloxone kit was issued to opiate users among the trainees who were at risk of overdose. The kits contained a pre-filled syringe with a single dose of naloxone plus associated equipment and instructions. In all 521 opiate users were trained. Typically they were men and currently in treatment. Nearly half had themselves overdosed, three quarters had seen an overdose, and nearly a third had seen a fatal incident. Trainees were encouraged to return for a replacement kit as needed.

Immediate impact of training

The initial issue was whether the training improved knowledge of how to intervene in overdose and readiness to take the required steps. This was assessed by questionnaires completed immediately before the start of the training session and again immediately after it had ended.

There had been improvements across all [seven areas of knowledge](#) of overdoses and the use of naloxone, and most individual questions were answered correctly by significantly more trainees after the training. For example, after training nearly all (around 95%) knew where on the body and how to inject naloxone and how generally to deal with overdose, and nearly 9 in 10 knew how to spot an impending possible emergency.

Confidence in being able to take the required steps to safeguard lives also consistently and significantly increased from on average 77% before training to 93% afterwards, most notably in relation to confidence to administer naloxone, up from 67% to 92%. Though 9 in 10 were even before training willing to take these steps, this too increased. Following training, almost all trainees were willing to put overdose sufferers in the recovery position, check airways, call emergency services, and administer naloxone, and the proportion willing to give mouth-to-mouth resuscitation increased from 79% to 88%. Except where nearly all the trainees already felt this way before training, in respect of nearly all the individual actions a significantly higher proportion were confident and willing to take these steps after training.

Post-training gains tended to be greater at training sites where the training session covered more of the intended elements of the programme, possibly a proxy for the overall quality of the training.

Later use of naloxone in managing overdose

The crucial issue was whether post-training improvements in knowledge, confidence and willingness actually did equip trainees to intervene appropriately over the following six months. This was assessed by means of forms completed by trainees returning to be issued with a further kit. The forms asked whether the naloxone issued previously had been used, if so how, and the circumstances and results. Of the 521 trainees, 28 returned for further supplies and indicated on the form that they had witnessed an overdose during the evaluation period.

Eight of the same questions were asked of a comparison group of drug users consecutively attending a drug treatment agency in an area of Wales without a naloxone scheme. The 50 attendees were seen during the last month of the six-month evaluation period. Of these, 39 completed an initial questionnaire; 36 indicated they had witnessed an overdose in the last six months and were asked further questions about circumstances and outcomes.

From this data it was possible to compare responses to 28 overdose incidents witnessed by the trainees, versus the 38 [witnessed or experienced](#) by the comparison group. In every instance, the trainees had used their naloxone kits; without being supplied kits, none of the comparison group had administered naloxone. Overdose sufferers attended by the trainees were much more likely to have been put in the recovery position (81% v. 40%) and ambulances were more likely to have been called (85% v. 60%). However, resuscitation techniques were more commonly used by the comparison group (53% v. 40%). For 22 incidents the trainees reported whether the overdose victim had died; just one had.

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Sample naloxone use account

On the day I used my kit I was with my then partner (CH) and we had used heroin IV together about 90 minutes before we went together to the solicitors. Whilst I was in the solicitors CH went into the back room on his own and when I went in to find him he was on the floor and his lips had turned blue; he was also breathing very slowly and shallowly. I called the solicitor immediately and he called the ambulance. I put CH into the recovery position as I was unable to rouse him by shaking him or calling his name. I then took out my kit and prepared the naloxone which I had no trouble in using. I then injected CH in the thigh through his jeans. After about three minutes CH began to come round and the ambulance crew arrived and asked me to leave the room whilst they took over. CH was taken to hospital where he survived. I found the training prepared me well for this

Corresponding figures for the comparison group were 35 and also one.

situation and I don't feel that I need any extra training. I would use my naloxone kit again.

The authors' conclusions

The benefits of the evaluated take-home naloxone schemes substantially outweigh the implementation drawbacks. Despite already being generally well advanced in these respects, training led to increased knowledge about overdose and use of naloxone and other appropriate actions, and increased confidence and willingness to take action.

Trainees' responses on the forms they completed while obtaining replacement kits showed they were willing and able to use naloxone and that its use was generally straightforward. All except one overdose sufferer survived. There have been concerns that with naloxone available, other life-saving actions might be neglected, but in fact the reverse was usually the case.

Data on responses to overdoses was only available from trainees who returned for new kits and completed a replenishment form which was sent to the researchers. Other overdose incidents might have been responded to by trainees who did not return for a new kit, or who did so but there was no form. There was no information on how trainees or the comparison group had previously responded to overdoses, meaning that any differences between their responses might not have been due to the training, but to some other pre-existing factors. With such small samples and such rare events as overdose deaths, the study was not in a position to determine whether naloxone schemes reduce drug-related deaths.

FINDINGS COMMENTARY The study was an important sign of and stimulus to the considerable momentum behind naloxone provision schemes, culminating in national programmes in Wales and [Scotland](#), after promising evaluations in England ([1](#) [2](#)).

Enabling these developments was a change in the law in 2005 which permitted naloxone to be administered in an emergency by any member of the public. In May 2013 [Prenoxad](#), the world's first licensed naloxone product for use in opioid overdose emergencies by non-medical personnel, became available in the UK after approval by the Medicines and Healthcare Products Regulatory Agency. Approval is seen as an important step to widening availability, meaning GPs across the UK can prescribe naloxone injecting kits to suitably trained drug users and with their permission to their associates and family. Patient Group Directions also enable doctors to authorise pharmacists and nurses to supply the kits to drug users at risk, such as those who might be seen at needle exchanges. This development still leaves the prescription-only restrictions which in 2012 the UK's Advisory Council on the Misuse of Drugs [wanted reviewed](#), after concluding that wider provision of naloxone could result in a reduction in overall drug-related deaths in the UK.

The featured study is best seen as testing the feasibility of running a training-based naloxone distribution scheme in Wales and whether at least some recipients will use the kits appropriately. The great gap in the findings is what use was made (if any) of the around 500 kits issued to drug users who did not return for a replacement. The small minority of trainees who did return for another kit may well have been those most keen and diligent. Often facing staff at services where they were being treated, they may also have been embarrassed to admit that they returned because kits were lost or damaged rather than used, or that they were used, but not appropriately. Nevertheless the study indicates that kits *can* be used appropriately in circumstances which could save lives. Whether this is the case as a general rule cannot be determined from the findings, nor could the study adequately investigate whether kits were not used when they could and should have been. Broadly these too were the implications of the corresponding evaluation in [England](#), but that study did attempt to follow up all trainees, not just those seeking replacement kits.

At least in the context of a research study, recruiting drug users and their carers to UK naloxone programmes has been difficult. If recruitment is done through treatment agencies there may seem to be a contradiction between treatment which the patient hopes and expects to divorce them from drug use and drug using circles, and being provided with training and medication of direct use only if they stay sufficiently involved in such circles to witness or suffer an overdose. While welcomed by many, training can also resisted by families of drug users, who prefer to see treatment or a spell in prison as the start of a new drug-free life for their relatives. Some drug users do not want to carry naloxone kits because these identify them as drug users.

For more on the promise and limitations of naloxone see [this analysis](#) of the corresponding English study, and the Effectiveness Bank [hot topic](#) on overdose prevention.

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