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COVID-19 community assessment hubs in Ireland—the experience of clinicians

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Abstract

Background COVID-19 required rapid innovation in health systems, in the context of an infection which placed healthcare professionals at high risk; general practice has been a key component of that innovative response. In Ireland, GPs were asked to work in a network of community assessment hubs. A focused training programme in infection control procedures/clinical use of personal protective equipment (PPE) was rapidly developed in advance. University departments of general practicewere asked to develop and deliver that training.

Aim The aim of this article is to describe infection control procedure training in Ireland, the uptake by GPs and the initial experience of GPs working in this unusual environment.

Design and setting Two anonymous cross-sectional online surveys are sent to participants in training courses.

Method Survey 1 followed completion of training; survey 2 followed establishment of the hubs.

Results Six hundred seventy-five participants (including 439 GPs, 156 GP registrars) took part in the training. Two hundred thirty-nine (50.3%) out of four hundred seventy-five responded to Survey 1—over 95% reported an increase in confidence in the use of PPE. Two hundred ten (44.2%) out of four hundred seventy-five participants responded to Survey 2; 195 had completed hub shifts. Younger, female GPs predominated. Very high levels of infection control procedures were reported. Participants commented positively on teamworking, environment and systems. However, 'real-time' ambulance service data suggest the peak of the surge may have passed by the time the hubs were established.

Conclusion Academic departments, GPs and the Irish health system collaborated effectively to respond to the need for community assessment of COVID-19 patients.

Introduction

By July 2020, Ireland had had around 25,500 confirmed COVID 19 cases and 1,740 deaths related to the disease[i]; around 60% of all deaths have occurred in residential care facilities and around 30% of cases have been in healthcare workers; more than 50% of all cases have occurred in the greater Dublin area/eastern counties[ii]. Given a population of 4.9m, these figures indicate incidence and fatality rates that are among the highest in Europe. The importance of clinical, procedural, organisational and even ethical frameworks to minimise transmission of SARS-CoV2 among patients and healthcare staff is therefore very clear.

In March 2020, the HSE announced the establishment of around 50 'COVID-19 Community Assessment Hubs' in which confirmed or presumptive cases of COVID would be assessed by GPs, Public Health Nurses (PHNs) and other clinical members of primary care teams,

following referral by the patient's own doctor[iii]. The HSE system closely reflects that established around the same time in the UK[iv] [v].

On April 3, a HSE request was made to the university departments of general practice to support the training of those clinicians in their roles within the COVID-19 Assessment Hubs. A half-day training course was developed by the departments, with significant input from National Ambulance Service (NAS) staff with experience and expertise in use of Personal Protective Equipment (PPE) from COVID testing sites. Eighteen courses were provided to 634 participants (GPs, 102 GP Registrars, PHNs and primary care staff) from April 6 to April 23 by staff of the university departments and NAS volunteers at sites around the country. Training sites included Dublin (462 participants), Galway (72 participants) and Cork (100 participants).

GPs were invited to volunteer to work in Hubs while GP registrars and primary care staff were directed by their employer, the HSE, to work in specified units. Clinicians and support staff aged over 60, with pre-existing health conditions or who were pregnant were advised not to take part. Hubs began to accept referrals during the week of 5th April and continue to operate in certain parts of Ireland, although now on a reduced basis.

This paper reports on two follow-up surveys of this population – the first was a simple demographic / feedback exercise for those who had participated in training and the second explored experience of working in the Community Assessment Hubs. The purpose of both was to examine the experience of clinicians with a focus on improving their safety while working in this environment. These results are also placed within the context of emerging COVID morbidity in Ireland through review of calls for the Dublin Fire Brigade Ambulance Service.
? Add clear aim – incorporating contextualisation with ambulance data

Clinical PPE Training Course

The principles underpinning Immediate Care training courses provided the framework: delivery by peers, significant practical content, clear links between skills training and underpinning clinical purpose and supervised small group skills training; satisfactory completion required full attendance and completion of all tasks, without formal assessment[vi]. The HSE nominated most candidates, provided funding and PPE supplies for each candidate and the universities provided access to their facilities. Candidates were asked to watch the standard HSE PPE training videos before attendance[vii].

The settings were mainly large university sports halls which allowed for social distancing and candidates wore surgical masks and used sanitising hand gel throughout. Brief introductory and concluding sessions provided updates on SARS-CoV2, epidemiology, aerosol generating procedures, operational principles for the Hubs and demonstrations of 'donning' and 'doffing' PPE by experts. Due to evolving PPE supplies and specifications, the emphasis was on the principles of PPE use and on the rigorous use of demarcated 'clean' and 'dirty' areas to be established in the COVID-19 Assessment Hubs.

Two hours of the course consisted of small groups circulating through taught simulated clinical scenarios while observing strict PPE and 'clean/dirty area' principles; cases included

a ‘worried well’ patient, a COVID patient with community acquired pneumonia and a COVID patient who developed cardiac chest pain.

The HSE logistics unit expeditiously provided PPE for each session; training focused on the use of gown/mask/gloves but all candidates were also introduced to ‘Hazmat type suits’/googles/visors/FFP2/3 masks and particularly the challenges of safe doffing. This range of potential PPE was included as all these specifications of PPE were being supplied to COVID-19 Assessment Hubs while the course was being run with likely future variation depending on available supplies.

Methods

Both surveys were carried out anonymously using ‘Google surveys’ and were sent to 517 e-mail addresses used for enrolment to the courses. Because courses delivered in Cork and Kerry used a different method of contact no e-mail addresses were available and this group is not included in the study; no email addresses could be located for 17 other individuals. In survey 2, 41 messages were to non-responding addresses or to individuals who were not eligible to work in Hubs, giving a denominator of 476.

Survey 1 gathered demographic and satisfaction data while survey 2 explored the working environment and procedures and perceived exposure to risk; both surveys offered a free text comments section. No attempt was made to examine workload, clinical content or outcomes of care. Data on activity within Hubs has not yet been published by the HSE.

Exemption from full ethical approval was provided by UCD Human Research Ethics Committee.

The study also reports data from Dublin Fire Brigade Ambulance Service (which provides most emergency ambulance services in the greater Dublin area) on COVID related calls from March to June 2020. The data provides a real-time daily context for the establishment of Hub services[viii].

Results

Survey 1: Course participants and their feedback on training
239/517 (46.2%) participants responded to Survey 1. Table 1 summarises demographic characteristics of respondents. Most participants were female (61.5%) and 41% were aged less than 46 years old.

Overall, 228 (95.4%) reported that they had increased confidence in using PPE as a result of the training, 10 (4.2%) reported somewhat increased confidence and one individual reported no change. Respondents were invited to make suggestions or comments on the training course and 192 (80.7%) chose to do so – the vast majority of comments were positive and indicated the course met key needs:

> *‘Initially i didn't think 4 hours was necessary to learn to don PPE but afterwards I didn't feel there was anything that I would have wanted cut from the program. Great job.’*

'It was very well run. Very competent delivery by facilitators. We are all new to this & the familiarising with the PPE removed my personal fear of using it. There will always be slight variations but the basic fundamental safe use was very well explained & delivered.'

Suggestions included more operational information, greater consistency in types of PPE used and increasing or decreasing the time spent on practical skills.

Survey 2: GP experiences of COVID-19 Assessment Hub operations.
210/476 (44.1%) participants responded to Survey 2, of whom 15 had not completed any shifts within the Hubs; the 195 clinicians who had completed shifts provide the denominator for reported experience. Although all provinces were represented, 72% of all respondents worked in Hubs in the east of the country (Leinster).

Table 2 summarises demographics and reported shift patterns and indicates that 126 (64.6%) of clinicians were female and 122 (62.6%) were in the 25-45 age group. Most shifts were of six hours or 12 hours duration. Of 119 GPs, 34 (28.6%) had completed more than five shifts. Of 52 GP registrars, 34 (65.4%) had completed more than five shifts.

194 (99.9%) indicated that supplies of PPE were adequate during their shifts.

14 (7.2%) said compliance with PPE procedures in their Hub was adequate and 181 (92.8%) said compliance was very good.

23 (1.2%) clinicians reported that Aerosol Generating Procedures were carried out during their shifts, with one respondent reporting more than three such interventions.

163 (83.6%) clinicians reported that IT systems within the Hubs were adequate or very good but 32 (16.4%) described these systems as 'poor'. Many of the comments from respondents related to experience with the IT systems.

'I found the IT software difficult to use. Not at all intuitive. With a once weekly shift it felt like you had to learn it all over again each time.'

'IT system very cumbersome/ not user friendly / apart from that the experience in the Hub has been excellent.'

'Only issue in my opinion was the IT system.'

14 (7.2%) clinicians felt that referral systems to the Hubs were poor, while all others said they were adequate or very good. However, 34 (17.4%) clinicians felt that reporting systems back to the referring GP were poor while 20 (10.3%) felt that ease of referral to support services was poor. Overall, dissatisfaction with IT and administration systems focused on ease of use compared to mainstream GP electronic platforms, rather than on any identified deficits in the content. The Hubs system used a 'Swiftqueue' central booking system which appeared to work very efficiently while most comments related to the patient electronic record system used in consultations.

Thematic analysis of free-text comments on GP experiences

90 (46.2%) of respondents chose to make additional comments about their experiences. Key themes included:

i. A very positive experience in the Covid-19 Assessment Hubs and praise for the efficient and rapid establishment of the system.

> *'Despite the fact that the numbers attending the assessment Hubs were not as expected, it was an incredible achievement by all involved in getting the service up and running so efficiently. Day to day the Hub ran really well and all staff were a pleasure to work with.'*
>
> *Very supportive and safe environment. Excellent and motivated staff.*
>
> *'Good organisation, clear communication between the team. It was a lovely team to be part of. '*
>
> *'Very positive rewarding experience personally & professionally.'*
>
> *'Brilliantly organised.'*
>
> *'A good model and really important in supporting the efforts to keep general practices Covid free and let other work take place etc.'*
>
> *'The experience of working closely with PHNs has been a pleasure and will leave a positive legacy.'*
>
> *'The preparation for this exercise starting with the truly excellent PPE training, has been most impressive and a real morale boost.'*
>
> *'Overall thoroughly enjoyed being part of this experience. Much learned. Great connections made. Thanks for the training and confidence.'*

ii. Limited and falling workload.

> *'While a good initiative initially I feel that the resources allocated to the Hub outweigh the benefits. A large number of staff for few patients with knock on effects on public health nursing particularly.'*
>
> *'The Hubs were/are very quiet. Max 3 patients in 4 hour shift, min 0 and mode 0.'*
>
> *'Hub quiet. Better be looking at it and not needing it than needing it and looking for it.'*
>
> *'I've worked four shifts and in total only one patient was referred and seen during one of those shifts.'*

iii. Potential for re-use of the model.

'Currently I feel they are no longer needed and I strongly feel that the HSE should step them down with a view to opening them up again should they be needed.'

'Is there a need for HUBs at this time? Perhaps mothballing them till the need arises as numbers referred are very low and mostly don't need specifically Hub expertise. We know it is well set up and functioning, perhaps to consider holding them till the need arises and literally have them up and running within 24hrs as we know how it works.

'Well set up, may be a greater need for them in the autumn winter for all respiratory presentations to ease pressure in gp surgeries.'

iv. Preparatory training helped.

'Training was excellent.... thank you!'

'The preparation for this exercise starting with the truly excellent PPE training, has been most impressive and a real morale boost.'

'I'll be happy to work in the Hubs when a further wave occurs. Thank you for the training.'

Figure 1 illustrates the number of COVID related emergency ambulance calls identified by DFB Ambulance Service in the greater Dublin area and the national reporting of confirmed cases of COVID. It shows the peak of COVID related emergency ambulance calls was approximately two weeks earlier (7th April) than the peak of reported COVID cases (25th April).

Discussion

Irish general practice has responded at many levels to the COVID-19 pandemic[ix]. This study describes the high level of general practice support in bringing Community Assessment Hubs into operation, at a time of very significant COVID related demand on general practice, amid great change in normal operational routines. More than 500 GPs and GP registrars came forward to complete relevant clinical training over an x week period in order to work in COVID-19 Assessment Hubs, during April 2020 - this represents around 15% of the general practice population. Almost all HSE regions required completion of this training programme by GPs and GP registrars, so it is likely that participants represent the large majority of GPs and GP registrars who eventually worked in the COVID-19 Assessment Hubs.

Data on Hub activity is not yet available but the original 50 Hubs appear to have been rapidly reduced in numbers and opening hours as workload was evaluated and in the context of containment of cases due to the lockdown and physical distancing measures introduced in X . No data exists on the total number of clinicians who worked in Hubs but the 160 who responded to this study are likely to be a significant proportion of the doctors who carried out shifts and may therefore provide useful insights into this novel clinical setting.

It is striking that young, female doctors contributed so heavily to the operation of the Hubs, with two-thirds of GP registrars having completed more than five shifts whereas only one-third of GPs have done so. Many respondents expressed concerns at the fact that GP registrars were required to work within Hubs and were scheduled at a high level of activity, whereas GP principals were invited to volunteer and selected their workload.

Attendance at clinical PPE training was very high and participants reported high levels of satisfaction with the training and with the preparation they received for work in the Hubs. Clinicians working in the Hubs generally reported good working conditions in terms of availability of PPE and use of appropriate procedures; also, aerosol generating procedures seem to have been very infrequent.

The challenges of general practice have been much highlighted internationally in recent years in terms of increasing workload, financial difficulties, limited recruitment and poor morale (add ref). It is noteworthy that the sentiments of respondents working in hubs were significantly different – praise for the health service was strongly expressed, clinicians were enthusiastic about participation in the service and where criticism was offered it was focused and constructive. Perhaps counterintuitively, involvement in an innovative clinical service perceived to be of real importance seems to have had a significant positive effect on the morale of GPs, at a time when general practice itself was under tremendous pressure. It is noteworthy that in times of unprecedented change, within a three-week period over 600 GP's had completed standardised training at three different national sites.

Many respondents reported low or falling levels of clinical activity and no respondent reported a high demand role, with reductions in Hub availability being introduced later in April. The timing of the introduction of the Hubs is an important potential learning opportunity for future COVID surges. Emergency ambulance usage in the greater Dublin area peaked two weeks before the peak of retorted positive cases, at which time emergency ambulance use had fallen by 50%. Perhaps availability of Hub services two or three weeks earlier might have better matched demand within the community? It seems likely that emergency ambulance use might in the future be a sensitive marker for morbidity in the community which would benefit from re-opening of the Hubs.

This study has significant limitations including limited responses to both surveys, potential self-selection by respondents with specific views or experience, the absence of any operational / utilisation data to provide context and limited potential depth using this survey strategy. However, the data represent a 'first-look' at the contribution of GPs in Ireland to a major health crisis and provide insights into the experience and lessons learned by those doctors.

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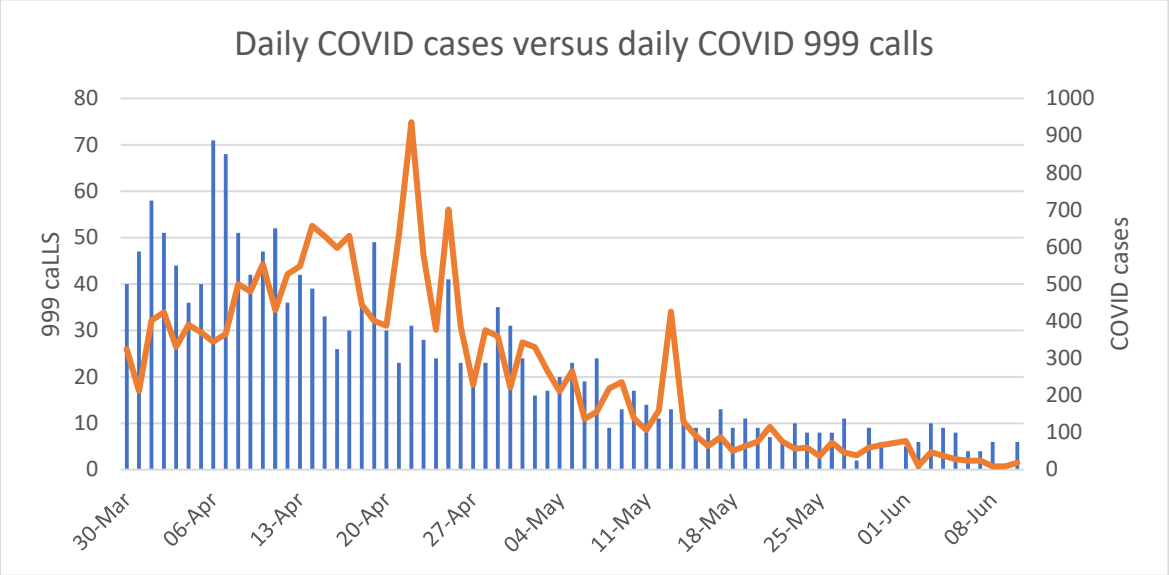
Table 1. Respondents (Training survey) by age, gender and profession (n=238).

	GP	GP Registrar	PHN	OtherHCP	Totals
Male					92
25-45	33	0	0	1	
46-60	36	17	0	0	
>60	4	0	0	1	
Female					147
25-45	47	0	7	10	
46-60	40	31	5	5	
>60	0	0	0	2	
Totals	159	48	12	18	239

Table 2. Respondents (Hub survey) by age, gender and profession (n=190).

	GP		GP Registrar		PHN		Other HCP		Totals
Shifts	1-5	>5	1-5	>5	1-5	>5	1-5	>5	
Male									69
25-45	16	6	7	11	0	0	0	0	(40 x
46-60	15	11	0	0	0	0	0	1	25-45)
>60	2	0	0	0	0	0	0	0	
Female									126
25-45	28	8	11	21	1	6	0	7	(82 x
46-60	24	9	1	0	1	6	0	3	25-45)
>60	0	0	0	0	0	0	0	0	
Totals	85	34	19	32	2	12	0	11	
	119		51		14		11		195

Figure 1. Daily confirmed cases versus daily 999 ambulance calls in Dublin (30th march to 10th June).



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[ii] DoH / NPHET

[iii] Health Service Executive, Ireland.
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[iv] Primary Care Assessment Hubs, NHS Wales.
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