



COVID-19

Demography Evidence Summary

No.7

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This is the seventh of a weekly COVID-19 Demography Evidence Summary (DES) to signpost DFID and other UK government departments to the latest relevant evidence and discourse on COVID-19 to inform and support their response. It is a result of 4 hours of work per week and is not intended to be a comprehensive summary of available evidence on COVID-19 but aims to make original documents easily accessible to decisionmakers which, if relevant to them, they could refer to before making decisions.

The scope of DES includes emerging evidence on i) how COVID-19 impacts on demographic indicators, ii) how demographic indicators impact on transmission/spreading and mortality rate, and iii) policy advice on tailoring such responses to account for demographic indicators.

* Means a specific focus on Africa.

Academic journal articles and research papers

Impact of demographic indicators on COVID-19 spreading and mortality

| Publication date | Title/URL | Journal/Publication type | Authors | Summary | Tags |
|------------------|--------------------------------------------------------------------------------------------|--------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| Forthcoming | Understanding COVID-19 diffusion requires an interdisciplinary, multi-dimensional approach | Environmental Research / Volume 188, September 2020 / 109814 | Bontempi, E., Vergalli, S., & Squazzoni, F. | Several environmental studies about COVID-19 transmission mechanism don't account some fundamental parameters. This study tries to find the limitations of such | Spreading, Environmental, Socioeconomic |

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| | | | | models. Typical errors considering environment-to-human pollution transmission mechanism are presented. A different vision considering interdisciplinary aspects to account virus diffusion mechanisms is proposed. It is shown that socioeconomical factors must be accounted determining the COVID-19 initial diffusion. | |
| 23.06.2020 | Besides population age structure, health and other demographic factors can contribute to understanding the COVID-19 burden | PNAS Letter responding to the article “Demographic science aids in understanding the spread and fatality rates of COVID-19” by Dowd, Adriano, Brazel <i>et al.</i> / PNAS, 05 May 2020 / That article was mentioned in DES no.01 Dowd, Adriano, Brazel <i>et al.</i> replied to the letter, which can be found here . | Nepomuceno, M.R., Acosta, E., Alburez-Gutierrez, D. <i>et al.</i> | The authors argue that the burden of chronic diseases has the potential to offset the possible benefits of younger populations with different epidemiological characteristics. If this influence is considerable, the differences across populations presented here suggest that younger individuals in low- and middle-income countries may be at a substantially higher risk of severe COVID-19 illness than individuals of the same age in high-income settings once age-related health conditions are considered. | Age structure, Comorbidity, Mortality |

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| 23.06.2020 | A mathematical model reveals the influence of population heterogeneity on herd immunity to SARS-CoV-2 | Science: eabc6810 | Britton, T., Ball, F., & Trapman, P. | This study shows that population heterogeneity can significantly impact disease-induced immunity as the proportion infected in groups with the highest contact rates is greater than in groups with low contact rates. The authors estimate that if $R_0 = 2.5$ in an age-structured community with mixing rates fitted to social activity then the disease-induced herd immunity level can be around 43%, which is substantially less than the classical herd immunity level of 60% obtained through homogeneous immunisation of the population. These estimates should be interpreted as an illustration of how population heterogeneity affects herd immunity, rather than an exact value or even a best estimate. | Spreading, age structure |
| 23.06.2020 | National age and co-residence patterns shape covid-19 vulnerability | PNAS – this article has been approved by PNAS and edited. A preprint version of this article was earlier circulated in DES No.3 | Esteve, A., Permanyer, I., Boertien, D., & Vaupel, J.W. | Based on harmonised census data from 81 countries, this study estimates how age and co-residence patterns shape the vulnerability of countries' populations to outbreaks of COVID-19. The age structures of European and North American | Mortality, Intergenerational living, Age structure |

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| | | | | <p>countries increase their vulnerability to COVID-related deaths in general. The co-residence patterns of elderly persons in Africa and parts of Asia increase these countries' vulnerability to deaths induced by within-household transmission of COVID-19. Southern European countries, which have aged populations and relatively high levels of intergenerational co-residence, are, all else equal, the most vulnerable to outbreaks of COVID-19. Preventing primary infections among the elderly is the most effective in countries with small households and little intergenerational co-residence, whereas confining younger age groups can have a greater impact in countries with large and intergenerational households.</p> | |
| 20.06.2020 | The impact of COVID-19 and strategies for mitigation and suppression in low- and middle-income countries | Science: <i>eabc0035</i> | Walker, P.G.T., Whittaker, C., Watson, O.J., Baguelin, M., Winskill, P. et al. | <p>This study combines data on demography, contact patterns, disease severity, and health care capacity and quality to understand its impact and inform strategies for its control. Younger populations in lower income countries may reduce overall risk but</p> | Mortality, Age structure, Socioeconomic |

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| | | | | <p>limited health system capacity coupled with closer inter-generational contact largely negates this benefit. Mitigation strategies that slow but do not interrupt transmission will still lead to COVID-19 epidemics rapidly overwhelming health systems, with substantial excess deaths in lower income countries due to the poorer health care available. Of countries that have undertaken suppression to date, lower income countries have acted earlier. However, this will need to be maintained or triggered more frequently in these settings to keep below available health capacity, with associated detrimental consequences for the wider health, well-being and economies of these countries.</p> | |
| 20.06.2020 | Risk of SARS-CoV-2 infection from contaminated water systems | medRxiv preprint article (not peer reviewed) | Shutler, J., Zaraska, K., Holding, T.M., et al. | <p>Other than airborne water droplets (aerosols) there could be other transmission routes of Covid-19. This study quantifies Covid-19 survivability within water and the risk of infection posed by faecal contaminated water within 39 countries.</p> | Socioeconomic, Environmental |

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| | | | | <p>The authors identify that the virus can remain stable within water for up to 25 days, and country specific relative risk of infection posed by faecal contaminated water is related to the environment. Faecal contaminated rivers, waterways and water systems within countries with high infection rates can provide infectious doses >100 copies within 100 ml of water threatening specific population groups.</p> | |
| 16.06.2020 | Beyond Deaths per Capita: Comparative CoViD-19 Mortality Indicators | medRxiv preprint article (not peer reviewed) | Heuveline, P. & Tzen, M. | <p>This article discusses alternative comparative measures for Covid-19 deaths per capita based on well-established practices in demography. The study calculates the death rates for 263 countries, territories, provinces in China and US states and indirectly standardises these rates by using population age-and-sex distributions and calculate reductions in 2020 life expectancy at birth. The authors conclude that indirect standardisation as a valuable alternative, especially for small areas where age-and-sex CoViD-19 data might be unavailable or unreliable. Current</p> | Mortality |

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| | | | | projections seem more likely to under- than to over-estimate the eventual impact of Covid-19 on the annual life expectancy at birth. | |
| *09.06.2020 | Western Cape: COVID-19 and HIV / Tuberculosis | Presentation by Western Cape Department of Health of data analysis Covid-19 mortality ratios and comorbidity | Davies, M.N. | Older age and comorbidities increase risk of COVID-19 death. Quantify effect of HIV and Tuberculosis: Modest 2 – 2.5 times risk of COVID-19 death associated with HIV and Tuberculosis. This data may be over-estimated if it has not fully disentangled all comorbidities and risks: e.g. overweight and socio-economic status. Those with HIV & Tuberculosis tend to be younger where overall risk of COVID-19 death is low. | Comorbidity |
| 07.06.2020 | COVID-19 and HIV co-infection: a living systematic evidence map of current research | medRxiv preprint article (not peer reviewed) | Masukume, G., Mapanga, W., & Sindisiwe van Zyl, D. | This is a systematic literature review about the confluence of Covid-19 and HIV. After five months, from the beginning of the COVID-19 pandemic, there were at least 35 studies reported from thirteen countries. Based on studies that could be extrapolated to the general population, co-infected individuals with suppressed HIV viral | Comorbidity |

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| | | | | loads did not have disproportionate COVID-19 sickness and death. Current evidence suggests that co-infected patients should be treated like the general population. | |
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Impact of COVID-19 on demography

| Publication date | Title/URL | Journal/Publication type | Authors | Summary | Tags |
|------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| *Forthcoming | Social consequences of COVID-19 in a low resource setting in Sierra Leone, West Africa | International Journal of Infectious Diseases / Short communication / Volume 97, August 2020, Pages 23-26 | Buonsenso, D., Cinicola, B., Raffaelli, F., Sollena, P., & Iodice, F. | This study analyses the impact of COVID-19 in a low resource setting in rural Sierra Leone. It showed that people lost their jobs and have difficulties in providing food for their families, as a consequence of COVID-19 lockdown. | Socioeconomic |
| Forthcoming | Challenges of diabetes care management in developing countries with a high incidence of COVID-19: A brief report | Diabetes & Metabolic Syndrome: Clinical Research & Reviews / Volume 14, Issue 5, September– | Nouhjah, S., & Jahanfar, S. | COVID-19 pandemic may be a potentially diabetogenic situation and may worsen hyperglycemia and diabetes | Diabetes |

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| | | October 2020, Pages 731-732 | | complications. Challenges faced by developing countries in managing diabetes during COVID-19 outbreak is different from other countries. Strategies for better management of diabetes care during current crisis should be based on available resources. | |
| *24.06.2020 | COVID-19 and routine childhood immunization in Africa: leveraging systems thinking and implementation science to improve immunization system performance | International Journal of Infectious Diseases / Perspective / Pre- proof article. | Adamu, A.A., Ijalo, R., Habonimana, D., & Wiysonge, C.S. | One of the routine health services that is at high risk of being disrupted by COVID-19 in Africa is childhood immunisation. Experiences from previous outbreaks on the continent indicates that any disruption of immunisation services can result in epidemics of childhood vaccine- preventable diseases | Immunisation |

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| | | | | <p>which will invariably increase child mortality. Using systems thinking can advance the understanding of the interaction between COVID-19 and immunisation by explicitly elucidating the non-linear and dynamic relationships that exist between all elements of the system.</p> | |
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Policy briefs, statements, tools, guideline

| Publication date | Title/URL | Publication organisation/type | Authors | Tags |
|------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-------------------|
| 18.06.2020 | All Hands on Deck: A Synchronized Whole-of-World Approach for COVID-19 Mitigation | <p>International Journal of Infectious Diseases / Preproof.</p> <p>Considering an 'all hands-on deck' concept, the authors present a comprehensive list of tools and</p> | Ebrahim, S.H., Zhuo, J., Gozzer, E. et al. | Policy, Spreading |

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| | | <p>entities responsible for and enabling them, as well a conceptual framework to achieve the maximum impact.</p> | | |
| 09.06.2020 | <p>A framework for identifying and mitigating the equity harms of COVID-19 policy interventions</p> | <p>Journal of Clinical Epidemiology / Preproof</p> <p>The authors present a framework that can help in three ways: (1) identifying areas where a policy intervention may generate inequitable adverse effects; (2) mitigating policy and practice interventions by facilitating the systematic examination of relevant evidence; and (3) planning for lifting COVID-19 lockdowns and policy interventions around the world.</p> | <p>Glover, R.E., van Schalkwyk, M.C., & Akl, E.A.</p> | <p>Policy, socioeconomic</p> |

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| 07.06.2020 | A rapid risk analysis tool to prioritise response to infectious disease outbreaks | BMJ Global Health 2020: 5:e002327. The authors present a tool to analyse infectious disease outbreaks earlier. | Lesmanawati DAS, Veenstra P, Moa A, <i>et al.</i> | Policy, Spreading, Mortality |
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Comments, Editorials, Opinions, Blogs, News

| Publication date | Title/URL | Article type | Authors |
|------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 24.06.2020 | Religious inequalities and the impact of Covid-19 | Blog post by Institute of Development Studies | Emilie Wilson (Communication officer at IDS) |
| 23.06.2020 | Pandemic Preparedness: Strengthening Family Planning Policies Today to Secure Essential Services for Tomorrow | Blog post on International Conference on Family Planning | Sara Stratton (director for health at Palladium and is a senior technical advisor for family planning on the USAID-funded Health Policy Project) |
| *20.06.2020 | African countries are struggling to keep track of covid-19 | The Economist, News article | The Economist |
| *04.06.2020 | Ensuring learning continuity for every African child in the time of COVID-19 | Blog post on The Brookings website | Adedeji Adeniran (Director of Education (Governance Research) and Senior Fellow - Centre for the |

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| | | | Study of the Economies of Africa) |
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COVID-19 Data hubs relevant for Demography

| Organisation | Title | URL |
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| *African Arguments | Coronavirus in Africa Tracker: Data on confirmed cases in Africa | https://africanarguments.org/2020/06/11/coronavirus-in-africa-tracker-how-many-cases-and-where-latest/ |
| Data World | COVID-19 Data Resource Hub | https://data.world/resources/coronavirus/ |
| UN statistics division | Updates on census 2020 and COVID-19 | https://unstats.un.org/unsd/demographic-social/census/COVID-19/ |
| *GeoPoll | Data dashboard on COVID-19 impact on Africa | https://www.geopoll.com/blog/coronavirus-in-sub-saharan-africa-food-security-covid-testing/#dashboard |
| Migration Data Portal | Migration data relevant for COVID-19 pandemic | https://migrationdataportal.org/themes/migration-data-relevant-COVID-19-pandemic |
| World Bank Group | Understanding the COVID-19 pandemic through data: Data centre on COVID-19 | http://datatopics.worldbank.org/universal-health-coverage/coronavirus/ |
| Flowminder | Using mobile operator data to track COVID-19 | https://COVID19.flowminder.org/ |
| University of Southampton | WorldPop global demographic data: Portal with localised demographic data on sex and age accessible to tailor COVID-19 responses | https://www.southampton.ac.uk/publicpolicy/COVID19/tatem-worldpop.page |

COVID-19 Resource hubs relevant for Demography

| Organisation | Title | URL |
|-----------------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| *African Population and Health Research Centre (APHRC) | APHRC COVID-19 Situation updates in Sub-Saharan Africa | https://aphrc.org/COVID-19-situation-updates/ |
| *Africa Centres for Disease Control and Prevention (Africa CDC) | Africa CDC COVID-19 Resource hub | https://africacdc.org/COVID-19/COVID-19-resources/ |
| *UN Development System in Africa | One-stop knowledge information centre of all UN agencies on COVID-19 | https://knowledge.uneca.org/COVID19/ |
| Family Planning 2020 | Family Planning and COVID-19 resource hub | http://familyplanning2020.org/COVID-19 |
| Global Partnership for Sustainable Development Data | COVID-19 resources hub on data and mapping | http://www.data4sdgs.org/resources/COVID-19-resources |
| *INCLUDE Knowledge Platform | COVID-19: Challenging Inclusive Development in Africa | https://includeplatform.net/inclusive-development-covid-19-pandemic/ |
| International Conference on Family Planning | COVID-19 and reproductive health | https://icfp2021.org/COVID19 |
| International Union for the Scientific Study of Population | Demographers' contributions to the understanding of the COVID-19 pandemic | https://iussp.org/fr/node/11297 |
| *ONE | The ONE Africa COVID-19 Tracker | https://www.one.org/africa/about/policy-analysis/covid-19-tracker/ |
| Population Council | Research hub on the COVID-19 pandemic | https://www.popcouncil.org/research/responding-to-the-COVID-19-pandemic |

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| Population Europe | The Network of Europe's leading Demographic Research Centres on Demography and COVID-19 | https://population-europe.eu/news/demography-coronavirus |
| REACH Initiative | Supporting the Humanitarian Response to COVID-19 | https://www.reach-initiative.org/what-we-do/news/updates-on-ongoing-research-and-activities-linked-to-covid-19-pandemic/ |
| UNFPA | United Nations Population Funds COVID-19 knowledge hub | https://www.unfpa.org/COVID19 |

Suggested citation

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Methodology

The rapid weekly search looks for peer-reviewed academic articles, however, due to rapid developments most academic literature is not peer-reviewed (yet). Therefore, the literature is complemented by a search of the homepage of high-impact global health, demography and population journals and a Twitter search of their Twitter pages. A search also of preprints, for example from medRxiv. Additional commentaries, opinions, and commissioned pieces are selected based on relevance. The search for dashboards, guidelines, tools, editorials, comments, blogs, opinions and news is mostly through academic institutions, journals, C19 resource hubs and following lead academics and professionals on Twitter.

About this report

The weekly Demography Evidence Summaries are not intended to replace professional advice and the researcher or the K4D consortium cannot be held responsible for any decisions made about COVID-19 on the basis of the summaries alone.

K4D services are provided by a consortium of leading organisations working in international development, led by the Institute of Development Studies (IDS), with Education Development Trust, Itad, University of Leeds Nuffield Centre for International Health and Development, Liverpool School of Tropical Medicine (LSTM), University of Birmingham International Development Department (IDD) and the University of Manchester Humanitarian and Conflict Response Institute (HCRI).

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