Peer-initiated overdose resuscitation: fellow drug users could be mobilised to implement resuscitation

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Abstract

Research interviews about overdose experiences were conducted with 115 patients attending a methadone maintenance clinic in south London, UK. While almost half (49.6%) reported having experienced overdose personally (on an average of four occasions each), almost all (97.4%) reported that they had witnessed overdoses (on an average of six occasions each). This represents a total of 706 overdoses witnessed, of which 106 had resulted in fatalities. The vast majority of patients (86:97) reported that they had taken actions when they had witnessed overdoses with those acting taking an average of nearly three different actions on the last occasion on which they had seen someone overdosing. Most respondents reported that they would be willing to act, even if they did not know the overdose victim personally and that they had not been deterred from acting by the previous response from the emergency services. Fear of punishment was not a strong deterrent from acting certainly not for this sample, with many participants also expressing an interest in expanding their repertoire of overdose interventions, for example through training in resuscitation techniques and by keeping naloxone at home for use in overdose emergency. © 2000 Elsevier Science B.V. All rights reserved.

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1. Introduction

Opiate addicts have been found to have an increased mortality rate, with an annual mortality approximately 10–20 times greater than for an age-matched non-addict population (Ghodse et al., 1978; Davoli et al., 1993; Frischer et al., 1993; Oppenheimer et al., 1994; Hammersley et al., 1995; Farrell et al., 1996; Darke and Zador, 1996).

Overdose is a not an infrequent occurrence amongst opiate misusers. In studies in the UK (Gossop et al., 1996; Powis et al., 1999) and in Australia (Darke et al., 1996; McGregor et al., 1998), about half of the interviewed injecting heroin users had themselves previously experienced an overdose, with an even larger number having witnessed an overdose by another drug misuser. Specific enquiry
into the reasons for the overdose have established that only a minority of these overdoses are associated with suicidal intent (Vingoe et al., 1999; Neale, 2000; Best et al., 2000a), and hence such overdoses may usefully be considered as an occupational hazard of a career as an injecting heroin user, and one whose likelihood the user may be particularly keen to find ways to reduce.

These overdoses are extensively witnessed. In earlier work from our group (Powis et al., 1999; Strang et al., 1999a), specific enquiry was made about the circumstances of the last occasion of overdose for the 117 subjects who had previously overdosed, of whom 95 (81%) had been with someone else when they had last overdosed, usually a close friend or sexual partner. Further enquiry was made from this group about their witnessing of the overdoses of other drug users, where the closeness of their relationship to the drug user who had overdosed was again evident, including in the instances where the overdose had resulted in death (Strang et al., 1999a,b).

Management of witnessed overdoses (by fellow drug takers) is often inept, flawed or even counterproductive. Folklore includes such inefficient or dangerous advice as intravenous salt, stimulants, immersion in a cold bath and, perhaps most extraordinarily, intravenous milk (Drenick, 1970). Both Darke et al. (1996) and Powis et al. (1999) report on the delay and reluctance to call an ambulance. Written and film media contain examples of desperate and inefficient interventions including, classically, the fictional scene of heroin overdose in the film ‘Pulp fiction’, in which, in utter desperation, fellow drug users attempt resuscitation with direct intra-cardiac adrenalin (certainly not a recommended course of action).

Given the extensive witnessing of overdoses, serious consideration is now being given to the possibility that peer drug takers might be a valuable target group for training in resuscitation techniques. However, as yet, only minimal data have been collected on whether drug users would generally be willing to consider involvement in such resuscitation or whether the fear of involvement (and possible involvement with ambulance personnel and police) might represent insuperable obstacles. We report on the exploration of these issues amongst a sample of opiate addicts undergoing treatment in London.

2. Method

The sample consisted of 115 opiate addicts attending a methadone maintenance clinic in South London in 1999. As has previously been reported (Gossop et al., 1988; Strang et al., 1992; Griffiths et al., 1994; Strang et al., 1998), London samples of heroin users now contain a substantial proportion who take their heroin by ‘chasing the dragon’ (Gossop et al., 1988; Griffiths et al., 1994) amongst whom a history of overdose has been found to be rare with almost all of the overdose histories being found amongst the heroin users who were or had previously injected (Gossop et al., 1996). Consequently, for the current study, subjects were recruited for the study if they satisfied one of the two following inclusion criteria — either (a) they had a history of injecting, or (b) they had a history of overdose (when applied for this study, all the 115 of the study sample satisfied the ‘injecting’ criterion, with half (57/115; 49.6%) also satisfying the ‘overdose’ criterion). A further 11 opiate addicts in methadone maintenance treatment had been asked to participate in the study but had chosen not to participate (this sample forms part of the larger sample that form the basis of a separate paper (Best et al., 2000) in which we reported on their experiences of witnessing overdoses).
All the study subjects were resident in the local catchment area for the methadone maintenance clinic, which is a part of South London which includes areas of particularly high social deprivation. The area covers the boroughs of Lambeth and Southwark, containing a predominantly young population with a substantial minority (29%) from black and ethnic minority populations. Indices of morbidity and deprivation for the catchment area are markedly higher than the national average, for example, the mortality rate from suicide is twice the national average (SMR 197) and the proportion of the population living in overcrowded accommodation is nearly twice the national average (13 vs. 7%). The degree of deprivation of a borough can be scored according to its UPA (under-privileged area) score (Jarman, 1983, 1984) and the local district has a Jarman UPA score of 40, which made it the seventh highest scoring UPA district in UK and Wales in 1991.

Data were collected from the study subjects by the means of a structured interview administered by researchers within our team (L. Man, A. Noble). Subjects were given an assurance that the contents of the interview would remain confidential to the research study and information collected in the interview would not be passed on to the personnel within the treatment programme. The questionnaire included the Maudsley Addiction Profile (MAP) (Marsden et al., 1998) and assessed their current drug use, their drug and treatment history and their physical and psychological health, as well as the details of personal and witnessed overdoses and, in particular, actions they may have taken in such circumstances and concerns they may have had about taking such actions.

No names or other similar identifiable information were collected about the drug taker whose fatal overdose had been witnessed, and hence it is not possible to establish the extent to which there may be overlap with these different reports of overdose and consequent fatality.

A definition of overdose was read out to each participant before completing the sections on overdose so as to avoid any confusion between different degrees of intoxication and more explicit overdose. This definition was read out to the subject after an initial enquiry had been made about how the subject considered that they would recognise an overdose. The definition which was then provided to the subject was “any of the following symptoms occurring in conjunction with your drug use: difficulty in breathing, turning blue, loss of consciousness and unable to be roused, collapsing. Overdose does not mean being ‘on the nod’ or ‘gouching’” (this definition is the same as the definition previously used in our studies — Strang et al., 1999b).

3. Results

3.1. Characteristics of the study sample and their personal overdose histories

The study sample comprised 115 opiate addicts in methadone maintenance treatment, of whom 80 (69.6%) were male (male/female ratio of 2.3/1). Mean age of the sample was 36.1 years (S.D. = 7.6). Mean age of first heroin use was 19.8 years, as was mean age of first injection. The mean age at which the subjects had first commenced methadone treatment was 27.4 years.

A history of previous overdose was obtained from 49.6% (57) of the 115 subjects, amongst whom there had been an average of 4.1 overdoses. Of these 57 subjects, ten had had an overdose within the last year. Mean length of time since last overdose was 72.8 months. Only seven subjects (6.1% of the total study sample; 12.3% of those with a
positive overdose history) reported that their last overdose had been deliberate. Overdoses had usually involved heroin, often in combination with benzodiazepines and alcohol, for the most recent overdose, the drugs most frequently involved had been heroin (82%; 46), methadone (21%; 12), benzodiazepines (30%; 17) and alcohol (30%; 17).

3.2. History of witnessing overdoses

A much larger proportion had witnessed the overdoses of other drug users. Thus, 112 (97.4%) of the 115 subjects had witnessed at least one overdose and overall the study sample had witnessed a total of 706 overdoses — an average of 6.3 witnessed overdoses for each of these subjects. When the enquiry about witnessing overdoses was restricted to the last year, 32 (27.8%) of the 115 study subjects had witnessed an overdose. In 106 (15.0%) of these 706 reports of witnessing an overdose, the overdose had resulted in the death of the drug user, with these reports of witnessed fatal overdose being elicited from 34 different study subjects (i.e. each of these 34 study subjects had witnessed a mean of 3.1 fatal overdoses). Data were specifically collected on the drugs involved in the most recent witnessed overdose; data could be provided by 97 of the 112 subjects, who reported that the most recent witnessed overdose had involved heroin (89.7%; 87), alcohol (24.7%; 24), benzodiazepines (22.7%; 22), methadone (12.4%; 12) and crack cocaine (11.3%; 11).

3.3. Relationship to the overdose victim

Enquiry was also made of the relationship of the study subjects to the drug taker whose overdose they had witnessed (data provided by 98 of the 112 study subjects who had witnessed an overdose). For 70.4% (69), the last witnessed overdose had most often been the overdose of a friend, with a further 10.2% (10) having witnessed their partner overdosing, and a further 14.3% (14) having witnessed the overdose of a more distant acquaintance. For only one of the respondents, the last witnessed overdose involved a stranger. When the enquiry turned to the life-time experience of having witnessed overdoses, then 81.2% (78) had at some time witnessed the overdose of a friend, 14.3% (14) the overdose of a partner, and 23.5% (23) the overdose of an acquaintance, with only two of the study subjects having ever witnessed the overdose of a stranger.

3.4. Willingness to intervene and obstacles to intervention

With the great majority of the study sample having at some time witnessed an overdose (97.4%; 112/115), many of these subjects had then taken some action to deal with the overdose.

Data were obtained on the actions which the subjects had taken at the most recent overdose which they had witnessed (data was available from 97 subjects). In order of frequency of response, they had most frequently walked them around the room (44; 45%), called an ambulance (43; 44%), slapped or shaken them (40; 41%), given rescue breathing/kiss of life (32; 33%), placed them in the recovery position (31; 32%), shocked them with water (28; 29%), attempted cardiopulmonary resuscitation (26; 27%) and waited with them until they came round (24; 25%). At least one of these actions had been taken by 86 of the 97 subjects (89%), and they had taken a mean of 2.8 actions on the last occasion of overdose which they had witnessed (i.e. a mean of 3.1 of the above actions had been taken by the 86 who had applied at least one of the actions). Nevertheless, a quarter of the sample (23.5%; 23/98) reported
that they had been present at an overdose and had not intervened.

Enquiry was also made about the extent to which the willingness of the study subject to intervene may be influenced by their relationship to the person who had overdosed. The responses to these questions are displayed in Table 1 below. The vast majority of the study subjects expressed a willingness to undertake a wide range of interventions for overdose victims, even for those whom they do not know personally. In view of recent discussion about the possible role of distribution of take-home supplies of naloxone (Strang et al., 1996, 1999b), study subjects were specifically asked whether they would be willing to administer naloxone to an overdose victim (prior to asking this question, an explanation of naloxone was given to the study subject as follows “a drug that when administered reverses the effects of an opiate overdose”). Two-thirds (64%; 71) reported that they would be willing to keep naloxone at home, while half (53.3%; 56) would be willing for a family member to keep naloxone at home on their behalf (data provided to these questions by 111 and 105 respondents, respectively).

Finally, study subjects were asked about how they had been treated on previous occasions when they had called the emergency services to deal with a witnessed overdose, and how these experiences may have an impact on their likely future behaviour in similar circumstances. Fifty-two subjects had previously called an ambulance, of whom 47 (90%) felt that they had been taken seriously, with 49 (96%) having been asked about what drugs the person had taken, and with only 11 (22%) considering that they had not been treated with respect by members of the emergency services. Seven (13%) of those who had called the ambulance services reported that they felt they had been harassed by the police or ambulance staff when they had done so. With regard to the impact of these experiences on their likely future actions, 91% would expect to be taken seriously in future, although an overlapping 20% could also envisage a situation in which they might not be treated respectfully and 16% could anticipate being harassed or arrested if they called the emergency services. Nevertheless, when asked to identify reasons for not acting or obstacles to intervention when overdoses were witnessed, only a small proportion of these sub-

### Table 1

<table>
<thead>
<tr>
<th></th>
<th>Partner</th>
<th>Friend</th>
<th>Parent</th>
<th>Sibling</th>
<th>Acquaintance</th>
<th>Stranger</th>
<th>All</th>
<th>No-one</th>
</tr>
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<tr>
<td>Place in recovery position</td>
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<td>72</td>
<td>72</td>
<td>72</td>
<td>67</td>
<td>67</td>
<td>67</td>
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<tr>
<td>Mouth-to-mouth resuscitation</td>
<td>73</td>
<td>73</td>
<td>73</td>
<td>73</td>
<td>58</td>
<td>52</td>
<td>52</td>
<td>1</td>
</tr>
<tr>
<td>Walk around the room</td>
<td>73</td>
<td>73</td>
<td>73</td>
<td>73</td>
<td>70</td>
<td>69</td>
<td>69</td>
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</tr>
<tr>
<td>Call ambulance</td>
<td>74</td>
<td>74</td>
<td>74</td>
<td>74</td>
<td>74</td>
<td>71</td>
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<td>Wait for ambulance</td>
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<td>73</td>
<td>73</td>
<td>73</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>1</td>
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<tr>
<td>Use smelling salts</td>
<td>62</td>
<td>62</td>
<td>62</td>
<td>62</td>
<td>60</td>
<td>59</td>
<td>59</td>
<td>11</td>
</tr>
<tr>
<td>Inflict pain</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>70</td>
<td>67</td>
<td>66</td>
<td>66</td>
<td>4</td>
</tr>
<tr>
<td>Cover with blanket</td>
<td>68</td>
<td>68</td>
<td>68</td>
<td>68</td>
<td>65</td>
<td>64</td>
<td>64</td>
<td>5</td>
</tr>
<tr>
<td>Cardiopulmonary resuscitation</td>
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<td>71</td>
<td>71</td>
<td>68</td>
<td>67</td>
<td>67</td>
<td>3</td>
</tr>
</tbody>
</table>

* Data available for 75 subjects.
Table 2
Extent to which participants had been put off acting in previous overdose witnessing situations*

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>A little</th>
<th>Quite a lot</th>
<th>A lot</th>
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</thead>
<tbody>
<tr>
<td>Ignorance</td>
<td>93</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Fear of arrest</td>
<td>91</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Fear of police surveillance afterwards</td>
<td>92</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Did not think it was your responsibility</td>
<td>90</td>
<td>2</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Did not realise the person was overdosing</td>
<td>94</td>
<td>4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Because you did not know the person well</td>
<td>91</td>
<td>-</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>It was not your house it happened in</td>
<td>95</td>
<td>-</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

* Data available for 98 subjects.

Subjects considered that fears of arrest or police surveillance were significant obstacles to taking action to help someone who had overdosed see Table 2.

4. Discussion

Two important observations can be made from these findings which lend further support to observations made by ourselves and others from earlier studies. Firstly, as observed earlier (Darke et al., 1996; Darke and Zador, 1996; Powis et al., 1999) there is widespread experience of the witnessing of the overdoses of fellow drug users — virtually all (97%) of this study sample from a methadone treatment programme had at some time witnessed an overdose, including more than a quarter who had witnessed an overdose in the last year, a level similar to the proportion of the treatment sample who had witnessed an overdose in the last year in the study undertaken 2–3 years earlier in the same clinic (Strang et al., 1999b). Secondly, there is evidence of considerable earlier attempts to act effectively in response to the witnessing of overdoses (even if the responses have been ineffective or even counterproductive), similar to the findings from Darke et al. (1996) in Sydney, Australia.

Detailed evidence is available from this study on the extensive willingness of this treatment sample to apply a wide range of life-saving interventions. A clear majority of the subjects were willing to intervene in a more arms-length way (e.g. calling ambulance) not only for close friends, family member or partner, but also for remote acquaintances or a stranger. Furthermore, when the overdose involved a close friend, family member or partner, most subjects also expressed willingness to intervene with extremely hands-on resuscitative measures, including placing the drug user in the lateral recovery position (to reduce the likelihood of inhalation of vomit and asphyxia) and also mouth-to-mouth resuscitation (kiss of life). The latter procedure was the only one in which there was a substantial reduction in the proportion of subjects who would be willing to apply this if the drug user who had overdosed was a stranger, where willingness reduced to only half of the sample.

This particular study sample showed themselves not only to be generally willing to help with resuscitation but also specifically willing to implement extremely active resuscitation. However, this level of active resuscitation would require a considerable degree of prior information, education and training, and the inappropriateness of many of the previous
actions indicates the deficient level of actual competence of this study group when they have been in a position where they could intervene. This is perhaps not surprising since training in resuscitative techniques has not until recently been considered part of the comprehensive care that should be provided to drug users. On the basis of the above and other recent studies, we conclude that a skills deficit on the part of drug users themselves has now been clearly demonstrated and that there is a consequent need of training. We are aware of various initiatives which attempt to empower and equip peers to be more active in resuscitation, but we are unaware of any published evidence.

It has previously been suggested that drug users may frequently be deterred from intervening due to the fear of arrest or unwelcome police attention, but such concerns were not identified as major deterrents for the sample interviewed in this study, with only 7 and 6%, respectively, feeling in any way deterred by the fear of arrest or subsequent police surveillance.

Finally, it may be useful to provide a framework for considering how to empower drug users themselves to implement appropriate resuscitative measures when they witness the overdose of a fellow drug user. In an earlier study of the uncertain therapeutic commitment of doctors in tackling the alcohol problems of their patients (Shaw et al., 1978; Deehan et al., 1998), it was found that poor ‘therapeutic commitment’ derived from three areas of anxiety or uncertainty — uncertainty about role legitimacy (the extent to which the responsibility and authority for action was considered to lie properly in the domain of the practitioner), uncertainty about role adequacy (the extent to which the practitioner felt competent to deal with the issues that might arise) and anxieties about role support (the extent to which the practitioner considered there were adequate back-up facilities and support for their actions if they intervened and found that more expert services were required). This approach has subsequently been applied to study of doctors and nurses and their variable therapeutic commitment to working with alcohol and drug misusers (Deehan et al., 1997, 1998, 1999a,b) and we consider it could usefully be extended for the consideration of drug users themselves as potential care providers in such emergency situations. Of the three areas of role uncertainty outlined above, our study sample of drug users seem already to have accepted the role legitimacy and, even though the concerns about possible police involvement have been expressed by others (Darke et al., 1996; Powis et al., 1999), the current study sample do not seem to have been majorly concerned about role support. Hence, attention should perhaps be concentrated on addressing their role adequacy, the extent to which they are properly informed and trained about the preventive measures they should take and the resuscitative actions that should be implemented when overdose occurs. As with other areas of similar training, it is likely that the most effective means of conferring skills will involve a mixture of provision of information with practical role play and hands-on training in resuscitative procedures.

We consider that the findings from this study point to the legitimacy and urgent need to address this skills deficit on the part of drug users themselves through the establishment of specific training and monitoring/debriefing of instances when they have been called upon to intervene to deal with an overdose.

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