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Attitudes and Knowledge Surrounding Point-of-Care COVID-19 Testing in Ontario Group Homes for Persons with Intellectual and Developmental Disabilities: A Pilot Study

Attitudes et connaissances par rapport au dépistage de la COVID-19 par analyse délocalisée dans un foyer de groupe ontarien pour les personnes ayant une déficience intellectuelle et un trouble du développement : Une enquête pilote

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Abstract

This research aimed to determine the attitudes and knowledge of managers and care teams within group home facilities for persons with intellectual and developmental disabilities (IDD) concerning the use of rapid point-of-care antigen testing for COVID-19 to protect residents and limit transmission. Specifically, our research asked what is the level of understanding concerning the suitability of such testing, and what barriers might exist to implementing this new technology. A small survey instrument was developed to assess knowledge and understanding specific to this sector of care facilities. This survey was distributed to approximately 250 managers and care staff of 15 group homes in Ontario for people with IDD. Of the 11 respondents, all indicated trust in this technology to identify positive COVID infection, even in asymptomatic individuals, with some respondents over-estimating the benefits of implementing this technology as a screening tool. Therefore, increasing knowledge of the limitations of rapid testing as a screening tool for visitors, residents and staff, as well as addressing barriers to adoption of point-of-care analyzers, must accompany implementation of screening at any facility.

Résumé

Cette étude visait à déterminer les attitudes et les connaissances des gestionnaires et des équipes de soins au sein des foyers de groupes pour les personnes ayant une déficience intellectuelle (DI) ou un trouble du développement (TD) concernant l'utilisation de tests antigéniques rapides pour la COVID-19 en milieu de soin afin de protéger les résidents et limiter la transmission. Spécifiquement, cette étude s'intéressait au niveau de compréhension concernant la pertinence de tels tests et des obstacles potentiels à la mise en application de cette nouvelle technologie. Un court sondage a été développé pour évaluer les connaissances et la compréhension spécifiques à ce secteur d'établissement de soins. Ce sondage a été distribué à près de 250 gestionnaires et employés de soin de 15 foyers de groupe pour personnes ayant une DI ou un TD de l'Ontario. L'ensemble des 11 répondants ont indiqué avoir confiance en la technologie permettant d'identifier les infections par la COVID, même auprès d'individus asymptomatiques. Quelques répondants surestimaient les bénéfices d'implanter cette technologie comme outil de dépistage. Par conséquent, une meilleure connaissance des limites des tests rapides en tant qu'outils de dépistage pour les visiteurs, les résidents et le personnel ainsi que la prise en compte des obstacles à l'adoption de dispositifs d'analyse délocalisée doivent accompagner la mise en œuvre du dépistage dans n'importe quel établissement.

Mots-clés : Test COVID-19, foyers de groupes, déficience intellectuelle, trouble du développement, étude par enquête

Introduction

As explained by the World Health Organization (WHO), the term severe acute respiratory syndrome coronavirus 2 (*SARS-CoV-2*) is used to denote the virus that causes coronavirus disease 2019 (*COVID-19*) (WHO, 2022). Articles intended for the public often use the term COVID-19 for virus and disease.

With the COVID-19 pandemic persisting into 2022 and beyond, the containment of community transmission and outbreaks in congregate settings continue to be concerning issues. The recent rollout of vaccines has provided hope for decreases in hospitalization and mortality rates of those most vulnerable. Unfortunately, new variants of SARS-CoV-2, in addition to hesitancy issues with vaccines, still leaves many vulnerable groups at risk of infection, hospitalization and death.

The distribution of rapid antigen test has the potential to play an important role in mitigating community transmission of SARS-CoV-2 (Soni et al., 2022); however, most of the current research has focused on the benefits of rapid testing in residences for aging adults that need support in daily activities while studies examining the issue in group homes for people with IDD have not been fully explored. For instance, results of a survey distributed across care settings in the United Kingdom (UK) identified an urgent unmet clinical need for rapid testing in care homes to better screen visitors and staff; importantly, care home settings are especially in need of screening tools for asymptomatic individuals (Graziadio et al., 2020). This point was well illustrated with the key findings of a study conducted over a 3-week period in May 2020 in large

care homes in London, England showing high asymptomatic infection detection rates in staff and residents (69% and 51%) using RNA testing, and under-detection of symptoms by care home staff (Marossy et al., 2020). The advantage of point-of- care rapid testing would be to drastically reduce the time to test result, enabling faster decision-making concerning isolation of residents and employees. For this reason, it is not surprising that organizations that support those with IDD show interest in procuring point-of-care diagnostic testing capabilities to provide more rapid access to results, with intentions of increasing safety of residents and staff, and decreasing unnecessary isolation of non-infected individuals (Mills et al., 2020). More recent studies, however, have raised concerns that testing to mitigate COVID-19 transmission in care settings of any type is complex; very little is known as to how well point-of- care tests can be integrated into settings that support vulnerable populations, the readiness for adoption among potential users, and how the evolving role of point-of-care rapid testing may need to be tailored to individual sites (Dumyati et al., 2020; Micocci et al., 2021).

The accepted standard diagnostic test for viral infection involves an invasive nasal swab that must be processed in a laboratory setting to isolate and amplify the viral genetic material for detection; this often take days for the results to be communicated and is therefore not useful to assess infection status on a daily basis. However, rapid testing kits have the potential for on-site screening of residents, visitors and staff at congregate settings of persons with IDD. Rapid testing kits produce results on the spot but are not without significant drawbacks. Specifically, most rapid test kits are antigen tests (they can detect the presence of a viral spike protein specific to SARS-CoV-2) but very few are rapid tests that detect the actual viral material (molecular tests) (Guglielmi, 2021). Though not conducted among people with IDD, two studies were found that have potential implications for this group. One of the only studies that investigated the feasibility of implementing a point-of-care molecular test in care homes found that an 85-minute polymerase chain reaction-based test had excellent correspondence with laboratory results (Micocci et al., 2021). However, the study concluded that if these types of tests were to be implemented, attention to the competency mix of staff and accounting for the need for bespoke training at each site would be necessary (Micocci et al., 2021). In a comparison study in a community setting, antigen tests that took 20 minutes were found to have very low sensitivity, prompting the authors to caution against their use in personal risk assessment or community screening (Döhla et al., 2020).

Consistent with this result, a systematic review has found that most commercially available antigen kits do not meet WHO standards for identifying those with infection (Dinnes et al., 2021). Antigen kits work better to identify those already symptomatic for COVID-19. In addition, test results from antigen kits have differing ranges of accuracy; Dinne et al.'s (2021) systematic review of 64 studies found that depending on the brand and manufacturer of the rapid test, accuracy ranged from 34 to 88% for detecting SARS-CoV-2 infection. Still, rapid testing kits have received much media attention, have been supported by governments throughout the pandemic and continue to be available as a screening tool.

Importantly, the knowledge and attitudes of group home managers and care providers for those with IDD concerning these rapid testing kits and the ability of group homes to facilitate the screening has not been investigated. This information could further help guide decisions regarding the usefulness of implementing rapid testing protocols in group home settings.

In Ontario, group homes are often single-family dwellings that offer structured and supportive environments for usually between three to six individuals with IDD. Support workers within

these settings care for people who are not only often physically vulnerable to infection and serious disease, but also face challenges in understanding the public health measures to reduce the spread of COVID-19 (for example, residents may not understand the requirements of physical distancing, wearing personal protective equipment (PPE), self-isolation or frequent handwashing) (Courtenay & Perera, 2020). For persons with IDD, their increased susceptibility to severe disease (Turk et al., 2020), measures to limit interaction with visitors and care staff, and the infection control policies within the homes themselves (Ontario Ministry of Health, 2020) can not only negatively impact their health and well-being, but puts additional strain on support workers who must be relied upon to keep them safe from infection (Courtenay & Perera, 2020; Grier et al., 2020; Embregts et al., 2021). Therefore, the voices of those that work in group homes for people with IDD should not be overlooked in the selection and implementation of diagnostic testing in their work settings, as these settings may experience particular challenges.

To better understand the opinions, beliefs, concerns and understanding of implementing rapid testing at group homes for people with IDD and to investigate perceived barriers to screening, we delivered a voluntary survey questionnaire to administrators, managers and care staff at a community organization in Ontario, Canada that had not yet received point-of-care tests, nor received training in test interpretation.

Methods

This study was approved by the Ontario Tech Research Ethics Board (REB #16258). An online survey was constructed (Hosted in Canada Surveys) and consisted of a combination of multiple-choice answers, as well as short answer questions to allow for a wide range of data collection and interpretation (see Appendix 1).

Participants were recruited from a community care organization that provides housing for people with IDD in Ontario. An invitation to participate in the survey was circulated through an email listserv (approximately 250 recipients) of all staff of the community agency that provides support for people in 15 group homes. The invitation to participate in a voluntary survey was sent electronically to all administrators, managers and staff of the organization. The survey was voluntary and anonymized, with no personal, sensitive, or patient data collected. Participants were asked to identify if they provided direct support to residents.

The survey was split into three sections (Appendix 1). The first section consisted of multiple-choice questions to determine the participants' impressions and knowledge of rapid testing efficacy. The second section contained two open-ended questions that focused on possible barriers and benefits that participants felt might occur if a rapid test was implemented on-site. The third section consisted of multiple-choice questions concerning rapid testing in the context of vaccine roll out. Altogether the survey was designed to take less than 10 minutes to complete.

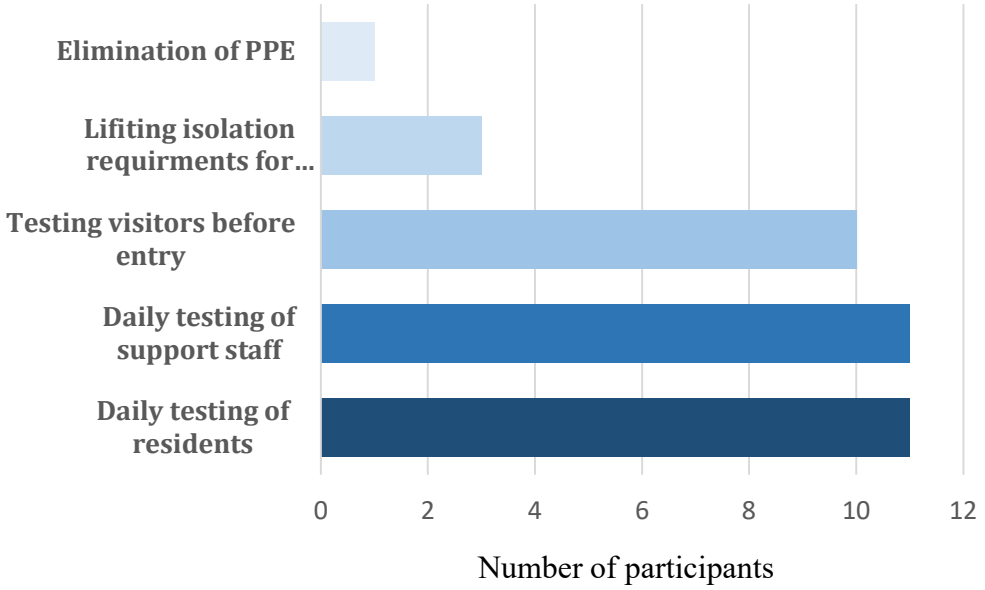
Proportions were calculated using the descriptive data collected from the first and third sections. The written responses from the second section were reviewed line by line by each of the authors and coded to identify emerging themes. The themes were categorized as either perceived barriers or benefits to putting in place a point-of-care analyzer to detect SARS-Co-V2 among group home staff. Diagrams showing the results of the thematic analysis were generated and supportive quotes for each theme were also identified.

Results

Unfortunately, there were a very limited number of respondents to the survey despite its wide distribution. Of the total 11 participants who completed the survey, 64% indicated they provided direct support to residents. All respondents indicated that they would still consider testing in group homes essential as vaccines become more widely available. Importantly, 64% of participants believed a positive result from a rapid test would detect an asymptomatic individual, while 18% believed that a point-of-care analyzer would be able to detect symptomatic, asymptomatic and past SARS-Co-V2 infection. Only 18% believed that an analyzer would only detect a person symptomatic for COVID-19. Additionally, only 55% of participants believed that a positive result from a rapid test would require confirmation by a public health laboratory test. While the vast majority of participants felt that rapid point-of-care testing in group homes would allow for daily testing of residents and staff, and the ability to screen visitors before entry, a small proportion indicated that rapid testing could also lift isolation requirements and eliminate the need for personal protective equipment (PPE) (Figure 1).

Figure 1

Respondents' Answers to the Survey Question "In my opinion, a rapid testing analyzer for COVID 19 in a group home environment would allow for…."



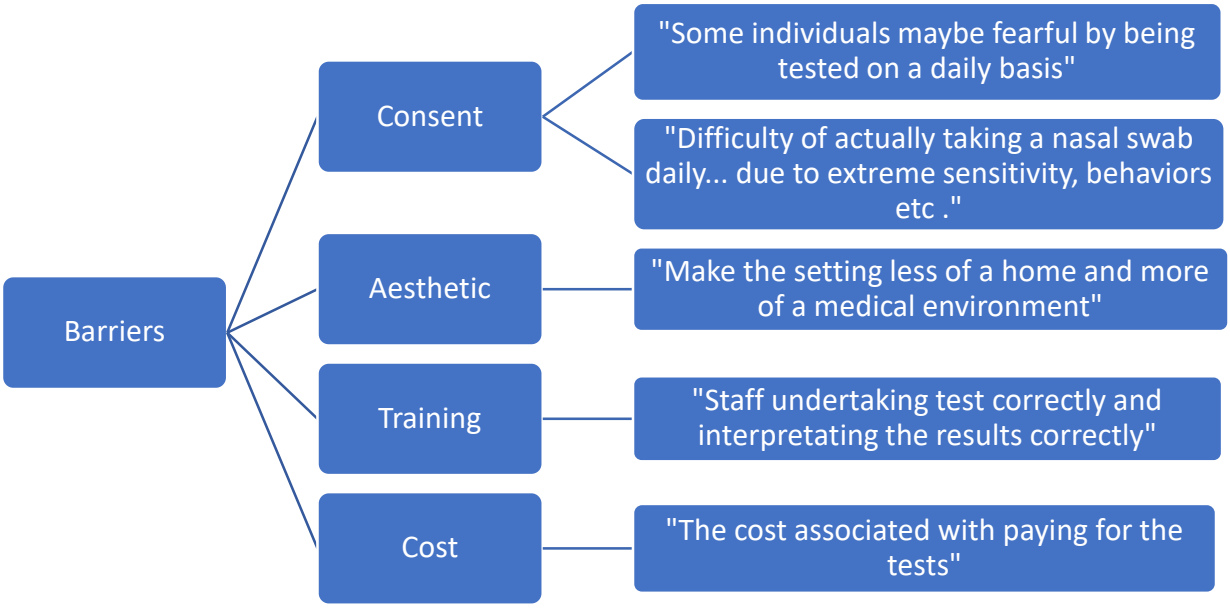
Note. Respondents were able to select as many answers as they felt would apply.

The analysis of the text responses from participants generated four perceived barriers and four perceived benefits to implementing point-of-care testing for SARS-Co-V2 (Figures 2 and 3). As

shown in Figure 2, the most common percieved barrier to implementing rapid testing at group homes was the issue of consent, with respondents indicating fear or anxiety with such comments as “test is uncomfortable to take, people might refuse”.

Figure 2

Perceived Barriers to Implementing a Point-of-Care Analyzer for the Detection of SARS-Co-V2 Infection at a Group Home Facility with Example Comments from Respondents.



Note. Short answer responses were grouped into themes, with the barrier of “consent” emerging most often.

Figure 3 indicates that managers and staff at group homes feel the greatest benefit of rapid screening would be a reduction in the stress they are experiencing; “Stress is high for everyone right now and a simple test might ease some of it”.

Figure 3

Perceived Benefits to Implementing a Point-of-Care Analyzer for the Detection of SARS-Co-V2 Infection at a Group Home Facility.

Note. Short answer responses were grouped into themes with the most common theme of "reduce stress" emerging often.

Discussion

Group homes are residences that are often used to house individuals with IDD. These homes are similar to care homes (referred to long term care facilities in Ontario) in that these environments have serious concerns over SARS-Co-V2 infection and transmission, as residents are more susceptible to severe effects of the virus, and interactions between caregivers, family members and participants have been extensively altered to reduce the potential for outbreaks (Courtenay & Perera, 2020). The reduction in social interactions and general programming in group homes has taken its toll, as this has generally meant that in order to keep residents as safe as possible there were disruptions or elimination in visits from family and friends and daily care taking routines. The care giving and management staff at group home facilities also face increased stress with fear of contacting and transmitting the virus within the care setting and at their own homes (Embregts et al., 2021).

In order to give voice to this population, a survey instrument was designed to explore how care staff at group home facilities might interact with, or envision implementation of, a point-of -care analyzer at their facility. Rapid development and dissemination of the survey were required to capture a snapshot of a capricious situation; therefore, a major limitation of this study is the small sample size possibly due to the short time the survey was available. Further analysis would have benefitted from wider distribution to other agencies providing residential services in the province. Even as the survey was designed to take very little time, participation in the survey by this cohort was very low. As the demands on front line workers have persisted for months, participation may largely be hindered by fatigue and lack of time for additional, non-essential requests.

The results indicate that staff at group home facilities believe a point-of-care screening test would benefit both themselves and their residents, pointing to a general opinion that this would help to alleviate their stress by quickly identifying and isolating infected individuals. They feel this would allow for a return to some pre-pandemic activities to boost morale. As described by Courtney and Perera (2020), those that work at care homes for those with IDD feel an added burden in protecting those that may have limitations in understanding public health restrictions. This has led to high levels of stress over the past year and, in our survey, the most frequent response concerning the benefit of point -of -care testing was alleviation of that stress. However, some participants went as far as to indicate that rapid testing would allow for removal of PPE and other safety requirements within the group home environment. Given that these analyzers do not meet WHO requirements for diagnosing SARS-Co-V2 infection (Dinnes et al., 2021), and may only be suited for screening those that are symptomatic and seeking medical care (Dumyati et al., 2020), increasing staff and resident knowledge of the limitations of rapid test screening for asymptomatic individuals and health care workers should accompany any implementation of screening by analyzer at any facility.

Additionally, the barriers to implementing rapid testing must also be acknowledged and the concerns mitigated for the comfort of residents and care givers, as in the case of concerns over consent, overall environment of the group home and a changed perception of the residents as *patients* if the analyzer is viewed as a medical device. The concern of resident consent for testing was also reported in a survey to determine clinical need for testing in the United Kingdom; “difficulty in obtaining a sample” was more frequently cited as a barrier in care homes that in any other setting (Graziadio et al., 2020). Also important are the concerns regarding the need for training on the device to ensure optimal accuracy of the results, and that the cost of this new resource not subtract from other areas central to the mission of the group homes. This is similar to an inherent risk described by Micocci et al. (2021) in their study of point-of-care molecular testing; rapid testing analyzers implemented into settings where readiness for adoption has not been determined could lead to improper testing and rejection of test results.

This research may help to guide decision making concerning rapid testing implementation in group homes, especially their usefulness as a screening tool in light of the barriers that exist in these settings. Additionally, implementation of rapid testing protocols must go hand in hand with increasing staff and resident knowledge of the limitations of rapid testing devices in order not to compromise safety, as long as asymptomatic COVID-19 infection continues as a challenge in care home facilities (Belmin & Lafuente-Lafuente., 2020).

Key Messages from this Article

Professionals. The results of COVID 19 rapid testing require cautious interpretation when used as a screening tool for group homes.

Policymakers. Continued training in infection control practices must accompany adoption of point-of-care screening methodologies.

Messages clés de cet article

Professionnels. Les résultats des tests rapides COVID-19 requièrent de la prudence dans l'interprétation lorsqu'ils sont utilisés comme outil de dépistage pour les foyers de groupes.

Décideurs. Une formation continue sur les pratiques de prévention des infections doit accompagner l'adoption de méthodologies de dépistage par analyse délocalisée.

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Appendix 1

Survey

In my understanding, the 19 COVID rapid testing analyzers would allow detection of an individual who:

a) Is currently infected with the virus (even if asymptomatic for COVID 19)
b) Is currently symptomatic with COVID 19
c) Has been infected with the virus in the past, but is no longer symptomatic
d) All of the above
e) Not sure

In my understanding, a positive result on a rapid testing analyzer would mean:

a) The individual is positive and should self isolate
b) The individual is positive but should only self isolate if symptomatic for COVID 19
c) The individual should be tested at a provincial testing facility for confirmation, but does not need to self isolate
d) The individual should be tested at a provincial testing facility for confirmation, and should self isolate
e) The individual has been infected in the past with the virus, but if not symptomatic is now negative
f) Not sure

In my opinion, a rapid testing analyzer for COVID 19 in a group home environment would allow for the following (select all that apply)

a) Testing of residents on a daily basis
b) Testing of support staff on a daily basis
c) Testing of visitors before entry to the environment
d) The lifting of isolation requirements for residents
e) The elimination of wearing PPE

In a sentence or two, please describe what you feel may be the barriers to putting in place and using a rapid testing analyzer in a group home environment?

In a sentence or two, indicate whether a rapid testing analyzer would benefit the residents and/or support staff and describe why.

Would you still consider testing in group homes essential as vaccines become more widely available?

a) Yes
b) No
c) Not sure

Do you supply direct support to residents of Community Living Oakville?

a) Yes
b) No
c) Not sure