OPEN LETTER

Protecting the vulnerable during COVID-19: Treating and preventing chronic disease disparities [version 1; peer review: 2 approved]

Linda M. Mobula¹,², David J. Heller³, Yvonne Commodore-Mensah⁴,⁵, Vanessa Walker Harris⁶, Lisa A. Cooper¹,⁵,⁷

¹Department of Medicine, Johns Hopkins School of Medicine, Baltimore, USA
²Center for Humanitarian Health, Johns Hopkins Bloomberg School of Public Health, Baltimore, USA
³Arnhold Institute for Global Health, Mount Sinai School of Medicine, New York City, USA
⁴Department of Nursing, Johns Hopkins School of Nursing, Baltimore, USA
⁵Center for Health Equity, Johns Hopkins University, Baltimore, USA
⁶Department of Health, Office of the Secretary of Health and Human Resources, Richmond, USA
⁷Department of Health, Behavior and Society, Johns Hopkins Bloomberg School of Public Health, Baltimore, USA

First published: 09 Sep 2020, 4:125
https://doi.org/10.12688/gatesopenres.13181.1
Latest published: 09 Sep 2020, 4:125
https://doi.org/10.12688/gatesopenres.13181.1

Abstract
The coronavirus disease 2019 (COVID-19) pandemic has exacerbated health disparities across ethnic and socioeconomic groups. Non-communicable diseases (NCDs) - such as hypertension, diabetes, and obstructive lung diseases – are key drivers of this widening gap, because they disproportionately afflict vulnerable populations.

Vulnerable populations with non-communicable diseases, in turn, are disproportionately affected by COVID-19 itself – but also at increased risk of poor outcomes from those underlying conditions. Proven strategies for NCD control must be adapted to help vulnerable patients react to these dual threats. We detail six key policy interventions – task shifting, workforce protection, telehealth and mobile services, insurance restructuring and increased funding for NCDs, prescription policies for NCDs and community partnerships - to bridge this care gap. Long-term integration of these care models post-COVID-19 may prevent care shocks during future pandemics, bolstering emerging universal primary care models.

Keywords
NCDs, COVID-19, Vulnerable populations

This article is included in the Coronavirus (COVID-19) collection.
Corresponding author: Linda M. Mobula (mmobula1@jhmi.edu)

Author roles: Mobula LM: Conceptualization, Supervision, Writing – Original Draft Preparation, Writing – Review & Editing; Heller DJ: Conceptualization, Writing – Original Draft Preparation, Writing – Review & Editing; Commodore-Mensah Y: Conceptualization, Writing – Original Draft Preparation, Writing – Review & Editing; Walker Harris V: Conceptualization, Writing – Original Draft Preparation, Writing – Review & Editing; Cooper LA: Conceptualization, Supervision, Writing – Original Draft Preparation, Writing – Review & Editing

Competing interests: DJH reports research support from Teva Pharmaceuticals. Teva had no role in the design or content of this manuscript, nor the decision to publish. The other authors report no competing interests.

Grant information: This work was supported by the Bill and Melinda Gates Foundation [OPP1055800].

Copyright: © 2020 Mobula LM et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

How to cite this article: Mobula LM, Heller DJ, Commodore-Mensah Y et al. Protecting the vulnerable during COVID-19: Treating and preventing chronic disease disparities [version 1; peer review: 2 approved] Gates Open Research 2020, 4:125 https://doi.org/10.12688/gatesopenres.13181.1

First published: 09 Sep 2020, 4:125 https://doi.org/10.12688/gatesopenres.13181.1
Background
The coronavirus 2019 (COVID-19) pandemic has worsened access to care, disrupted health services, and diverted human resources to the emergency response worldwide. Vulnerable populations have been disproportionately affected: not only people with a low-income such as the internally displaced, but also ethnic minorities such as Black, Indigenous and other People of Color (BIPOC) in the United States and Black and minority ethnic groups (BAME) in the United Kingdom. COVID-19 has exacerbated the health access disparities these communities already suffer due to the disruptions to service delivery. These groups also disproportionately bear the brunt of selectively-enforced lockdowns and social distancing regulations – especially in settings of food insecurity, limited access to potable water, and scarce jobs.

Non-communicable diseases (NCDs) - such as hypertension, diabetes, and obstructive lung diseases – are key drivers of these health inequities. Like COVID-19, NCDs disproportionately cluster in low-income and vulnerable populations - and affect these communities more severely and sooner in life, increasing the risk of disease and death from COVID-19. The reasons while ultimately biomedical, are the result of economic, social, and cultural factors. Moreover, structural racism has resulted in limited access to resources to meet basic health needs, limited communication channels, and weaker safety nets for communities of color.

These challenges not only increase risk of COVID-19 infection and death among persons with NCDs – they also worsen control of NCDs among vulnerable persons at risk of COVID-19. This disparity is multifaceted: firstly, vulnerable persons with NCDs face a disproportionate burden of the economic, social, and health-related impact of COVID-19 itself, which distracts from NCD self-care. Secondly, they experience the same anxiety associated with fear of contracting the disease as the general population, magnified by concerns about discrimination; and thirdly, they endure worsening of the existing impaired access to NCD care due to social distancing protocols. To protect vulnerable persons worldwide from the many threats of COVID-19 – including infection, care interruption, and stigma - we must focus on protecting these communities from NCDs. We must use tried-and-true tactics from the NCD treatment playbook, but revise them: firstly, to focus more on the specific needs of vulnerable populations; and secondly, to adapt to COVID-19 care disruptions. We propose seven strategies to expressly protect the health of vulnerable populations living with NCDs.

NCD prevention, control and treatment in vulnerable populations
Government strategies for NCD control in vulnerable populations have long needed to devise low-cost, innovative solutions, due to a combination of massive disease prevalence and among the lowest donor support margins in the already resource-strapped global health community. Fortunately, many of those creative and low-budget strategies have succeeded and can be leveraged to help vulnerable populations to prevent and control NCDs worsened by COVID-19 - despite significant resource gaps. Disruptions to care have been demonstrated through a World Health Organization (WHO) rapid assessment survey of service delivery for NCDs during the COVID-19 pandemic. This survey found that health services have been partially or completely disrupted for hypertension, cancer, and diabetes treatment, as well as diabetes-related complications and cardiovascular emergencies. Only 66% of all countries and only 61% of LMICs have included continuation of NCD services as part of their pandemic plan.

Protection and prioritization of healthcare workers
Globally, healthcare workers (HCWs) are at highest risk of COVID-19 infection and mortality. Inadequate access to PPE and poor infection control practices in low resource healthcare settings lead to mistrust from communities, causing underutilization of essential services. Patients may delay or avoid health care altogether because of the perceived threat of COVID-19.

Delivering high quality care for patients with NCDs requires national strategies to minimize infection risk to HCWs and ultimately protect patients from COVID-19. This effort requires protocols specific to low-resource settings to achieve infection protocol in fragile primary care clinics, such as the WHO Infection Prevention and Control protocol for COVID-19.

Telehealth, M-health and other technologies to improve access to care to manage NCDs
When delivered equitably and effectively, telehealth expands access to NCD care and reduces barriers to care. The evidence is especially robust for home monitoring of patients with NCDs and psychotherapy for behavioral health. Although most such evidence comes from high income countries, in LMICs, telehealth is an emerging approach to deliver healthcare to manage NCDs. Mobile-health (m-health) management of NCDs in LMICs, where 70% of mobile subscriptions are now found, is an underutilized strategy - especially in rural areas where in-person care is scarce. One promising approach includes partnerships among internet service providers, health technology companies, and health care providers to develop accessible platforms that enhance communication between patients and frontline workers and improve access to care.

Shifting and sharing health tasks across the healthcare team
In settings where clinicians are scarce, other providers can assume physicians’ tasks, a strategy called task-shifting. Nurses and volunteers can control blood pressure, treat depression, and educate on tobacco cessation, for instance, as well as doctors. Telemedicine strategies for non-doctor NCD care - for instance smartphone tracking of blood pressure, or text and telephone correspondence for depression - have emerged over the past 10 years. Furthermore, task-shifting models to treat and prevent COVID-19 have burgeoned over the past few months. For instance, NCDs peer support groups such as the Chronic Disease Self-Management Program (CDSMP) have already been brought online, and this approach has expanded due to
COVID-19\textsuperscript{19}. The online format not only lowers the logistical and economic cost of participation. It also allows sharing of fear and anxiety; economic hardship; and other sensitive personal challenges to share them in the safe space that the internet permits. Moreover, non-physician peer leaders can be recruited from the same communities as the patients they serve, allowing increased trust.

Policy-insurance reimbursement and coverage and increased funding for NCD treatment in LMICs

The COVID-19 pandemic has highlighted the importance of ensuring access to high quality care and the critical role of universal health coverage (UHC). Without additional measures such as changes in insurance reimbursement and coverage to improve access to treatment, limited resources and overwhelmed health systems will prevent countries from prioritizing the control of NCDs during this pandemic. This will likely lead to increased mortality due to COVID-19.

Most LMICs rely on private health expenditures from out-of-pocket payments and voluntary health insurance, resulting in high out of pocket expenditure and lack of access to the poor\textsuperscript{20}. Although the chronically ill in LMICs sometimes have greater access than healthier persons to health insurance, more can be done to ensure access to care for this population. Out-of-pocket costs should be waived for the duration of the emergency.

Governments should consider strategies such as direct payments to providers and employ tools such as hazard pay, overtime pay, and rate increases to assure access to high quality care. In the long term, COVID-19 may prompt further study into healthcare finance models during emergencies. This research can advance health systems towards universal care models, allowing persons with NCDs to receive quality healthcare services that results in improved health outcomes.

Prescription policies for drugs to treat NCDs

In order to minimize risk of exposure to SARS-CoV-2 in healthcare settings, prescription policies for the management of NCDs should be adjusted to minimize or eliminate requirements for face to face visits. For instance, medications to manage NCDs should be adjusted from 30- to 90-day prescriptions for stable patients. Medications should be delivered to communities to lower the risk of nosocomial transmission in healthcare settings where suspected cases may be receiving care. Fixed-dose combination therapy, also referred to as single pill combinations, is considered a best practice to improve adherence to treatment of NCDs. For this reason, the WHO added fixed-dose combination antihypertension medications to the Essential Medicines List in July 2019\textsuperscript{21}. Thus, providers should consider adjusting medications to fixed dose combination pills to improve medication adherence and reduce patient burden.

Community partnerships

Solving the complex health disparities impacting vulnerable populations requires the collaboration of diverse stakeholders within healthcare, public health, social services, and government. These partnerships must leverage community-based participatory research (CBPR) and relationship-centered principles to enhance the innovation, relevance, and effectiveness of interventions, programs, and policies\textsuperscript{22}. CBPR principles include building upon resources within the community; facilitating collaborative, equitable partnerships; focusing on local public health problems; and committing to long-term sustainability\textsuperscript{23}. Relationship-centered principles include respect for diverse perspectives, clear communication, sharing of power and partnership in decision-making\textsuperscript{24}. Such partnerships provide safe spaces for participants to examine how institutional, and interpersonal discrimination might impede their success, and to dismantle the impact of these structural and interpersonal behaviors on vulnerable groups\textsuperscript{25}.

Conclusion

The COVID-19 pandemic has highlighted the fragility of healthcare systems and existing inequities in access to care and health outcomes for vulnerable populations across the globe. These inequities are particularly acute for the care of NCDs, which in turn impact outcomes for COVID-19. Additional research is needed to examine the impact of COVID-19 on the provision of NCD services, as well as treatment parameters. The pandemic response is a unique opportunity to shore up our approach to NCD care and pandemic planning worldwide, by employing innovative strategies that mitigate COVID-19 care disruptions and address the specific needs of these patients and communities in a sustainable fashion. Policy solutions that leverage robust prior evidence – and adapt these findings to the unique local threats created by COVID-19 – should prioritize the health and well-being of the most vulnerable, ensuring that no one is left behind during the COVID-19 response.

Data availability

Underlying data

No data are associated with this article.

References

1. Public Health England: Disparities in the risk and outcomes of COVID-19. 2020. Accessed on 15 June, 2020. Reference Source
2. The Color of Coronavirus: COVID-19 deaths by Race and Ethnicity in the U.S. Accessed on 3 June 2020. Reference Source
3. Wadhera RK, Wadhera P, Gaba P, et al.: Variation in COVID-19 hospitalizations and deaths across New York City boroughs. JAMA. 2020; 323(21): 2192–2195. PubMed Abstract | Publisher Full Text | Free Full Text
4. Owen WF Jr, Carmona R, Pomeroy C: Failing another national stress test on health disparities. JAMA. 2020. PubMed Abstract | Publisher Full Text
5. Yancy CW: COVID-19 and African Americans. JAMA. 2020. PubMed Abstract | Publisher Full Text
6. Baptiste DL, Commodore-Mensah Y, Alexander KA, et al.: COVID-19: Shedding light on racial and health inequities in the USA. J Clin Nurs. 2020; 29(15-16): 2734–2736. PubMed Abstract | Publisher Full Text | Free Full Text
7. Garg S, Kim I, Whitaker M, et al.: Hospitalization Rates and Characteristics of Patients Hospitalized with Laboratory-Confirmed Coronavirus Disease 2019 — COVID-NET, 14 States, March 1-30, 2020. MMWR Morb Mortal Wkly Rep. 2020; 69(15): 458–464. PubMed Abstract | Publisher Full Text
8. Williams DR, Cooper LA: COVID-19 and Health Equity—A New Kind of “Herd Immunity”. JAMA. 2020; 323(24): 2478–2480. PubMed Abstract | Publisher Full Text
9. Hamadani JD, Hasan MI, Baldi AJ, et al.: Immediate impact of stay-at-home orders to control COVID-19 transmission on socioeconomic conditions, food insecurity, mental health, and intimate partner violence in Bangladeshi women and their families: an interrupted time series. Lancet Glob Health. 2020; 8(4): e221–e228. PubMed Abstract | Publisher Full Text | Free Full Text
10. Wu Z, McGroogan JM: Characteristics of and Important Lessons From the Coronavirus Disease 2019 (COVID-19) Outbreak in China: Summary of a Report of 72 314 Cases From the Chinese Center for Disease Control and Prevention. JAMA. 2020. PubMed Abstract | Publisher Full Text
11. Ruan Q, Yang K, Wang W, et al.: Clinical predictors of mortality due to COVID-19 based on an analysis of data of 150 patients from Wuhan, China. Intensive Care Med. 2020; 46(5): 846–848. PubMed Abstract | Publisher Full Text | Free Full Text
12. Guan WJ, Ni ZY, Hu Y, et al.: Clinical Characteristics of Coronavirus Disease 2019 in China. N Engl J Med. 2020; 382(18): 1708–1720. PubMed Abstract | Publisher Full Text | Free Full Text
13. Bonow RO, Fonarow GC, O’Gara PT, et al.: Association of Coronavirus Disease 2019 (COVID-19) With Myocardial Injury and Mortality. JAMA Cardiol. 2020. PubMed Abstract | Publisher Full Text
14. Grasselli G, Zangrillo A, Zanella A, et al.: Baseline Characteristics and Outcomes of 1591 Patients Infected With SARS-CoV-2 Admitted to ICUs of the Lombardy Region, Italy. JAMA. 2020; 323(16): 1574–1581. PubMed Abstract | Publisher Full Text | Free Full Text
15. World Health Organization: Rapid assessment of service delivery for non-communicable diseases (NCDs) during the COVID-19 pandemic. 2020. Reference Source
16. Bloomfield GS, Vedanthan R, Vasudevan L, et al.: Mobile health for non-communicable diseases in sub-Saharan Africa: A systematic review of the literature and strategic framework for research. Global Health. 2014; 10:49. PubMed Abstract | Publisher Full Text | Free Full Text
17. Foster G, Taylor SJ, Eidridge SE, et al.: Self-management education programmes by lay leaders for people with chronic conditions. Cochrane Database Syst Rev. 2007; 17(4): CD005108. PubMed Abstract | Publisher Full Text
18. Cameron A, Ewen M, Ross-Degnan D, et al.: Medicine prices, availability, and affordability in 36 developing and middle-income countries: a secondary analysis. Lancet. 2009; 373(9659): 240–249. PubMed Abstract | Publisher Full Text
19. Cooper LA, Beach MC, Johnson RL, et al.: Delving below the surface. Understanding how race and ethnicity influence relationships in health care. J Gen Intern Med. 2006; 21 Suppl 1(Suppl 1): S21–S27. PubMed Abstract | Publisher Full Text | Free Full Text
20. Williams DR, Lawrence JA, Davis BA, et al. Understanding how discrimination can affect health. Health Serv Res. 2019; 54 Suppl 2(Suppl 2): 1374–1388. PubMed Abstract | Publisher Full Text | Free Full Text
Tina Q. Tan  
Feinberg School of Medicine, Northwestern University, Chicago, IL, USA

Mobula and colleagues wrote a very concise open letter entitled "Protecting the vulnerable during COVID-19: Treating and preventing chronic disease disparities". The following are comments and questions regarding the article. The COVID-19 pandemic brought to the forefront and further accentuated the health disparities and increased rates of chronic non-communicable diseases (NCDs) in vulnerable populations that have existed for long periods of time pre-COVID-19. The pandemic not only served as a catalyst to put a spotlight on the increased risk for severe COVID-19 disease, hospitalization and death in these populations, but also exposed the long standing health disparities suffered by these individuals and the contribution of these disparities to severe COVID-19 disease.

The article is very well written and provides proposed strategies to address protecting these vulnerable communities from NCDs.

1. Telehealth, M-health and other technologies strategy - even though 70% of mobile subscriptions are in LMICs, do these subscriptions have the bandwidth and data needs to support a telehealth app?

2. Shifting and sharing health tasks across the healthcare team strategy:
   a. The authors may want to reword the first sentence since some of the task-shifting examples are not primarily physicians' tasks and are already being conducted by other non-physician healthcare providers.

3. Policy-insurance reimbursement and coverage strategy:
   a. This is not just a problem in LMICs but is also a problem here in the US. A large portion of the vulnerable populations have no insurance or are underinsured.

Is the rationale for the Open Letter provided in sufficient detail?  
Yes

Does the article adequately reference differing views and opinions?
Yes

**Are all factual statements correct, and are statements and arguments made adequately supported by citations?**
Yes

**Is the Open Letter written in accessible language?**
Yes

**Where applicable, are recommendations and next steps explained clearly for others to follow?**
Yes

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** pneumococcal epidemiology and PCV impact, global pertussis epidemiology and impact of pertussis containing vaccines, vaccine education for healthcare providers and patients

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Reviewer Report 12 October 2020

https://doi.org/10.21956/gatesopenres.14385.r29740

© 2020 Mannino D. This is an open access peer review report distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

David M. Mannino
Department of Preventive Medicine and Environmental Health, College of Public Health, University of Kentucky, Lexington, KY, USA

- This is a nice overview of providing care for non communicable diseases in the setting of Covid-19, which has disrupted the usual care pathways.

- The letter is well written and easy to follow.

- If a figure or table is allowed - this may be useful to add to summarize the 7 recommendations in a single place.

- Although much of the focus in the letter was LMIC's, all of these issues are important in high income countries (and this should be emphasized).

**Is the rationale for the Open Letter provided in sufficient detail?**
Yes

Does the article adequately reference differing views and opinions?
Yes

Are all factual statements correct, and are statements and arguments made adequately supported by citations?
Yes

Is the Open Letter written in accessible language?
Yes

Where applicable, are recommendations and next steps explained clearly for others to follow?
Yes

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** COPD

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.