

Opiate addiction and overdose:

experiences, attitudes, and appetite for community naloxone provision

Abstract

Background

More than 200 opiate overdose deaths occur annually in Ireland. Overdose prevention and management, including naloxone prescription, should be a priority for healthcare services. Naloxone is an effective overdose treatment and is now being considered for wider lay use.

Aim

To establish GPs' views and experiences of opiate addiction, overdose care, and naloxone provision.

Design and setting

An anonymous postal survey to GPs affiliated with the Department of Academic General Practice, University College Dublin, Ireland.

Method

A total of 714 GPs were invited to complete an anonymous postal survey. Results were compared with a parallel GP trainee survey.

Results

A total of 448/714 (62.7%) GPs responded. Approximately one-third of GPs were based in urban, rural, and mixed areas. Over 75% of GPs who responded had patients who used illicit opiates, and 25% prescribed methadone. Two-thirds of GPs were in favour of increased naloxone availability in the community; almost one-third would take part in such a scheme. A higher proportion of GP trainees had used naloxone to treat opiate overdose than qualified GPs. In addition, a higher proportion of GP trainees were willing to be involved in naloxone distribution than qualified GPs. Intranasal naloxone was much preferred to single ($P<0.001$) or multiple dose ($P<0.001$) intramuscular naloxone. Few GPs objected to wider naloxone availability, with 66.1% ($n=292$) being in favour.

Conclusion

GPs report extensive contact with people who have opiate use disorders but provide limited opiate agonist treatment. They support wider availability of naloxone and would participate in its expansion. Development and evaluation of an implementation strategy to support GP-based distribution is urgently needed.

Keywords

family practice; medical education; methadone; overdose education and naloxone distribution; substance-related disorders.

INTRODUCTION

Overdose continues to drive mortality among people with opiate use disorders worldwide.¹ There are approximately 1.3 million people with opiate use disorder in Europe,² with Ireland having one of the highest rates of all European countries.³ Irish GPs play a key role in providing opiate substitution treatment (primarily methadone), and have frequent contact with people who use opiates.^{4,5} Ireland experiences a high rate of fatal drug overdose, with many cases involving people who have an opiate use disorder. For instance, in 2013, more people died as a result of opiate overdose than road traffic accidents [249 versus 190].^{6,7} Overdose prevention and management have been recognised as key issues for GPs who care for patients with opiate use disorders.⁸

Naloxone is an effective opiate antagonist that can be distributed in the community to treat opiate overdose;⁹ however, to date, its use in Ireland has largely been limited to doctors, nurses, and paramedics. The World Health Organization recommends that people likely to witness an opiate overdose should have access to naloxone and be instructed in its administration.¹⁰ Coordinated take-home naloxone schemes have been available in Scotland, Wales, and elsewhere for many years;^{11–14} however, despite a significant problem with opiate-

related deaths, Ireland has lagged behind its neighbours on this issue.¹⁵ The Naloxone Demonstration Project in Ireland recently trained around 600 service users, service providers, family members, and front-line workers in overdose recognition and response. The project involved the prescription of naloxone to 95 service users attending addiction and homeless services. The evaluation of the project in 2016 concluded that it probably prevented five overdose deaths and raised awareness of opiate overdose at many levels.¹⁶

Although policy initiatives to facilitate lay access to naloxone are being developed,¹⁷ the role of general practice in such initiatives has not been established, despite frequent contact between GPs and people who use opiates. GPs who prescribe opiate substitution therapy in Ireland are a specific group of high importance to such policy initiatives; a potential role may be the co-prescription of naloxone for use by family or friends of patients who receive opiate substitution treatment, as described in chronic pain management.¹⁸ Previous work by the authors has explored the experience and views of trainee GPs in relation to opiate addiction and naloxone use.¹⁹ The perspective of established Irish GPs is also highly relevant, but has not previously been documented. Ultimately, this group of GPs will determine the policies and procedures

T Barry, MBBCh BAO, lecturer/assistant professor; **H Tobin**, BA, senior executive assistant; **M Egan**, BA, manager; **G Bury**, MD, full professor, Centre for Emergency Medical Science, School of Medicine, Health Sciences Centre, University College Dublin, Dublin, Ireland. **J Klimas**, PhD, research fellow, Centre for Emergency Medical Science, School of Medicine, Health Sciences Centre, University College Dublin, Dublin, Ireland; British Columbia Centre for Excellence in HIV/AIDS, Department of Medicine, St Paul's Hospital, Vancouver BC, Canada.

Address for correspondence

Tomás Barry, UCD Centre for Emergency Medical

Science, School of Medicine, Health Sciences Centre, University College Dublin, Belfield, Dublin 4, Ireland.

E-mail: tomas.barry@ucd.ie

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How this fits in

The role of general practice in opiate overdose prevention and naloxone distribution has yet to be established. This study suggests that GPs commonly provide health care for patients with opiate use disorder and support naloxone distribution within the community. A structured overdose prevention and naloxone distribution programme within general practice should be considered in an effort to reduce overdose-related deaths.

of their own practices and influence the education and training of future GPs. The purpose of this study is to examine the views and experiences of Irish GPs toward opiate addiction, overdose, and wider lay access to naloxone.

METHOD

All GPs ($n = 714$) affiliated with the Department of Academic General Practice, University College Dublin (UCD) were contacted by mail in October 2015 and invited to participate in a paper-based, anonymous postal survey. A reminder letter was sent 3 weeks after the initial mailing. The cohort of GPs surveyed maintain links with UCD through their roles as undergraduate tutors in general practice or by involvement in UCD general practice research projects.²⁰ This sample of GPs represents approximately 25% of Ireland's total resource of approximately 2900 individual GPs, and therefore a significant cross-section.²¹ The results of this study are compared with selected results from an earlier study involving general practice trainees that is reported elsewhere.¹⁹ The

UCD Human Research Ethics Committee granted exemption from full ethical review before commencing data collection.

The study instrument was informed by previous studies concerning the epidemiology of opiate overdose and a pilot evaluation of an educational session to support overdose prevention and naloxone distribution by GP trainees.^{22,23} It included sections on demographics and practice profile, as well as questions relating to experience of and attitudes toward problem opiate use, overdose, and naloxone treatment. Data were analysed using Microsoft Excel (2013) and IBM SPSS (version 20). Means and proportions are reported as appropriate. χ^2 tests for association were performed to evaluate relationships between categorical variables, and a Friedman test with post hoc Wilcoxon signed-rank tests was carried out to assess differences in ranked naloxone route preferences. Not all participants completed all questions and denominator data are reported where relevant. In Table 1, the 88 trainees who are currently working in general practice are identified separately from the overall group of 136 trainees who responded. Similarly, the 155 GPs who reported using naloxone are used as the denominator group to describe that experience.

RESULTS

This survey of GPs achieved a response rate of 62.7% (448/714), which included GPs from all four provinces of Ireland. Most GPs responding to the survey were male (64.8%, 287/443), worked full time (88.4%, 390/441), and were either a principal or partner at their practice (93.6%, 412/440). Approximately one-third worked in rural (29.1%, 127/437), urban (38.2%, 167/437), or mixed (32.7%, 143/437) settings. Responders represented an experienced cohort of GPs, with only 4.0% (18/445) reporting <5 years' experience and most (61.3%, 273/445) reporting >20 years' experience. GPs reported a median of 3500 patients per individual practice, with a range of 200 to 60 000. Almost one-half of GPs provided postgraduate training in their practice setting (47.8%, 211/441). Limited profiling data are available on GPs in Ireland; however, the GPs who responded to this study appear more likely to be male and are in general older than all GPs in Ireland (Table 2).²¹ Tables 1–3 illustrate key data obtained from this survey, and, for the purposes of comparison, data obtained from the authors' earlier survey of GP trainees.¹⁹ Table 4 compares GPs who prescribe opiate substitution treatment with those who do not.

Table 1. Comparison of GP trainees and GPs' experience of addiction and overdose

Variable	GP trainee, n (%) Total $n = 136$; working in GP practice $n = 88$	GP, n (%) $n = 448$	P-value ^a
Practice provides care for patients who use illicit opiates	63/88 (71.6)	324/430 (75.3)	0.775
Practice prescribes methadone	15/88 (17.1)	110/441 (24.9)	0.148
Patient of practice had OD	8/88 (9.1)	148/430 (34.4)	<0.001 ^b
Used naloxone for OD	83/132 (62.9)	155/446 (34.8)	<0.001 ^b
Of which, in hospital	80/82 (97.6)	87/152 (57.2)	<0.001 ^b
Of which, in general practice	1/82 (1.2)	21/152 (13.8)	0.001 ^b

All tests are $2 \times 2 \chi^2$ tests for association, as the variables are categorical and independent. Missing values were excluded. ^aAs multiple testing (15 comparisons) was performed, a Bonferroni adjustment to the 0.05 α level was applied to limit the potential of a type 1 error. ^bA P-value of ≤ 0.0125 is considered significant in this context. OD = overdose.

Table 2. Demographic comparisons of GP trainees and GPs

Variable	GP trainee, n (%) n = 136	GP, n (%) n = 448	P-value ^a
Male sex	30/128 (23.4)	287/443 (64.8)	<0.001 ^b
Age ≤40 years	125/128 (97.7)	68/445 (15.3)	<0.001 ^b
Age 41–50 years	3/128 (2.3)	104/445 (23.4)	<0.001 ^b
Age >50 years	0/128 (0)	273/445 (61.3)	<0.001 ^b
Proportion of trainees working in general practice setting	88/129 (68.2)	–	

All tests are $2 \times 2 \chi^2$ tests for association, as the variables are categorical and independent. Missing values were excluded. ^aAs multiple testing (15 comparisons) was performed, a Bonferroni adjustment to the 0.05 α level was applied to limit the potential of a type 1 error. ^bA P-value ≤ 0.003 is considered significant in this context.

Table 3. Comparison of GP trainees and GPs' attitudes toward naloxone

Variable	GP trainee, n (%) n = 136	GP, n (%) n = 448	P-value ^a
In favour of a lay naloxone project	84/132 (63.6)	292/442 (66.1)	0.741
Would take part in project	71/123 (57.7)	140/443 (31.6)	<0.001 ^b
First preference single-use injectable naloxone	26/123 (21.1)	47/367 (12.8)	0.035
First preference multidose injectable naloxone	23/117 (19.7)	11/338 (3.3)	<0.001 ^b
First preference intranasal naloxone	73/124 (58.9)	331/405 (81.7)	<0.001 ^b

All tests are $2 \times 2 \chi^2$ tests for association, as the variables are categorical and independent. Missing values were excluded. ^aAs multiple testing (15 comparisons) was performed, a Bonferroni adjustment to the 0.05 α level was applied to limit the potential of a type 1 error. ^bA P-value ≤ 0.003 is considered significant in this context.

Table 4. GP experience of opiate substitution treatment and attitude towards a lay naloxone project

Variable	Provides OST, n (%) n = 110	Does not provide OST, n (%) n = 331	P-value ^a
Urban area	68/108 (62.9)	99/327 (30.3)	<0.001 ^b
Has patients who use illicit opiates	101/109 (92.7)	223/321 (69.5)	<0.001 ^b
In favour of lay naloxone project	80/108 (74.1)	209/327 (63.9)	0.053
Would take part in lay naloxone project	47/110 (42.7)	93/327 (28.4)	0.005 ^b

All tests are $2 \times 2 \chi^2$ tests for association, as the variables are categorical and independent. Missing values were excluded. ^aAs multiple testing (4 comparisons) was performed, a Bonferroni adjustment to the 0.05 α level was applied to limit the potential of a type 1 error. ^bA P-value of ≤ 0.0125 is considered significant in this context. OST = opiate substitution treatment.

More than 90% of the responding GPs indicated that they provided services to general medical service (GMS) patients, who comprised a mean of 42.6% of their patient mix. In Ireland, GMS patients are the cohort for whom the state finances primary care on the basis of need and financial circumstance. GMS eligible patients represent approximately 35% of the total population, with this figure set to rise.²⁴

Three-quarters of responders provided medical care for patients known to have an opiate use disorder, while approximately one-third were aware that a patient from their practice had experienced an opiate overdose in the past (Table 1). Despite these levels of contact, only one-quarter of GPs reported that their practice prescribed opiate substitution treatment, although one-third had completed training to provide this treatment. Just over one-third of GP responders reported that they had used naloxone to treat opiate overdose in the past, mostly in the hospital setting.

Two-thirds of GPs were in favour of a planned initiative to increase the availability of naloxone by allowing access to trained lay bystanders (Table 3).¹⁷ Almost one-third of GPs reported that they would consider taking part in such a project, while a significant proportion (29.8%, 132/443) remained undecided.

Intranasal naloxone was the preferred route for lay delivery of naloxone (mean rank = 1.34), when ranked from first (1) to fourth (4) preference, and most GPs who responded (81.7%, 331/405) reported it as their first preference (Table 3). This was significantly higher than formulations of naloxone with an injectable single dose (mean = 2.35, $P < 0.001$) or an injectable multidose (mean = 3.22, $P < 0.001$), with only 12.8% (47/367), and 3.3% (11/338), respectively, of those who replied expressing these as their first preference.

Table 4 demonstrates that GPs prescribing methadone as an opiate substitution treatment (OST) were more likely to work in an urban area, have patients using illicit opiates, and be willing to take part in a naloxone distribution project. Regarding whether a GP was in favour of wider naloxone distribution, there was no significant difference between those prescribing and those not prescribing methadone.

DISCUSSION

Summary

This study captured a cross-section of GPs in Ireland involved in undergraduate education and postgraduate training. This cohort represents an experienced, predominantly male, and working primarily full-time group of GPs. In contrast, the GP trainees from the authors' earlier study were mostly younger and female. It is possible that these contrasts reflect shifting patterns in the demographics of Irish general practice. Nevertheless, both fully-qualified GPs and trainee GPs reported significant experience of patients with opiate use disorders.

While both qualified and trainee GPs reported experience of naloxone use, significantly more trainees had used naloxone to treat opiate overdose; however, this was more frequently in the hospital setting. GP trainees were also more willing to take part in a naloxone distribution programme in general practice. The reasons for the contrasting views of trainees and their more senior colleagues are not explained by the current study; the role of high levels of trainee exposure to opiate overdose and naloxone use in hospital practice is potentially a significant issue. Trainee willingness to take part in this work may well represent a major asset in the implementation of naloxone prescribing in general practice. GP trainees may therefore represent a distinct group of potential 'champions' for such innovation in their current or future practices.

Although patients who use illicit opiates were commonly encountered in the general practice setting, only a few general practices provided methadone treatment and only a few GP training practices provide exposure to opiate substitution treatment, a well-established therapeutic option.²⁵ A significant proportion of GPs and GP trainees were supportive of the wider distribution of naloxone in the community. Smaller, but nonetheless significant proportions were willing to take part in that distribution; however, among GPs, a willingness to take part in distribution of naloxone was predominantly in practices already prescribing methadone. While the difference between being supportive and being willing to take part may reflect the well-documented current demands already placed on busy GPs,²⁶ other barriers to participation may exist but have not been elicited in this study.

Strengths and limitations

Although this study involved a substantial cross-section of Irish general practice, the fact that it involved a targeted sample of GPs affiliated to a major academic centre may limit its representativeness of the wider GP population. The survey instrument used for this study was developed for this purpose and has not been formally assessed in terms of reliability and validity, although was piloted at one practice site and revised (layout changes and clarification of terminology) prior to large-scale use. While this study achieved a response rate of 62.7%, it is possible that non-responding GPs may have differed in their experience and attitudes toward opiate addiction and overdose, potentially skewing results.

Despite the above limitations, this study is helpful in identifying a sub-population of GPs who provide care to patients with opiate addiction, who see a benefit in wider naloxone distribution, and who support distribution initiatives.

This study offers an important perspective concerning overdose response and will be helpful in informing future initiatives. The findings do, however, represent a clinician perspective, one which should be balanced by a real-world, lay community understanding. In reality, when an individual suffers an overdose, it will be the reaction of the surrounding bystanders — whether peers, family members, or other individuals — that will be crucial to survival. Research from Ireland has demonstrated high levels of witnessed drug overdose among people with opiate use disorder.²⁷ Previous studies have shown a clear willingness to intervene on the part of those who witness overdose.^{28,29} Any planned initiative for GP naloxone provision will need to integrate the clinician's perspective with a pragmatic understanding of the real-world challenge of lay response to witnessed opiate overdose in Ireland. In turn, however, GPs may be in a good position to recruit and support family members or friends of drug users as 'naloxone rescuers', given their local knowledge, continuing relationships with patients and families, and potential to identify drug users at higher risk.

Comparison with existing literature

Previous research has suggested that GPs express a negative view toward working with substance users.³⁰ This observation was not supported by the current study where both GPs and GP trainees demonstrated encouraging support for this type of work via community naloxone provision. Although the relevance of this issue for general practice has traditionally received little attention, there is some evidence that GPs elsewhere support the concept.³¹⁻³³ Research in Canada has demonstrated that family physicians considered naloxone provision to be a potentially effective and lifesaving intervention in their practice, and suggested that the community medicine setting may offer advantages for patients in terms of ease of access and capacity for follow-up.³³ Research from Scotland suggested that, while some GPs perceived community naloxone provision to be more appropriate for specialist drug services, GPs did express tentative willingness to be involved.³² However, the study did highlight concerns expressed among GPs regarding training, knowledge, and the

level of experience necessary to enable participation. The issue of medicolegal uncertainty regarding innovative schemes has also been raised as a further barrier to community naloxone provision.^{33,34} These issues, among others, were not addressed in the current study, and will need to be explored further elsewhere.

This study's finding that only a few general practices provide opiate substitution treatment compares poorly with data from other countries. The *2014 National report to the EMCDDA (2013 data) for Ireland* indicates that 337 GPs were involved in the provision of opiate substitution treatment; while the proportion of patients obtaining opiate substitution treatment in general practice has risen slightly in the preceding years (from 35% in 2009 to 40% in 2013), this total represents at best around 10–15% of all GPs in Ireland.³⁵ In Scotland, 44% of GPs were providing methadone in 2008,³⁶ while in some regions of Switzerland, GPs are known to provide most opiate substitution treatment.³⁷ Research from England and Wales suggests that over time an increasing number of GPs have become involved in opiate substitution treatment; however, more patients with opiate use disorder are seen for general medical care than are prescribed methadone by their GP.³⁸ This observation suggests a discrepancy between exposure to opiate use disorder in general practice and the discipline's capacity or willingness to provide opiate substitution treatment and possibly overdose education, prevention, and treatment in the community. An external review of the Irish methadone treatment protocol recommended that all doctors completing GP professional training should have demonstrable competence to provide methadone treatment;³⁹ the current study's findings suggest that this 2010 recommendation has not been achieved. The findings from this study also suggest that GPs involved in the provision of opiate substitution treatment are more likely to take part in the distribution of naloxone to those at risk of overdose. The wider engagement of GPs in opiate substitution treatment systems therefore seems a key issue in managing both opiate dependency and overdose in Ireland.

The GPs in the current study expressed a clear preference for an intranasal means of naloxone delivery in the community. The preference for the intranasal route is largely because it avoids the use of needles for injection of naloxone, thereby reducing the risk of accidental needlestick injury in the high-risk circumstances of

an opiate overdose. Such concerns are often expressed by potential rescuers in spite of the lack of evidence of such injuries;⁴⁰ however, the concern is understandable and, if allayed by intranasal products, may offer increased confidence in the distribution of naloxone. Intranasal naloxone has been used internationally by pre-hospital emergency services for some time,⁴¹ and is currently an option available to statutory emergency services in Ireland.⁴² There is evidence of its efficacy from other jurisdictions compared with naloxone delivered intramuscularly.^{43,44} Interestingly, an editorial published in 2016 questioned the expansion of unlicensed improvised intranasal naloxone kit use in many jurisdictions.⁴⁵ The authors, who acknowledge a conflict of interest due to involvement in the development of such a product, caution that despite a lack of pharmacokinetic and bioavailability data concerning naloxone delivered by this route, intranasal naloxone has been incorporated into standard clinical practice in numerous regions as an off-label route. Of note, the US Food and Drug Administration (FDA) approved an intranasal naloxone product suitable for community use in 2015.⁴⁶ This development may help allay concerns and pave the way for wider naloxone availability in the community setting.

Implications for research and practice

Three important conclusions can be drawn from the findings of this study. Firstly, significant differences emerge between the quarter of GPs whose practices prescribe opiate substitution treatment and the three-quarters that do not. GPs who prescribed opiate substitution treatment appear to be more willing to participate in an initiative to increase access to naloxone in the community and therefore would be a logical cohort to pilot a take-home naloxone programme in primary care. Previous research in Ireland has identified the high-risk geographical locations where overdose occurs most frequently.²² GPs who are working in these areas and are already prescribing opiate substitution treatment could be targeted in the first instance. The role of GP trainees in such pilot projects will need to be established, as this study suggests that their greater experience of naloxone use and willingness to prescribe naloxone may enable them to act as 'champions' in their practices. The relatively low level of involvement of GPs in opiate agonist treatment and their concentration in urban areas in the east of the country contrasts sharply with the well-reported

increase in opiate dependence in all areas of the country.⁴⁷ Efforts to engage larger numbers of GPs in poorly served parts of the country are also essential.

Secondly, the observation that most training practices do not provide exposure to opiate substitution treatment is likely to be a major limiting factor in the future development of competency in this area. Currently, GP trainees are unlikely to have acquired the necessary training and experience to enable participation in either opiate substitution treatment or overdose prevention in general practice. This issue should be addressed as a matter of urgency. More research is needed to examine the reasons why GPs express reservations about involvement in naloxone

prescribing and to examine if this reluctance extends to opiate overdose education and prevention more generally. While the quantitative data in this study identify the issue, this and other related topics may best be addressed through a qualitative approach.

Finally, GPs express a clear preference for intranasal naloxone. To date, there is no licensed preparation of intranasal naloxone available in Ireland; however, as previously mentioned, the US FDA has recently approved a bespoke intranasal product.⁴⁶ Given the wide prevalence of problem opiate use and lethal potential for overdose, an appropriate take-home intranasal product and primary care training package should be developed as a matter of urgency.

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Competing interests

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