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A review on implications of home care in a biological hazard:

The case of SARS-CoV-2/COVID-19

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Health-Emergency and Disaster Risk Management (Health-EDRM) Technical Brief Series (#202001)
A review on implications of home care in a biological hazard: The case of SARS-CoV-2/COVID-19

This technical brief intends to review existing guidelines, research evidence and published practices related to home care, covering care delivered by formal and informal care providers with the care recipients maintained at their own homes. Home care has been a healthcare option for addressing the surge capacity introduced by the COVID-19 pandemic. It aims to serve as a technical background review of various home care issues and to inform, facilitate and improve community's response to health needs and individual's capacity in self-care. It also seeks to protect the well-being of people who might need home care or are otherwise affected by the global COVID-19 emergency. In addition to addressing the research scoping needs of the WHO COVID-19 Roadmap Social Science Research group in issues related to home care, other intended users of this report also include IRDR ICoEs, WHO global Health-EDRM research network, relevant researchers, policy makers and stakeholders of people who have home care service design responsibilities. Additional policy reports, briefing notes, related research programme proposals and technical finding derivatives are expected to be developed from this report.

Main report research members include the home care study team of the WHO COVID-19 Research Roadmap Social Science working group (as listed by alphabetical order): Professor Emily YY Chan[1-3], Dr Nina Gobat[2], Ms Heidi Hung[1,3], Dr Hayley MacGregor[4], and Professor Eliza Wong[3]. Key research staff members include (as listed by alphabetical order): Ms Annie Cheung[3], Mr Zhe Huang[1,3], Professor Kevin Hung[1,5], Prof Jean H Kim[3], Mr Eugene SK Lo[1,3], Ms Zoe Tam[3], and Mr CS Wong[1,3]. Special acknowledgement to report reviewers (as listed by alphabetical order): Dr Yolanda Bayugo (WHO), Ms Caroline Dubois (GX Foundation), Prof Sian Griffiths (SPHPC, CUHK), Prof Lu Lin (CAS-Beijing), Mr Sida Liu (SPHPC, CUHK & GX Foundation), Dr Elizabeth Newnham (Curtin University School of Psychology and Harvard T.H. Chan School of Public Health), Prof Rajib Shaw (Keio University, Co-Chair of APSTAAG), Prof Samuel Wong (SPHPC, CUHK), and Prof EK Yeoh (SPHPC, CUHK), who have been involved in various stages of conceptual discussions, facilitation in dissemination needs and guide. This technical brief project was fully funded by CCOUC-Oxford earmarked research support fund for IRDR ICoE-CCOUC: Health-Emergency and Disaster Management (Health-EDRM) Technical Brief Series. Another important document to take note of with this report (included in the appendix): *MacGregor H, Chan EYY and Gobat N. Scoping document: considerations for providing care to COVID-19 individuals at home. COVID-19 Research Roadmap Social Science working group.*

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Executive Summary

Home care in the context of COVID-19

This technical brief reviews available guidelines and practices related to home care, covering care delivered by formal and informal care providers with the care recipients maintained at their own homes, as a healthcare option to increase the community surge capacity in response to COVID-19. Due to the progression of the geographical spread of the disease, this brief focuses mainly on middle-to-high income regions with relatively high population densities. These regions may be at similar levels in their demographic transition. Given the forms and scope of relevant public health measures adopted and the diverse policies and set-up in different regions, home care in the context of COVID-19 should cover ***not only people infected by the disease, but also people not infected but requiring extra care at home during the pandemic***, including (but not limited to) older people, people with chronic conditions, mental disorders, disability, children affected by school closure, and vulnerable people living alone. Although home care is considered to be one of the backbones in supporting people's health and well-being in addition to formal healthcare institutions during COVID-19, policy, programmes and research in this area are still suboptimal and policy-informing scientific evidence are scattered.

This report highlights the significance of home care during the COVID-19 pandemic. It identifies the various home care contexts and actors involved, summarises the existing guidelines and home care advice in different contexts, and proposes key considerations for policy and programmes that enhance home care capacity in light of the existing research and service gaps.

Summary for policy and research considerations

- COVID-19 has spread across the world with high transmissibility, affecting disproportionately older people and people with pre-existing conditions. In many countries, the large number of cases have overwhelmed healthcare systems and transmission of the virus from pre and asymptomatic patients makes it particularly challenging to control the disease.

- The patterns and features of COVID-19 and the imposition of social distancing measures for its control make home care essential to support the health and social needs of affected individuals. In some high-income regions with significant caseloads, hospitalisation is available only to people with more severe disease for hospitals and staff to be able to cope with the demand and reduce the risk of hospital infection. For settings and contexts with limited health resources, home care might be the only care option when the health systems fail to cope.

- Home care during COVID-19 should cover not only people infected by COVID-19 or suspected cases, but also vulnerable groups requiring additional home care support in the context of COVID-19 (including non-infected people), which may include older people,

people with chronic diseases, people with mental disorders, and people with disability. In addition, home care capacity might be hampered unintentionally by other social policies such as school closures for people who have both responsibilities to care for the vulnerable and stay-at-home children of young age.

- Existing home care guidelines and advisories in response to COVID-19 focus mainly on infection control, management of people infected by COVID-19 and those placed under home quarantine.

- Guidelines, resources, clinical support, quality assurance, monitoring and outcome evaluation for formal and informal care providers are limited and scattered. Evidence that might facilitate home care for people living in informal settlements and other special dwelling conditions, e.g. bond room/subdivided housing, multiple-dwelling units, informal settlements, and displaced refugee settings are urgently needed.

- Policies and programmes for enhancing home care capacity need to have the twin goals of (1) improving the ability for self-help and maintenance of basic skills and (2) supporting informal care providers.

- Among the various research gaps in published literature, there is a lack of studies in clinical outcomes of care recipients associated with home care.

What is meant by home care prior to and during SARS-CoV-2/COVID-19 pandemic

A novel virus, now known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (causing COVID-19) was first identified in China in December 2019 following report of a cluster of pneumonia cases in Wuhan, Hubei Province; and WHO declared COVID-19 a pandemic on 11 March 2020. In less than five months, over 4.8 million people across 216 countries/territories have been infected by COVID-19, with more than 318 900 confirmed deaths (up to 20 May 2020).(1) COVID-19 is now noted by its high transmission ability.(2) COVID-19 is transmitted from person to person through respiratory droplets during coughing, sneezing or talking and from contaminated environment. As people can get infected by breathing in droplets from infected persons, keeping of minimum distance between people (at least 2 metres) and social distancing have been recommended.(1) Individuals who are pre- or asymptomatic or showing very mild symptoms can transmit the virus.(3) Asymptomatic transmission is now considered as a distinguishing feature of COVID-19 as compared with other diseases caused by coronaviruses such as severe acute respiratory syndrome (SARS)(4) and this increases the difficulty in controlling its transmission. Older people and those with underlying conditions like hypertension, diabetes, cardiovascular diseases, respiratory diseases and cancers are at higher risk of developing severe illness,(5,6) and case fatality ratio increases with age.(7,8) The exponential attack rate has created an unprecedented burden and pressure on many national healthcare systems.(9,10) The lack of effective treatment and vaccine continue to present huge challenges in managing COVID-19.(11)

All the above factors highlight the need for strategies to treat the disease in non-institutional home environments and to provide additional care for certain non-infected individuals in home setting. Home care during the pandemic has played and continues to play an essential role, but it is particularly difficult, especially for informal care providers with minimal experience in caring for vulnerable family members during a pandemic. According to WHO, home care in its usual context outside COVID-19 means high quality and appropriate services aiming to preserve independence and quality of life of individuals; delivered by either formal or informal providers; while maintaining individuals at their own homes with continuum of care.(12,13) Home care is normally for older people, people with chronic conditions or disabilities. In the context of COVID-19 however, home care has acquired a different meaning and faces particular challenges.

WHO recommends that all COVID-19 infected persons be isolated and treated in a health facility but where such an arrangement is not feasible, unavailable or unsafe, patients with mild symptoms and no risk factors could be cared for at home (14). For many countries, limited healthcare facilities (e.g. skills and availability of healthcare workers, availability of protective equipment) means people are likely to be admitted to hospitals only if they suffer from severe disease. Thus, the development of models of home care is essential. Local health system capacities and infrastructures as well as existing NGO and community health networks are key to an effective response. When experiencing shortages of health facilities, authorities or indeed community groups and NGOs might repurpose available buildings or construct temporary structures to quarantine or to treat. This was seen initially in China but replicated in European and other countries. Any such arrangement requires sensitive, active engagement and communication with affected communities and local organisations to ensure appropriateness and sustainable models of care.

For communities and countries where not all COVID-19 patients could be accommodated at health facilities or repurposed structures, or where there is the policy for healthcare resources to be allocated to the more serious cases, or where there are patients opting not to be treated at health facilities, home care for such patients has become a great concern and guidelines have been issued by WHO and some national health authorities and organisations such as the CDC. These guidelines focus primarily on home care for infected persons or persons showing symptoms of COVID-19, targeting spouses, parents and other family members without formal healthcare training. While not a major focus of existing guidelines, home care in the context of COVID-19 should also look into home care services provided by professional/formal care providers, home care for populations not contracted with COVID-19 but require additional care at home during the pandemic, and vulnerable people living alone.

Home care contexts during COVID-19

This section will provide an overview of the existing guidelines, research and challenges related to home care during COVID-19, focusing mainly on middle-to-high income settings which may have similar demographic transitions and relatively high population densities, in light of the progression of the geographical spread of the disease. Given the diverse policies and set-up in different regions, home care in the context of COVID-19 should cover ***not only people infected by the disease, but also any people who have not contracted COVID-19 but require extra care at home during the pandemic***. It is worth noting that extra care at home for the non-infected population has been a serious burden even for regions with all confirmed COVID-19 cases admitted to health facilitates. The discussion will cover care delivered by formal/professional providers, informal home care by family members and friends, and care for vulnerable population living alone. In particular, the informal home care context will be divided into home care for (a) individuals infected by COVID-19; and (b) individuals who have not contracted COVID-19 but require extra care at home during the pandemic, e.g. children affected by school closure, family members with chronic conditions, etc. It should be noted from the outset that while home care situations are discussed here according to the context involved, there are home care challenges that apply to all care types, with the potential mental and psychological issues caused by the presence of a pandemic, social distancing measures and economic insecurity being among the most notable,(15,16) and relevant to both the care providers and the care recipients.

I. Formal/professional home care

Formal and professional home care refers to care services delivered to people in their own homes by authorities or registered organisations. Although care required at home might range from health to education and social needs, the following discussion will follow on health and medical needs that might be required in the pandemic or related health resource-deficit context. As such, care providers might come into contact with service users who are infected by or suspected of COVID-19, or who are part of a household with infected or suspected members, or who have been placed isolation/quarantine. Guidelines for these organisations and service providers, such as on use of personal protective equipment (PPE), are crucial as people in their own homes continue to need the support of health and social care services, during the pandemic.

Many countries have issued guidelines through national and local authorities to support providers of home care services during the COIVD-19 pandemic.(17–19) These guidelines generally cover advice at organisational and individual staff levels. Organisations or agencies providing home care services are advised to review and update emergency preparedness plan, devise business continuity plans and communication plans with users and partners (e.g. GPs and other primary care providers), update and screen clinic lists to identify those with high priority for service, consider adjustments to operating hours and staff rosters, and explore alternative service delivery model (e.g. telephone or video visits) and the procurement and distribution of PPE for their staff. At an individual level, care providers are advised to first follow health advice related to COVID-19 and not to conduct any home visits if they are symptomatic or infected by COVID-19 and are advised to self-isolate. Detailed advice on safe working procedures during home visits is also available for care providers, in particular those visiting clients infected or suspected of COVID-19 or households in isolation, including the use of PPE, special precautions for work involving laundry, cleaning, and disposal of personal waste. A report by an organisation providing oncological home care services in Italy detailed how its "double triage" system, classifying users into different categories through two levels of telephone interviews, has helped prioritising its services to users most in need, protected care providers and minimised unnecessary contacts.(20) With the increasing use of telemedicine during COVID-19,(21) it might well be the next steps for some home care service providers.

II. Informal home care

Informal care providers could be any members of a family or friends, providing unpaid care to the individual in need at home. The section will discuss the situation of informal home care for (a) individuals infected by COVID-19; and (b) individuals not infected by COVID-19 but require extra care at home during the pandemic.

(a) Household with confirmed or suspected COVID-19 patients

This type of home care context has received the most attention globally given the number of infected individuals who are not treated in health facilities in some countries, and the number of those placed under self-isolation for various reasons. WHO and some national/local authorities have issued guidance for care providers in such settings.(14,22–25) While there are some variations in the detailed advice among the different guidelines (e.g. type of masks to be worn), the general major points to note are as follows:

<u>Setting</u>

- Ensure the patient's home environment is suitable and safe (26).
- Patient should stay in a single room (minimum distance of 1 metre between patient and other household members if not possible), good ventilation for patient's room and shared areas (e.g. kitchen, bathroom).
- Do not allow visitors.

<u>Care providers' health</u>

- Care providers should establish communication links with healthcare providers and public health personnel and monitor signs of emergency.
- Care providers should be educated on basic infection prevention and control (IPC) measures.
- Only one care provider should be assigned.
- The care provider should be in good health.
- Care providers should monitor herself/himself for symptoms.

Hygiene practices

- Good hand hygiene should be practiced.
- Masks should be used by both the patient and care providers with appropriate procedures, handling and disposal (guidelines vary on the type of mask to be used: cloth or medical mask).
- Dedicated linen and eating utensils for the patient.
- Avoid direct contact with body fluids of the patient, and wear gloves when touching the patient or body fluids.
- Maintain necessary supplies: soap, alcohol-based hand sanitiser, disinfectants, thermometers, paper towels, masks, etc.
- Clean surfaces frequently touched by patient, toilet and bathroom with disinfectant containing 0.1% sodium hypochlorite, patient's clothing and linen with soap.
- Care providers should wear gloves and protective clothing.

Decision to seek medical care

- Seek immediate medical attention as necessary if there are signs of deterioration or emergency warning signs, e.g. trouble breathing, inability to stay awake.

Decision to end isolation

- Arrange to end isolation according to health advice, e.g. negative testing results, two weeks isolation after resolution of symptoms.

These are important points and underscore the issues to consider, such as assessment of the setting and other elements of IPC, and consideration of appropriateness as well as support for a range of care providers. However, some of these principles require adaptation if the ideal situation for 'best practice' does not exist and yet home care is occurring. To ensure feasibility, effectiveness and safety of home care for the COVID-19 patients, the socio-economic circumstances and living conditions of the relevant household should be considered due to their implications for IPC. For example, the size of the house may make single occupancy of room impossible, limited access to water, PPE and cleaning agents will affect sanitation levels. Adaption to local conditions is required and is best done in dialogue with local community organisations and trusted authorities, formal or informal. Where there is no household income, food relief also needs to be considered.

The support of home care will also depend on the resourcing of the health system and the need to consider the infectiousness of the virus and the availability of PPE for healthcare workers and those offering support to households for COVID-19 care. Emerging models of care in higher income settings include telephonic support so that

people only attend a medical review in person or report to hospital if their symptoms deteriorate. National authorities, when promulgating their own guidelines, should ensure adaptation to local circumstances, e.g. when single-use gloves are not available, when home disinfection agents are limited, when the house has no toilet, when there are no hazardous waste collection facilities. An example of local adaption is the drawing up of guidance by US CDC on how to produce cloth masks as medical masks are restricted to healthcare workers in the country.

Case 1. COVID-19 service models for home care in Asian countries

(i) Home care service models for confirmed case of COVID-19

The service models for COVID-19 confirmed cases can be classified into three levels: hospital-based, quarantine centre-based and home-based. In Hong Kong and Taiwan, all confirmed cases with or without symptoms are subject to hospital-based care for treatments.(27,28) In other Asian countries including South Korea, Malaysia and Singapore, the management of COVID-19 confirmed cases depends on the severity of disease. Critical cases will be hospitalised immediately, whereas those less severe or asymptomatic confirmed cases will be arranged in government-permitted or state-run community quarantine centres for close monitoring.(29–31) In Malaysia, these quarantine centres are equipped and managed by a health team selected by District Health Officers for clinical management. Their duties include health assessment, sample taking, case referral to the hospital etc.(32) Governments would provide basic necessities and financial assistance to people in confinement. The Indonesian government also houses citizens with positive COVID-19 results returning from overseas in government-run isolation facilities.(33) However, as hospitals in the capital of Indonesia are being overwhelmed with COVID-19 patients, the home-based isolation or self-quarantine protocol for suspected cases have extended to confirmed cases. The home-isolation of COVID-19 positive persons are monitored by their respective health community centres.(34)

(ii) Home care service models for suspected case of COVID-19/individuals placed under home quarantine

Due to the limited capacity of healthcare institutions, most countries suggested home care arrangements for COVID-19 suspected cases (with symptoms), those have a travel history or prior close contact with confirmed cases. In Indonesia, a protocol was established to provide guidelines for home-isolation or self-quarantine. The government advised self-isolated persons to monitor their health and report to an app-based healthcare system if necessary.(33–35) In Taiwan, Hong Kong, South Korea and Malaysia, comprehensive guidelines were established for the quarantine policy.(29,32,36–39) All of them suggest that suspected cases stay at home for quarantine purposes, except for the Hong Kong government which would arrange for close contacts of the confirmed case to be housed in compulsory quarantine centres. Hong Kong, South Korea and Malaysia also established community quarantine centres for those who are unable to find suitable places for quarantine.(32,38,39)

To provide support for self-quarantine, retired healthcare workers are recruited to support persons in home care in Taiwan.(40) For the financial or social support of individuals under self-quarantine, South Korea government would provide living expenses or paid-leave,(39) while Singapore would provide subsidies to the affected working population.(41) To our knowledge, all of the quarantine centres in different jurisdictions are managed by the government which is responsible for providing the basic daily necessities and/or food for the persons lived in. (32,37,39) However, there is not much detailed information about home care support for those with chronic disease and how to ensure their access to healthcare service under self-quarantine period.

For efficient allocation of resources and effectiveness of home care for COVID-19 patients and those placed under home quarantine, some governments have developed various home care service models and guidelines for individuals infected by, or suspected of COVID-19, or with varying extent of potential exposure to the disease. Yet, most of these care models aim to complement the formal healthcare systems and might lack the relevant recommendations to inform care support required for disease severities and people with co-morbidities. Being the region in the world to experience the first wave of COVID-19, practices in several Asian countries are shared in **Case 1**.

(b) Household with members requiring extra care at home during COVID-19 (without COVID-19 infection)

While there is a reasonable amount of guidance for informal home care for COVID-19 patients/those under self-isolation at home, the situation for individuals requiring additional care at home during the pandemic not involving COVID-19 infection has received much less attention, and the advice and guidelines available are more scattered, with extremely limited research. The situations regarding informal home care for older adults, chronic disease patients, people with mental health issues, people with disability and children affected by school closure shall be discussed below.

Older adults

Older adults are at a higher risk of COVID-19 deaths (7) and are recommended to take extra caution in preventing COVID-19 infection. Older adults are strongly encouraged to stay at home and to practise social distancing as much as possible; and are advised not to leave home at all in some countries, e.g. the United Kingdom. In addition to the basic hygiene practices and personal care, older adults are also advised to develop their care plans in light of the COVID-19 pandemic.(42) During the pandemic, with older adults shielded at home, home care services from professional care providers reduced or suspended, closure of day care centres for older adults, there has been extra burden on informal care providers. Isolation, which has been linked to depression and other forms of physical and mental issues, had already been a concern for older adults before the pandemic and it might well be exacerbated with the social distancing practices enforced.(43) It is particularly difficult for older people living alone, in terms of reliable access to food, money and basic supplies.(44) While social media or virtual gathering may help counter the mental or emotional stress caused by social distancing, access to such technology and reliable internet coverage would be critical. In response, community initiatives and voluntary support groups have been organised to provide support. While Europe is the region with the highest percentage of older people among its population, **Case 2** sets out the call from WHO Regional Office of Europe regarding the support for older people in the context of COVID-19.

Case 2. Supporting home care for older people in Europe during COVID-19: Physical distancing is not social isolation

The challenges faced by older people in the context of COVID-19 have been highlighted by WHO Regional Office of Europe to its member governments, from their higher risk of developing serious disease, limited access to necessities (including food, basic supplies, money, medicine), to their mental well-beings. Authorities and governments were called upon to implement appropriate interventions to meet the needs of the older people in light of the pandemic. It was emphasised that for the relevant interventions to be effective and comprehensive, support should be given not only to the older people, but also their families and care providers. In particular, the situation of older people living alone merit special attention. Provision of accurate and accessible information related to the pandemic to older people was also considered critical, for them to protect their physical and mental health. The role of health and social care workers in ensuring long-term care to older people was also highlighted. There are three key messages from WHO over the protection of older people in the context of COVID-19 as follows –

(1) People at all ages need to prevent further community spread of the virus and support in particular older people;

(2) Health and social care workers should be supported, with special attention to those who provide nursing and social care services for older people; and

(3) Everyone should play a part in supporting and protecting older people living alone in the community.

Chronic disease patients

People with chronic or underlying conditions are at a higher risk of developing serious illness from COVID-19, in particular those with cardiovascular disease, diabetes, respiratory diseases and cancer (6,8,45) and social distancing /shielding is strongly encouraged for self-protection. In addition to social distancing and basic hygiene, WHO encourages chronic disease patients to continue with their medication, stockpile at least one-month supply of medication, quit smoking take regular exercise and safeguard their mental health.(46) Home care for people with underlying conditions helps to reduce pressure on the health system during the pandemic and minimise hospital contact and chance of infection. These measures mean additional duties and possible pressure on the informal care providers. Disease-specific home care advisories in response to COVID-19 are however not yet well-established, although some general recommendations could be identified, e.g. diabetes patients are advised to check their blood glucose more frequently and to keep good glycaemic control.(47) Another group of chronic disease patients that had been highlighted in recent reports for difficulties in home care are those with dementia given the challenges they face in protecting themselves against COVID-19.(48) Alzheimer's Disease International has made recommendations for care providers of people with dementia specifically in response to COVID-19, e.g. that they should help with keeping daily routines, should place hand washing reminders around the house but not to deploy scare tactics, should limit news watching to once to twice a day and should avoid exposing people with dementia to unnecessary information.(49)

Another factor that has major implications for chronic disease patients shielded at home during COVID-19 is that their routine healthcare services have been interrupted. In the early days of the COVID-19 outbreak in China, there were delays in the medical services for cancer patients due to redeployment of medical staff, medication shortages following suspension of transportation; only online consultation was available, and the mental health of the patients was not followed up on.(50) Such concerns have been echoed by oncologists in Italy, where specialty outpatient visits, screening, follow-up and advanced diagnostics have been delayed, and some treatments postponed as the intensive care units were filled by COVID-19 patients.(51) In the United Kingdom, where the experience was similar, it was found that not only was routine care disrupted but also attendances at Accident and Emergency Department fell dramatically, and efforts had to be made to encourage people to attend hospitals and primary care. Apart from institutionalised healthcare services, home care services delivered by formal care providers were also reported to have been reduced for the less urgent cases.(20) The interruption in medical treatment for chronic disease patients could mean greater need for home care by family members, as the patients may show physical deterioration and mental stress with treatment delayed, coupled with suspension of services and support by formal care providers.

People with mental health issues

People with mental disorders might be more seriously affected by the widespread fear and anxiety related to the pandemic, which could lead to new or worsening mental health conditions; and just like patients with other forms of chronic conditions, regular outpatient appointments or consultations for mental health might be affected.(52) Health systems and charities are providing advice not only for those with existing identified mental health issues but also those whose mental health had been directly impacted by the pandemic, including the staff caring for patients. Telehealth presents another option for supporting mental health during home care, but its effectiveness may depend on the level of privacy available to individuals within their home. Unemployment and financial difficulties arising from social distancing measures and additional care needs at home will have significant implications for mental health.(53) The long-term mental health effects of physical distancing and home care are not yet known, but interventions to address mental health needs, alcohol and drug use and suicide risk will be important components of public health policy.

People with disability

While little data are currently available, people with physical disability are expected to be disproportionately affected by COVID-19, in terms of infection and access to healthcare, and disability-inclusive COVID-19 response has been called for.(54) People with disabilities face special challenges in their daily lives during COVID-19, e.g. they may need to touch things in their surroundings to obtain information, they may not be able to practise social distancing without assistance, they may face barriers in obtaining health information.(55) WHO and some national authorities have issued advice for the home care of people with disability in the context of COVID-19, recommending care providers to prepare continuity of care plans, inform other family members or relatives of

caretaking plans, opt for online purchase and stocking of necessary household supplies, and explore the possibility of telemedicine arrangements.(55–57)

Children affected by school closure: unintended consequences that might affect home care

The potential of children being asymptomatic carriers has led to the recommendation that contacts between older people and children should be minimised.(58,59) Yet, for households with grandparents being the usual care providers of young children, such recommendation could be difficult. In addition, home care provider's capacity to provide health and medical care at home context might be hampered by the increased responsibility for school children during COVID-19. Children affected by prolonged school closure, which has been enforced in many regions with some for as long as over four months, e.g. Hong Kong, require care at home. School closure places major demands for home care for school children, from day-to-day living to "home-schooling", or adaptation to online learning. The effect of home confinement on children's physical and mental well-being has been raised, with the role of parents highlighted.(60) School closure could pose significant challenges to parents and other main care providers, especially for households with both parents working. General advice for parents on caring for children in response to COVID-19 and school closure has made available by some governments (61,62) and NGOs. It should be noted that the reliance on online learning during school closure has caused concern over social inequalities in access to technology. A few governments have offered financial support to households caring for young children, e.g. Hong Kong,(63) Australia.(64)

III. Vulnerable population living alone

Having discussed the guidelines and challenges related to various types of home care during COVID-19, it must be emphasised that people who live alone face additional difficulties, especially vulnerable groups like older people, people with chronic conditions, mental disorder and disability. For people infected by COVID-19 living alone, there are major concerns about whether they are suitable for home care as they may not be able to handle deterioration of symptoms, or even become incapacitated and unable to seek help. As for those who are not infected, they are also hit hard by social distancing measures, suspension of home care services by formal care providers, and less frequent or discontinued visit by relatives and friends. While the guidelines and recommendations discussed above are relevant, the particular challenges faced by vulnerable groups living alone are seldom highlighted. Among all the vulnerable groups, isolation of older people is probably the area having received the most attention.(65)(66)

Special concern (1): Home care for residents of informal settlements and other special dwelling conditions

Vulnerabilities of people from informal settlements in the context of COVID-19 are manifold and interlinked, from their living conditions, access to social networks to reliance on informal economy.(67) Home care for people residing in informal settlements and other special dwelling conditions, e.g. bond room/subdivided housing, multiple-dwelling units, displaced refugee

settings, call for particular attention, given the strong doubts on the feasibility and appropriateness of home care for such groups. The assumption that home offers protection against the disease, or provides the environment for recovery may not hold true for such settlements or dwellings. These settlements often lack the basics for IPC measures recommended for COVID-19, e.g. access to water for sanitation and handwashing, physical space for isolation, flushing toilets, ventilation, disinfected areas; and residents may have very limited access to essential supplies, e.g. soap, hand sanitisers, masks, disinfectant, etc. For informal settlement residents infected by COVID-19, high priority for hospital admission or quarantine facility should be given, otherwise risking rapid and uncontrollable spread of the disease. Even those not affected face a particularly high risk of infection given their living conditions and limited access to resources and essential supplies; and providing extra care for children affected by school closure and vulnerable family members present extra burden. The UN Special Rapporteur on the right to adequate housing has issued a Guidance Note on protecting residents of informal settlements against COVID-19, calling for a series of actions by governments, e.g. provision of water tankers and boreholes for communities with limited access to local water supplies, non-discriminatory access to health services proximate to communities of informal settlements, and rent abatement.(68) While there is increasing attention in relation to the preparedness and feasibility of IPC measures at informal settlements and refugee camps,(69,70) very limited formal guidelines and resources are available.

Special concern (2): Domestic violence

While not a specific home care context during COVID-19, individuals at risk of domestic violence is an increasing concern in the context of home confinement. There is growing evidence that domestic violence/intimate partner violence has increased globally due to home care and isolation restrictions and the latest research is briefly set out in **Case 3**.

Case 3. Domestic violence risks associated with home confinement

Home confinement during pandemics presents a concerning paradox. Despite the clear and significant public health advantages, home confinement is likely to increase the risk of domestic violence for those living in volatile circumstances. Physical distancing and quarantine measures have resulted in a dramatic spike in cases of domestic violence, documented globally.(71) Home isolation presents an opportunity for perpetrators to exercise greater control and enact abuse within the household, with limited avenues for victims to access social support or escape. Stress and financial difficulties have been associated with increases in the frequency and intensity of domestic violence in prior disasters,(72) and are likely to be exacerbated during the COVID-19 pandemic. Despite being necessary, infection prevention and control measures have limited the number of shelter places available, and made finding alternative accommodation more difficult. In April 2020, the United Nations highlighted domestic violence as a public health priority. Some governments are now providing crisis helpline support, emergency warning systems (e.g. code words to be used in pharmacies and supermarkets), and offering hotel rooms as alternative accommodation.(71) A rigorous evidence base is urgently needed to identify measures to prevent abuse during home confinement, and optimal means for supporting victims of violence during the pandemic.

Policy and programmes for enhancing home care capacity during COVID-19

Our review indicates that home care has been playing a critical role during the COVID-19 pandemic, in supporting infected individuals, individuals placed under home quarantine and vulnerable populations requiring additional care. Given the challenge of this novel pandemic and the prioritisation of resources for disease control and treatment at this stage, support programmes and guidelines for home care are relatively weak. Although efforts have been made by WHO and various governments with support from civil society, there is little established public policy on home care in relation to COVID-19 yet. Any such policy or support programme should have the twin goals of (a) enabling vulnerable groups not infected by COVID-19 to care for themselves safely, and (b) enhancing the capacity of care providers to deliver home care. To improve home care in the various contexts identified in this review, collaboration between government, civil society and companies is essential. Some suggestions and examples of support initiatives for enhancing home care capacity in different contexts during COVID-19 are outlined below.

I. General support for home care

Financial support

One direct initiative to support home care in response to COVID-19 is the provision of financial support to people requiring home care and their formal and informal care providers. The global economy has been hit very hard, affecting the employment and incomes of many, and it poses much stress to care providers and people requiring home care but living alone, in addition to the funds needed for protective and preventive measures, e.g. purchase of face masks, hand sanitisers, cleaning agents, and additional cost in switching to online shopping for basic supplies and food. Some chronic disease patients may need additional cash for stocking up their essential medication. As mentioned earlier, there are already examples of government cash hand-outs for parents of school and pre-school age children,(63,64) and this could be extended to other vulnerable groups. Subsidy in kind, e.g. food and other basic supplies, may also be necessary for some households, in addition to cash support. As for formal home care service providers, governments could also provide financial incentives to develop innovative delivery model to continue their service.

Social network supports: The Buddy system and beyond

Many people living alone face additional challenges, especially for the vulnerable groups who are shielded and unable to go out. One example of a community-based intervention comes from New Zealand where the “Buddy system” has been encouraged by the Government for people living alone to counter isolation during the lockdown period. It involves one person living alone teaming up with another person living alone in their community, and buddies would see only each other but no one else through the initial lockdown period.(73) While this idea was originally for anyone living alone, it could be turned into a tool for enhancing home care for vulnerable people living alone - NGOs or community organisations could set up platforms to assist people requiring additional care but living alone to team up with a suitable buddy in the community, e.g. people in good health conditions, people with experience working with vulnerable people. Indeed, there is already a real-life example stemming from such an idea –

the UAE Buddy Group, started by a resident in Dubai offering on her social media page assistance to the elderly, people with chronic conditions and special needs in response to COVID-19.(74) Since community/informal networks and initiatives have the potential of filling in gaps left by traditional public or private organisations, have relatively easy access to their service users and tend to have a higher level of trust, empowerment of such networks should be strengthened.(75) Such initiatives have the potential to bring long-term benefits to community-building and emergency preparedness beyond the COVID-19 crisis. The widespread adoption of social distancing measures across the world has highlighted the critical role of information technology in enhancing communications at different levels, including the support of community networks. There are strong calls for governments to develop effective digital technologies to support the use of information technology by societies to combat the pandemic.(76)

II. Home care support in specific contexts

Older adults, people with chronic disease, mental disorder or disability

Older adults, people with chronic disease, mental disorder or physical disability share some common home care needs, which could be addressed by targeted support programmes. In light of the possible access barriers to technology and their preferences, NGOs and community centres working with these groups could consider setting up telephone helplines, making phone calls and posting by mail COVID-19 information and appropriate learning materials that meet their interests and needs. As for those who require regular medication and consultation, health authorities and governments should provide online consultation and other telemedicine support; and community pharmacies ensure the provision of appropriate pharmaceutical care during this time, in terms of drug dispensing, consultation and referrals, chronic disease management, home care guidance, non-contact delivery, etc.(77) In Hong Kong, there is the example of a pharmaceutical foundation offering free delivery of essential medications to chronic disease patients to promote medication adherence during COVID-19,(78) and the case of medication for chronic disease patients dispensing through local community pharmacist. Public-private-partnership initiative like transfer of stable admission case to private hospital is also happening in some places e.g. Hong Kong, Malaysia. Such services greatly reduce the burden on chronic disease patients and their care providers. For companies offering online sales of basic supplies, they could support home care by offering discounts or waiver of delivery charges to customers requiring home care. There are many examples of how communities have come together to support the vulnerable and the shielded and lessons need to be learnt for the future.

Children affected by school closure

One of the toughest challenges reported by home care providers during COVID-19 (79) was those household with school age children who had been affected by school closure. Especially for working parents who are not able to work from home and grandparent care providers, support from schools and community centres are extremely important to enhance home care potential. Online learning, telephone conversation with children and parents, and mailing of learning materials to children are potential options for further development. Of note, some governments/authorities have provided home schooling advice and comprehensive online

learning resources, e.g. the United Kingdom,(80) Canada.(81). Given the mosaic patterns of child care and education models in modern urban and rural living, schools, authorities and NGOs should bear in mind that support for parents and the children's primary care providers are equally important. Care providers might lack skills and knowledge to organise healthy and sustainable daily routines for their children. Secondary health issues such as increase prevalence of household childhood injury, excessive exposure to social media and screen time and child psycho-social behavioural issues may arise. Companies should also offer support and flexibilities to employees with school children, e.g. work-from-home arrangements, flexible working hours, etc.

Vulnerable population living alone

The difficulties that might be experienced by vulnerable people who live alone during COVID-19 cannot be overemphasised. PAHO has issued advice specifically on ways to help older people and people with chronic conditions living alone, e.g. ensuring stock of essential medicine, encouraging healthy lifestyles, and devising transportation plans in case they fell ill.(82). Meanwhile, limited literature is available to understand their experiences, health and clinical outcomes of home care. Overall, evidence indicates that limited support was offered to enhance home care capacity of this group. Relevant policy or support programmes should aim to enhance the self-help capacity of this group of people. For formal home care service providers, high priority should be given to ensuring service continuation for vulnerable people living alone. Community organisations and the third sector should take the initiative to reach out to this group as they may have limited access to social network, and the buddy system explained above might help address both their physical and psychological wellbeing needs. It is also essential to ensure ongoing medical care needs of patients and vulnerable groups are met since many routine services are curtailed and NGOs may face restriction in community care.

Informal care providers

Support for informal care providers looking after those requiring additional care at home during

Case 4. Informal care provider for vulnerable family members and family members in home medical and social care (79)

A computerised randomised digital dialling (RDD), cross-sectional, population, landline-based telephone survey with 141 self-reported questions was conducted from 22 March to 1 April 2020 in Hong Kong SAR, China. Of the study respondents (n=765), 25.1% of respondents (n=192) reported having regular home and social care responsibilities during the COVID-19 epidemic. Among all care providers, around 20% reported that they have used community services and centres (e.g. school and day care centre). Among the community service users, about 40% had stopped or decreased the use of those services due to closure during the epidemic. Respondents reported taking care of one member (45.8%) or two family members (35.4%). About 28% and 7.4% of these respondents have been caring for frail older adults and those with physical disabilities respectively.

Among the informal care providers, 53.9% (103/191) claimed there was additional stress in their caregiving duties during COVID-19 epidemic. Further investigation of the care receiver characteristics showed 53.8% (175/325) of general care receivers are dependent on their care providers for life-maintenance care. Among the dependent care receivers, 57.9% were aged below 18 and 23.4% were aged above 75.

COVID-19 is extremely important. The physical and mental well-being of care providers directly impact on the quantity and quality of home care provided. While most of the measures proposed above serve to enhance the capacity of care providers, support for ensuring the care providers' own well-being is extremely important but uncommon. **Case 4** described the case of informal care provider for urban home care during COVID-19.

Urgent research gaps

The SARS-CoV-2/COVID-19 pandemic has engendered a huge amount of research, much of which focuses on the clinical and epidemiological aspects of the disease as well as vaccine development, to build up the understanding of this novel virus and disease. The socio-economic impact of COVID-19 has not yet been well-studied and research efforts are needed both for short-term response and long-term preparedness. Home care, being one of the crucial pillars in supporting people's health outside the formal healthcare setting during this pandemic, needs much stronger research and support from different players at different levels. This review shows that there are major gaps in existing research and understanding in relation to home care in the context of COVID-19.

For formal care service provision:

- Research on updating clinical home care guidelines related to health risks, disease and clinical-management of COVID-19 in order to support formal home care providers;
- Special challenges associated with various home care settings (including informal settlements) in adhering to the above guidelines;
- Disease management for home care models; and
- Strategies for formal home care providers to best support informal care providers during COVID-19 while protecting the safety of its staff and organisational integrity.

For health monitoring and clinical outcomes of home care models:

- Health outcomes from home care models;
- Home care-related clinical and health outcome monitoring and evaluation; and
- Disease-specific home care advice for people with chronic conditions with and without COVID-19 in the home context.

For impacts and support for home care:

- Socio-psychological research linked with public health issues to address the vulnerable urban population;
- Situation of informal care providers of vulnerable groups: burden, physical and mental well-being, support and burnout;
- Coping strategies of vulnerable people living alone and the related impact on their physical and mental health;
- Impact and support for people with mental disorders and their care providers during home confinement, and access to telehealth services;

- Application and limitation of telemedicine and telehealth in supporting vulnerable groups and their formal and informal care providers;
- Prioritise support for individuals at risk of domestic violence during home care;
- Contribution and problems of online learning to home care for children during school closure; and
- Role of private sector in supporting home care during a pandemic.

Limitations

This technical brief attempts to provide an overview of the available guidelines and practices related to home care in the COVID-19 context. Given the progression of the geographical spread of COVID-19 from high/middle to low income regions, the information and analysis contained focused more on middle-to-high income settings at similar levels in their demographic transition. The major limitation of this review therefore is that relatively less attention has been paid to the situations in low-income countries, which face very different settings and challenges.

IPC measures that are feasible and resources that are available in low-income countries could be very different from those in the settings focused on in this brief. For example, in terms of hospital admission of infected individuals, experience from the Ebola outbreak in West Africa showed that some patients preferred to be treated at home or in a community settings due to mistrust of the health systems and international organisations, and loss of contact with kin,(83) and negotiations were necessary to make hospital admission more acceptable.(84) Patients refusing hospital admission therefore will require supportive and even palliative care at home, and measures to reduce risk of transmission within the household. Cultural diversity, religion, social, developmental and healthcare needs, and economic security must be taken into account when designing feasible and acceptable models of home care. Local understanding of the disease and health seeking behaviours need to be considered and resources such as indigenous healers or religious leaders could play a role in providing care and support. Communications of home care information, including symptom management and signs of clinical deterioration, should be done in light of local conditions, e.g. use of more traditional channels (e.g. television, radio) or through community organisations, and use of infographics for illiterate populations. Distribution of home care kits to support care providers might be appropriate in some cases. When trained healthcare personnel are not available in low resource settings to assess or support the relevant households, telephone support might be used. Alternative models involving groups such as community health workers and volunteers, pharmacists and drug shop owners will need appropriate training and support, including linkages to higher levels of care and ongoing supervision support, but can play an important role.

Conclusion

During the COVID-19 pandemic, home care has acquired a new meaning with many thousands of vulnerable people required to remain isolated and socially distanced at home as the disease has spread across the world. While home care has been one of the backbones in supporting people's physical and mental health outside formal healthcare institutions during

this time, policies, programmes and research in this area are inadequate and poorly supported. Many vulnerable people and their care providers are struggling on a daily basis to cope with this crisis, and more support in all forms is urgently needed not only during pandemic lockdown scenarios but also in the recovery period. Stronger home care capacity built up during COVID-19 will not only assist all those involved to survive the pandemic, but also bring about stronger social fabric, from self-help ability to family support and community resilience as well as laying the basis for a more effective response should another pandemic occur.

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APPENDIX

Scoping document: considerations for providing care to COVID-19 individuals at home

WHO convened the COVID-19 Research Roadmap social science working group following the Global Research and Innovation meeting held in Geneva 11-12 February 2020. This group aims to facilitate social science research for COVID-19. As part of this role, the group provides expert technical guidance and evidence-informed advice regarding social, behavioural, cultural, economic and political aspects of COVID-19 and impacts of the public health response.

This scoping document sets out key considerations related to home care of COVID-19 individuals. Key issues raised here are based on review of current home care guidelines[1] in the context of community-based healthcare. It aligns with definitions of community-based healthcare in recently published interim guidance[2] and focuses primarily on care provided in an individual's place of residence. This scoping document takes 'caregivers' to be household members, supported by the wider community health workforce as per capacity and training (professional and lay, formal and informal, state and nongovernmental organisations).

Summary of issues that require further consideration:

- Caregivers need information that is tailored to the realities of their living conditions and resources. Information should include advice on symptom alleviation, home management, infection prevention and control including disposal of waste.
- Current home care guidelines could be updated to include a checklist for environmental assessment of homes with IPC advice adapted to account for environmental constraints, such as lack of access to water.
- In many low-income settings, people with more severe disease are likely to also receive home care, as are those who are ill with mild COVID-19 presenting with risk factors. Guidelines need to account for home care of patients with moderate or severe COVID-19 illness, including for those requiring palliative care.
- For caregivers and the community health workforce, information on clinical management of mild symptoms, warning signs of deterioration, and guidance on symptom relief and palliative care for more severely ill patients is needed.
- Caregivers carry a significant responsibility when living with COVID-19 infected patients. Support for caregivers warrants further specific attention, including regarding how caregivers can access advice on infection prevention in the home, on patient management and personal practical and emotional support. Practical support, including food relief is important in settings where there is no household income.
- Models of care that provide remote support and assessment offer promise, including to support those with other medical conditions at home, providing a way to reduce pressure on the health system during an outbreak, prevent infection due to hospital contact and mitigate a deterioration of the overall health status of the population.

Rationale

Home and community settings are important sites of care for COVID-19. In contexts of sustained community spread of SARS-CoV-2 and high caseloads, it is likely that hospitalisation will not be recommended for large numbers of people. Depending on availability and healthcare capacity, people would be admitted to hospital

[1] World Health Organisation. WHO Home care for patients with COVID-19 presenting with mild symptoms and management of their contacts. March 2020

[2] World Health Organization (WHO), United Nations Children's Fund (UNICEF). Community-based health care, including outreach and campaigns, in the context of the COVID-19 pandemic. Licence: CC BY-NC-SA 3.0 IGO.2020

only if their condition deteriorates and criteria for admission are met. These criteria and treatment protocols will also depend on local healthcare resources, including the availability of different levels of skilled healthcare workers and of protective equipment for them. Home care protects hospital capacity[3] and reduces the risk of nosocomial spread. In settings with limited health resources, this rationale becomes even more salient. Further, home care may be the only option for individuals where healthcare facilities are not accessible due to distance, access to transport, or cost of medical care. Many people might also choose home care over hospital care on account of factors such as age, health status, fear, mistrust of state health services or mistrust of international organisations. These factors may result in patients across the COVID-19 illness severity spectrum requiring home or community care. This brief highlights key considerations for further guideline development on home care of patients with COVID-19. Evidence and multi-country reviews by members of our group are underway to detail different COVID-19 models of care and to review home care guidelines that have been released from countries, institutions and NGOs. Different practices have emerged in different countries in line with health system and socio-economic factors.

Socio-economic circumstances, healthcare availability, and living conditions of households doing home care

Environmental assessment prior to home care might not be possible. Physical infrastructure might limit space and make single occupancy of a room impossible. Easy access to water and sanitation might not exist. Guidelines should consider advice on how to adapt to low resource circumstances to maximise the possibility of safe care provision. This advice can be distributed, or healthcare workers supporting care can be trained to advise on IPC, according to local conditions. The use of effective alternative coverings for hands needs consideration where disposable gloves are not available. Advice should include possibilities for home disinfection where resources are limited. If homes do not have toilets, the safe collection and disposal of faeces needs consideration. Where there are not municipal facilities to collect hazardous waste, alternative guidance for safe waste management and disposal is required. Provision of information on home care should consider local conditions that might require the use of television, radio, text message, or trusted community-based organisations. These can harness existing networks of communication and support to the most marginalised people. Infographics can reach those who are not literate and include basic treatment and symptom management advice, inform about warning signs for clinical deterioration, and give locally appropriate information on seeking available support. The distribution of home care kits to households could be considered.

Ensuring community trust

Repurposing of available buildings or use of temporary structures is an option in some settings if there is healthcare worker capacity to provide care and the home option poses challenges. In terms of identifying spaces that could be repurposed, prior community engagement would be an important starting point to identify trusted and appropriate locations. This will be particularly important in informal settlements, where formal state provision is limited. Checklists, adapted to local conditions, could identify characteristics of such spaces that will enable the best possible compliance with hygiene and infection prevention and control requirements, through consideration of resource such as availability of water, ventilation etc.

Providing care at home: Care for the caregiver

Where personal residence or home spaces are appropriate for care, or a preferred option for care, ways should be explored of supporting caregivers in line with local resources. Caregivers carry a significant responsibility when living with COVID-19 infected patients. Support for caregivers warrants further specific

[3] Nacoti M, Ciocca A, Giupponi A, et al. At the Epicenter of the Covid-19 Pandemic and Humanitarian Crises in Italy: Changing Perspectives on Preparation and Mitigation. Catalyst non-issue content 2020;1.

attention, including regarding how caregivers can access advice on infection prevention in the home, on patient management and personal practical and emotional support. Practical support, including food relief is important in settings where there is no household income.

Clinical management guidelines for home care across the disease severity spectrum

While current guidelines anticipate that the majority of patients receiving home care will present with mild illness, further provision is needed to account for those patients who may present with moderate or even severe illness, including those who may need palliative care at home or in an alternative community setting. Specific clinical and IPC guidance could be tailored to the appropriate level, and include guidance on signs and symptoms of deterioration and on symptom relief, accounting for local understandings of symptoms and disease. In instances where severe disease is managed at home, guidance for palliative care for caregivers, community health workers or healthcare workers will be required. This guidance will depend on the availability of medical support in terms of medication and other resources. It will also need to take into account of local cultural and religious understandings with respect to death, including factors such as how to allow relatives to be present in a safe way. Contact with religious leaders and people from outside the home might be considered essential and guidance should consider how to enable safe communication in line with IPC.

Providing remote healthcare support

Emerging models of care include telephonic support so that people only attend a medical review in person or report to hospital if their symptoms deteriorate. This is particularly important when PPE supplies are limited. These models of care and support should respect local cultural, religious and social needs, in line with local material and healthcare realities. Trained healthcare workers or first responders might not be available to assess capacity of households for home care, to visit, or to provide support and care. In some instances, telephone support might be feasible. Alternative models involving groups such as community health workers and volunteers, pharmacists and unlicensed drug shop owners can be considered and appropriate training provided, including on linking to higher levels of care. Local understandings of disease will influence perceptions and behaviour related to COVID-19 prevention and care, and these should not be dismissed outright. Indigenous healers and informal providers can prove an important resource, as well as religious leaders.

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