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Published in:
Community Dental Health

DOI:
[10.1922/CDH_00170Burns06](https://doi.org/10.1922/CDH_00170Burns06)

Publication date:
2022

Document Version
Publisher's PDF, also known as Version of record

[Link to publication in Discovery Research Portal](#)


Citation for published version (APA):
Burns, J., Mc Goldrick, N., Sigerson, D., Edwards, M., Culshaw, S., Clark, C., Watling, C., Braid, R., O'Keefe, E., Gorman, M., & Conway, D. I. (2022). A Health Inequalities Impact Assessment of the surveillance of COVID-19 in asymptomatic patients attending dental settings in Scotland. *Community Dental Health*, 39(4), 254-259.
https://doi.org/10.1922/CDH_00170Burns06

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A Health Inequalities Impact Assessment of the surveillance of COVID-19 in asymptomatic patients attending dental settings in Scotland

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Introduction: A key aspect of the public health response to COVID-19 in Scotland was enhanced community surveillance, including testing in dental settings. Across Scotland, dental settings offered patients over 5-years-old the opportunity to participate in community surveillance of COVID-19. **Methods:** A Health Inequalities Impact Assessment (HIIA) was conducted to understand the differential impacts the programme would have on the population and to improve the accessibility of the programme. HIIA is a tool to allow the assessment, understanding, and mitigation of impacts on people of a proposed policy or practice. It fulfils an organisational duty to meet the requirements of the Equality Act and Fairer Scotland Duty. The HIIA was conducted rapidly in parallel with the programme development. An action research approach included an online workshop, consultation, review of population data and a literature search. **Results:** Adjustments were required to improve the programme’s accessibility. Stakeholders, including dental teams from across Scotland were involved in the consultation and brought their front-line experience in different settings. Common issues identified included digital literacy and access, language and cultural barriers to participation, and issues relating to the implications of a positive COVID-19 result. Literature indicated limited evidence on the acceptability, accessibility, and equity of asymptomatic COVID-19 surveillance. **Conclusion:** This HIIA was conducted during the COVID-19 pandemic. As an example of good practice in tackling inequalities in access to programmes it should represent the benchmark for other similar initiatives.

Keywords: Health Services Accessibility, COVID-19, Public Health, Dentistry, Health equity, Public Health Surveillance

Introduction

Understanding how COVID-19 affected different groups in the population was a key aspect of the public health response and was crucial for informing public health measures and policy decisions. Public Health Scotland led this work under the banner of Enhanced Surveillance of COVID-19 in Scotland (ESoCiS) (Health Protection Scotland, 2020a). The work included data streams from community, secondary care, schools and also dental settings. Each stream aimed to gather evidence about prevalence, routes of transmission and symptoms.

The COVID-19 Surveillance of Asymptomatic Patients in Dental Settings programme provided SARS-CoV-2 testing to patients screened as asymptomatic attending dental appointments from 3/8/20–1/4/21. Testing was initially offered to both children and adults attending Urgent Dental Care Centres (UDCCs) where the programme was active. Methods and early results are described by Conway et al. (2021). The programme was expanded to include general dental practices and hospital dental services. At the time of conducting this HIIA only UDCCs were involved (Health Protection Scotland, 2020a,b).

In Scotland, public bodies are required to demonstrate that the organisation has fulfilled the legal duty of the

Equality Act 2010 when carrying out its obligations (UK Government, 2010). The Fairer Scotland Duty goes further by asking public bodies to ‘pay due regard’ to activity that could lead to inequalities (Scottish Government, 2018). The equivalent legislation in Wales, the Socio-Economic Duty, was enacted in March 2021, England abides by the Equality Act with no further primary legislation akin to the Fairer Scotland Duty (Welsh Government, 2021; The Equality Trust, 2019).

Tools are available to help public bodies understand the impact of their activity. An Equality Impact Assessment (EQIA) will help an organisation demonstrate that it has met the duties set out in the Equality Act. However, a Health Inequalities Impact Assessment (HIIA) provides a broader scope for inclusion of more people beyond the defined protected characteristics by considering other issues such as income, culture, social factors, employment and human rights (Public Health Scotland, 2021). An HIIA will therefore enable a public body to meet the duties of both the Equality Act and the Fairer Scotland Duty by highlighting inequalities and allowing mitigating action to be taken.

To the best of authors’ knowledge there are no peer reviewed published articles of an HIIA related to testing for SARS-CoV-2 or for any other type of asymptomatic testing.

There were two aims of this project. First, to assess and understand the impact of the COVID-19 Enhanced Surveillance in Dental Settings programme on an individual's ability to participate in the programme. Second, to mitigate potential negative impacts where possible by carrying out a HIIA and implementing recommended changes as the programme developed during the pandemic.

Method

An HIIA is ideally carried out in the planning stages of a programme, where changes and adaptations can be easily incorporated. Due to the rapid nature of the COVID-19 pandemic and need to mobilise the programme, this HIIA was conducted alongside the development and implementation of the programme, with real time changes.

The objectives agreed for the HIIA were to:

- Explore current literature assessing acceptability and accessibility of similar testing programmes.
- Gather views from a range of stakeholders to understand impact.
- Identify negative impacts and recommend possible mitigations.
- Assess what adjustments were needed to ensure the programme was as accessible as possible and explore options for tailoring of the programme towards vulnerable groups.

Methodology outlined by Public Health Scotland (2021a) informed the approach but was adapted to consider remote working and the inability to hold workshops face to face. The online workshops using Microsoft TEAMS and an online consultation process are described below.

Population Eligible for Testing

Children and adults attending UDCCs where COVID-19 Enhanced Surveillance testing was offered were considered in the scope of the HIIA. The HIIA focussed on people with protected characteristics and other vulnerable groups but made recommendations on a population basis. The programme evolved to include patients in other dental settings and the findings were expected to remain relevant as UDCCs provided care to members of the general population.

Rapid literature and data review

National datasets were consulted to understand the demographics of the general population (National Records of Scotland, 2020a, National Records of Scotland, 2020b, Scottish Government, 2021a, Scottish Government, 2021b, and Scottish Government, 2020a). Service level data from NHS Fife were compared with national datasets to estimate how comparable the population accessing urgent dental care were to the general population. The data are not reported in detail in this paper as they were based on local unpublished service level data.

A rapid literature search was undertaken (search strategy available on request).

Scoping workshop

The workshop was planned by a small working group, held over Microsoft Teams and lasted 60 minutes. The objectives of the session were to:

- Review the existing literature and datasets.
- Consider the impact of the programme on the following characteristics: age, disability, pregnancy and maternity, homelessness, involvement in the criminal justice system, socio-economic deprivation, living in remote and rural locations, religion and belief, sexual orientation, looked after children and young people, carers, gender reassignment, marriage and civil partnership, addictions and substance misuse, and healthcare staff.
- Identify what further information should be gathered to help deliver the programme effectively.

Members of the programme Steering Group and those involved in the two programme pilot sites (NHS Fife and NHS Greater Glasgow and Clyde) were invited to the workshop.

Consultation

To widen participation in the HIIA, consultation used an online questionnaire with the following groups; dental teams involved in delivery of the programme across all 14 NHS Scotland Territorial Health Boards; patients who had participated in the programme; patients who had not participated in the programme; and patient advocacy/representative groups (with support from the NHS Fife Equalities team).

An online questionnaire was developed following the scoping workshop. The Microsoft Forms platform hosted the questionnaire and was circulated via mailing lists. Cascading of the questionnaire to other staff members and patients was encouraged. The questionnaire was live for two weeks in October 2020.

Results

Comparison of local and national data

The demographic characteristics of the samples taken during the pilot phase of the programme were compared against local and national data to indicate its reach. National estimates used data sources such as the census, and local data were based on unpublished service level data (Scottish Government, 2021a). There was greater representation of individuals from the most deprived Scottish Index of Multiple Deprivation (SIMD) quintiles seen in the UDCC sites, with a good spread of involvement across the population gradient. Gender was approximately equally split and ethnicity as recorded was consistent with population estimates. There was over representation of working age adults, and under representation of children and older adults, which is indicative of the population who access emergency dental care.

Rapid literature review findings

The literature search related to acceptability, accessibility, equity and equality in testing for COVID-19 produced limited results with most papers related to swabbing for other diseases such as HIV or influenza (Demmer *et al.*, 2020; Goyal *et al.*, 2017; Balán *et al.*, 2017; Knight *et al.*, 2017). The available literature concluded that self-swabs carried out for COVID-19 were well tolerated and viable. Opinion pieces by experts presented arguments for ensuring equitable testing systems and a will to do so (Dodd and Ibidun, 2020; Kernberg *et al.*, 2020).

Evidence from other diseases such as HIV concluded that; offering mouth swabs increased the uptake of testing compared to blood tests in young people; home testing by the user was generally favourable; an oral swab was more acceptable to the participants than a blood test; including further testing of the blood for other sexually transmitted infections led to increased acceptability. A paper related to influenza found that patients assessed collection of nasal swabs to be acceptable either by self-swab or carried out by healthcare workers.

The search produced a low quantity and low-quality evidence base. Literature related to acceptability, accessibility, equity and equality in testing for COVID-19 was limited based on the search criteria at time of the search. The international evidence base appeared to be limited in this field. Feasibility of carrying out asymptomatic testing in a dental setting has previously been proven in a pilot study focused on investigating Human Papilloma Virus infection (Conway *et al.*, 2016). The study also reported that it was possible to recruit a sample that would be representative of the Scottish Population.

Consultation participants

In total, 35 dental team members from across Scotland participated in the consultation. These were from twelve of fourteen Health Boards. Table 1 summarises the respondents by team role. Eleven patients responded to the questionnaire, but no responses were relevant to the aims of the HIIA.

Table 1. Job titles participating dental team members.

Role	%
Dentist	34.3
Dental Nurse	22.9
Dental Nurse Coordinator/Team Leader	5.7
Dental Hygienist/ Therapist	5.7
Dental Health Support Worker	11.4
Oral Health Educator	5.7
Manager/Team Lead	8.6
Other	5.7

*due to sample size, n is not given here as several categories had fewer than 5 participants.

Protected Characteristics

No specific barriers or implications were noted either through the consultation or scoping workshop for characteristics of sex, pregnancy and maternity, marital status, sexual orientation and religion or belief.

Children and young people were under-represented in the UDCC setting and in the surveillance programme. Children are a small proportion of the patients seen for emergency dental care and prioritisation of care over participation in the surveillance programme was often reported. There were potential impacts not just on the child being tested, but also their family due to the need for isolation, therefore it was felt that some parents refused consent out of fear of the implications of a positive test result.

Several potential impacts were noted for those living with a disability, focusing on communication, consent and co-operation for the test. There was recognition that the role of an escort or family support was vital in providing high quality care to those with disabilities which could affect understanding, communication or indeed physical access to the dental clinics. Other barriers included digital exclusion for this group and difficulties in communication when faced with staff wearing PPE.

The options for recording gender on the participant questionnaire and UK Government portal where test kits were registered presented binary options as this was linked to NHS health records. This was not an inclusive way for gender to be recorded. Whilst the programme recognised this, due to the need to link to records it was difficult to change. The programme raised this issue with the providers of the portal resulting in the option to not declare gender being added.

To allow individuals from all ethnic backgrounds to participate in the programme it was felt that patient facing materials must be available in multiple languages with interpretation on site if required to address possible language barriers. The patient materials were translated into the top five community languages (Polish, Arabic, Urdu, Romanian and Mandarin) and further translations were available on request.

There were no specific cultural issues identified regarding the uptake of testing, however certain ethnicities were disproportionately affected by COVID-19 and its impacts and this may have been a barrier to testing for this group (National Records of Scotland, 2020b). Asylum seekers and refugees may be reluctant to participate in a programme such as this, especially if the testing pathway is through the UK Government portal.

Other characteristics of interest

Impacts on staff involved in the programme included increased workload, additional time required for patient appointments and additional responsibilities. There were mixed reactions, which broadly correlated to the wider feelings about testing. Those who expressed that they felt the programme was a positive initiative were more likely to frame these impacts in a positive manner and have a sense of ownership over the programme. Those who felt the programme was inappropriate or not beneficial were more likely to view staff impacts negatively.

Having a representative population involved in the surveillance programme was important, therefore specific attention was required to ensure coverage across remote, rural and island locations. The programme was able to reach across Scotland and had good coverage in most locations, including the islands. Other groups which may otherwise have struggled to access this type of testing were those experiencing homelessness and those involved in the criminal justice system. The Public Dental Service is the main provider of dental care for these individuals and therefore the programme could be extended to this population. However, it was noted that the implications of self-isolation for these individuals may have been more difficult to manage via existing pathways. Similar considerations were made for those with substance misuse and addictions issues, who may have been less likely to access care, and if they had accessed care, refusal to participate in asymptomatic testing was expected to have been higher.

Health Inequalities

The Steering Group identified several possible impacts on the causes of health inequalities. Many of these were centred around the impact of a positive test result on a household. It was therefore reasonable to assume that the potential negative impacts may have driven refusal to participate in the programme from those most at risk of these impacts, resulting in an unequal population representation in the data. Impacts were noted in ability to attend work, exclusion from education and recreation beyond the home, accessing healthcare being more difficult in the short term and an individual being excluded from social events for the isolation period. Some of these impacts may be mitigated through the support that was available in the Test and Protect system and Local Authority support measures.

Data from the 20-week report indicated that the programme was able to reach an even spread of participants across SIMD quintiles as shown in Table 2 (Public Health Scotland, 2021b). The decision to site the programme in UDCCs initially may be an explanation for this, as the need for urgent care is higher in lower socio-economic groups, therefore providing greater opportunity to participate for these individuals. This contrasts with routine, non-emergency care, where a socio-economic gradient would be more likely to occur (Public Health Scotland, 2021c).

Table 2. Proportion of surveillance population by SIMD quintile in first 20-weeks of programme.

<i>SIMD</i>	%
1 (most deprived)	19.7
2	20
3	20
4	19
5 (least deprived)	13.4
Unknown	7.9

Human Rights

The scoping workshop did not identify significant impacts of the programme on human rights. Participation was voluntary, and dental treatment should not have been affected by an individual's decision to participate. The consultation broadly reflected this viewpoint. A small number of comments suggested that the implications of a positive COVID-19 test result could temporarily have restricted an individual's right to freedom, due to self-isolation, however these issues were not unique to the surveillance programme.

Summary of the impact of the HIIA

The programme achieved equal representation across SIMD quintiles and an equal gender split. There was some skew in the age profile due to a lower proportion of children accessing emergency dental care in the UDCC's. Ethnicity was well recorded (high completion rate) and showed an approximate split in line with population estimates.

In total 13 recommendations across the domains of acceptability, accessibility and availability were provided

following the HIIA scoping workshop and consultation. Of the 13 recommendations, 11 were acted upon and solutions delivered (Table 3). The remaining two were not possible within the time and resources available.

Discussion

The HIIA, and particularly the consultation, was carried out at pace and delivered in an online format only. Professional engagement across the programme was a strength of this project considering the short timescales involved and the methods of online engagement proved effective for this group. It was easy to disseminate, through email lists and onward cascade to interested parties.

However, limitations of the assessment were acknowledged:

- The literature search strategy was basic and not systematic as the aim was to spark workshop activity rather than comprehensively review literature. It could be refined and expanded to bring together the evidence surrounding accessibility, acceptability and equity associated with testing for SARS-CoV-2.
- There was limited public involvement in the consultation; therefore, the output broadly represents the views of professionals and the available evidence base. Although not directly part of the HIIA, a local quality improvement project ran in tandem and sought the views of the public and patients (Wemyss *et al.*, 2022). The focus of that engagement was on understanding reasons for refusal to participate and findings were reported to the national steering group. It is essential, where possible, that the public viewpoint and lived experience of individuals are incorporated into impact assessments. This is a limitation of the HIIA, driven by the pace and available consultation methods at the time during a pandemic.
- Further consideration of the impact of an online platform for engaging the public should include issues with digital exclusion and literacy. Reports available on the Public Health Scotland website record difficulties engaging a wide range of patients or patient groups prior to the pandemic in more traditional ways (NHS Health Scotland, 2013a; NHS Health Scotland, 2013b). It is likely therefore that a variety of options for the public to engage will be more inclusive and might include a mix of face to face conversations, targeted use of social media, patient group websites, online focus group events and engaging patient advocacy groups.

Despite some limitations, this HIIA proved to be a useful tool toward deeper consideration of the impact of decisions on population groups and resulted in a series of recommendations to mitigate negative impact on health inequalities.

In conclusion, it is possible to carry out an HIIA at pace in the middle of a pandemic to produce results that can positively shape delivery of surveillance programmes. Broad consideration of the potential impacts on individuals and communities is encouraged through the HIIA process. The HIIA provided a valuable assessment of potential issues for accessibility, availability and

Table 3. Recommendations and actions from Health Inequalities Impact Assessment.

<i>Theme</i>	<i>Recommendation</i>	<i>Action taken by Programme team</i>
Population demographics	1. Use the available data to identify and explore reasons why some population groups might be under represented in the current sample.	<ul style="list-style-type: none"> Quality improvement project to understand reasons behind patient refusal to participate (Wemyss et al 2022) Interim 20 week report showed even spread across SIMD Sex and ethnicity profile followed population distribution
Impacts to staff	2. Explore how programme can contribute to staff development, such as providing verifiable Continuing Professional Development (vCPD) hours as part of the General Dental Council eCPD cycle or KSF appraisal.	<ul style="list-style-type: none"> Online 2.5 hour CPD course developed Approved for CPDa funding (Scottish Government 2020b)
Impacts to staff	3. Agree ways to thank dental teams involved in Programme for huge contribution and effort they have made over and above the dental care they continued to provide, and to recognise teams for this.	<ul style="list-style-type: none"> Regular email updates were sent from the National team, to maintain communication with stakeholders which was very well received
Disability	4. Engage with dental teams caring for patients with additional care needs to understand barriers and possible solutions to consent, communication and cooperation.	<ul style="list-style-type: none"> The Public Dental Service teams involved in providing care to patients with additional care needs in some Health Boards were involved in the Programme
Ethnicity	5. Translate patient information letter to other languages.	<ul style="list-style-type: none"> Patient information letter was made available in English, Mandarin, Polish, Romanian, Urdu and Arabic. Other translations could be arranged locally on request
Disability	6. Learn from wider health and social care landscape to understand how patients with hearing loss can be supported in their communication with dental teams at this time.	<ul style="list-style-type: none"> The short timescales of the programme did not allow for further investigation in these areas
Homelessness	7. Identify support provided to people who are experiencing homelessness, or who have experience of drugs/alcohol when asked to self-isolate under usual test and protect protocols.	<ul style="list-style-type: none"> The short timescales of the programme did not allow for further investigation in these areas
Disability	8. Identify if any other surveillance workstreams have developed resources in accessible formats such as picture boards to adapt for the dental programme	<ul style="list-style-type: none"> Investigated but no other resources were identified.
Disability	9. Explore what additional formats for patient information could be supported	<ul style="list-style-type: none"> Local boards were able to support alternative formats on request and if required.
Disability	10. Analyse participation log and patient questionnaire data to identify the proportion of patients accessing the surveillance programme who may have additional care needs or be clinically vulnerable to COVID-19.	<ul style="list-style-type: none"> 20-week report indicated around 9% of participants self-identified in shielding category. National proportion shielding was reported as 3%. This did not include those aged over 70 who may self-identify as requiring to shield.
Socio-Economic Deprivation/ Disability / Ethnicity	11. Explore how patients who may be excluded from the Programme due to digital access issues can be supported to participate.	<ul style="list-style-type: none"> The programme provided a monitored generic email address and telephone helpline
Sex/ Gender Reassignment	12. Review the patient questionnaire in line with best practice for recording gender in an inclusive manner.	<ul style="list-style-type: none"> Discussions with partners regarding the recording of gender and options to recognise diversity Gender used to match to NHS health records therefore binary variable
Disability	13. Explore how programme can include more people living with disability by liaising with colleagues in special care dentistry.	<ul style="list-style-type: none"> The Public Dental Service teams providing care to patients with additional care needs in some Health Boards were involved in the Programme

acceptability of the testing programme. An action research approach, with improvements made rapidly in response to issues, proved fruitful with 11 of 13 recommendations achieved and delivered. Organisations hoping to eliminate discrimination, advance equality, reduce health inequalities and enhance human rights will find HIIA helpful in appraising policies and plans.

Conflicts of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

Funding

The surveillance programme was funded by the Scottish Government Public Health COVID Directorate.

Acknowledgments

The authors would like to acknowledge Debbie Slidders, NHS Fife for her contribution to the scoping workshop. We would also like to extend our thanks to all those who responded to the online consultation exercise and the dental teams and patients for their participation in the programme.

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