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Building confidence in COVID-19 vaccine rollout: the importance of responsible presentation and follow-on investigation of Adverse Events Following Immunization (AEFI) reports for elderly patients

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ABSTRACT

Given the extreme need for vaccines to flatten the curve of COVID-19 cases and deaths worldwide, many researchers, some governments and donor agencies have initiated a good number of vaccine development projects. COVID-19 vaccines have been approved for use in mass population immunization programmes in a much shorter time than is usual for new pharmaceuticals. This does not indicate cut corners or skipped safety trials, however. It is vitally important to explain the why and how of expedited vaccine development to a potentially sceptical public in order to head-off potential issues with vaccine hesitancy. This is particularly important in the case of elderly patients with comorbidities, as such people may be under-represented in clinical trials, raising concerns over whether or not the vaccine is safe for them. In particular, care needs to be taken regarding media reporting of deaths that occur in the weeks following vaccination of the very elderly and frail. Coincidental deaths amongst such demographics can be misunderstood and misreported as vaccine-related: it is important for medical sources to rule out such links and for public health communication to ensure that this knowledge is incorporated into programmes to help build vaccine confidence. Detailed planning for vaccination roll-out to this group is necessary to ensure the safety of those most at risk.

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DEAR EDITOR,

The deaths of 71 elderly citizens in Europe[1,4] after receiving Pfizer-BioNTech's COVID-19 vaccine (BNT162b2) and the consequent misleading media reports that blamed the vaccine for the deaths[5,6] resulted in vaccine hesitancy in different parts of the world, just when many governments and vaccine-related organizations were in the midst of vaccine rollouts. Such a phenomenon led us to think critically about the importance of accurate reporting to build vaccine confidence. This includes improving the ability of healthcare professionals to interpret data, critically assess reports and help patients not to jump to wrong conclusions. The importance of this is highlighted by the case of Norway, where 71,971 persons had received their first vaccine dose as of January 21, 2021, when the Norwegian Adverse Drug Reaction (ADR) Registry recorded 104 reports of possible adverse events, including 30 cases in which

people died shortly after being vaccinated.[4] Whilst the media speculated that common but usually mild side effects of the vaccine may have been aggravated by existing conditions in these people – all aged over 75 years of age – no causal relationship was identified during a subsequent comprehensive investigation[5,6]. The deaths were simply an unfortunate coincidence: in a very elderly demographic some deaths over a period of weeks following vaccination (or indeed any action or activity) will be inevitable. It should not be inferred that such deaths are vaccine related. Another such case study can be illustrated from France, where investigations into the deaths of five frail patients shortly after vaccination – among 139 reported adverse events, including at least four severe allergic reactions and two incidents of irregular heartbeats[7] – has similarly resulted in no causal relationship being identified[8,9]. News coverage of 10 similar deaths reported in Germany often failed to note that patients were already seriously ill with other conditions at the time they received their vaccines[10]. These figures and their subsequent investigations highlight the importance of checking reported causes of death clearly and systematically, as deaths following immunization may not be related to adverse drug reactions at all.

CONFIDENCE IN CLINICAL TRIALS

The Pzifer-BioNTech BNT162b2 vaccine has been clinically tested and confirmed to be safe and effective. It is vitally important to be mindful that what may appear to be an adverse reaction in a demographic not included in medical trials – which tend to use young and healthy volunteers, not frail octogenarians – does not indicate that the vaccine is unsafe for that demographic. This is particularly important where the vaccine involved uses mRNA technology (as does the BNT162b2 vaccine, well as another vaccine developed by Moderna), which has not been used in a mass vaccination programme before – as is the need to communicate that clinical trials using mRNA vaccines have been ongoing for years[11], including for diseases including Ebola, rabies and influenza, and that the technology has been robustly tested. Deaths and adverse events incorrectly linked to COVID-19 vaccination trigger concerns and require a careful strategy to build confidence among healthcare workers as well as the public, to explain that the safety of these vaccines has been assured. Building such confidence may prove to be a particular challenge in many Asian and African countries. Unlike in developed countries, developing and under-developed countries are not always able to provide detailed statistical information about their populations, including data relating to people with different diseases and disorders. This may make people more concerned over whether safety for their particular condition or ethnic group is assured. There is not much data on the efficacy and safety of COVID-19 vaccines in patients with compromised immune systems, for example, as has been noted by the World Health Organization,[12] but this should not be taken to indicate the vaccine is *un*safe.

Safety concerns over vaccinations of elderly persons with comorbidities, compromised immune systems, ongoing treatments, etc. can be eased by reference to countries such as the UK and USA where millions of elderly people have been vaccinated with no indication of harm[13]. Failing to acknowledge this could pose a large threat to many developing countries if the most vulnerable people hesitate to take the available vaccinations.

HEALTH LITERACY OF VACCINE DELIVERY STAFF

It is imperative that public health authorities and medical staff in all countries are fully briefed on both the failure of European investigations to find a causal relationship between vaccination and death in the elderly, and also on the extremely high numbers of European elderly who have now been vaccinated safely and with no adverse effects[14]. People in the least developed and developing countries often have low health literacy and, in most developing countries, this includes non-medical general workers who regularly dispense medicine and administer vaccines. AEFI reporting is often misrepresented in the media and misunderstood due to lack of journalist training to understand the statistics produced, while at the local level, there may not be systematic and robust

healthcare monitoring infrastructure available to counter the media claims, as European and North American healthcare agencies and fact-check organisations have been able to do[6,7]. This risks leaving journalists, public health professionals, doctors and patients poorly informed. Authorities cannot always properly monitor the vast amount of AEFI data to accurately identify, analyse and publicize AEFIs, leaving media reporting of suspected but unproven cases as the only available source. They may not be able to investigate all reported AEFIs to identify coincidental rather than causal relationships.

Android and iOS apps can aid in collecting AEFI responses but the data collected is likely to be inaccurate as not everyone has the required devices, technical abilities or internet access. What is reported may not be properly verified, leading to inaccuracies where relationships are wrongly assumed, and open to abuse by anti-vaccination propaganda campaigns. Real-time data collection and accurate AEFI reporting in many developing countries remains obscured.

ROBUST SURVEILLANCE AND MONITORING

Media reporting of apparent – but coincidental – casualties threatens to jeopardize vaccination efforts in the least developed/developing countries, who can least afford disruption to vaccination efforts. It is essential to properly monitor vaccinated people and to have robust surveillance in place so that all deaths following vaccination can be analysed and their causes accurately ascribed. Authentic data must be promptly shared with the rest of the world to avoid hindering in full authorization of specific vaccines.

Thus, thorough inspection of elderly patients with comorbidities prior to vaccination is warranted. Those who are close to death may benefit little and drive vaccine hesitancy if they die soon after and their deaths are misreported. Accurate AEFI reporting should be practiced in order to increase confidence in safe, effective COVID-19 vaccines that are currently being undermined by poor data and assumptions rather than evidence. Evidence-based science and unbiased decisions have no alternative.

REFERENCES

1. Dean, S. and Sealy, A. Norway reviewing deaths of frail and elderly patients vaccinated against Covid-19. CNN. See: https://www.cnn.com/2021/01/18/health/covid-vaccine-pfizer-deaths-norway-intl/index.html (accessed Jan 25, 2021).
2. Torjesen I. Covid-19: Norway investigates 23 deaths in frail elderly patients after vaccination. BMJ 2021; 372: n149.
3. Norway Moves to Calm Vaccine Anxiety After Elderly Deaths. See: https://www.bloomberg.com/news/articles/2021-01-18/norway-finds-no-direct-link-between-elderly-deaths-and-vaccine (accessed January 25, 2021).
4. Reported suspected adverse reactions of covid-19 vaccines - See: https://legemiddelverket.no/ english/covid-19-and-medicines/vaccines-against-covid-19/reported-suspected-adverse-reactions-of-covid-19-vaccines (acc Jan 25, 2021).
5. See: https://www.bloomberg.com/news/articles/2021-01-18/norway-finds-no-direct-link-between-elderly-deaths-and-vaccine (accessed 18 July 2021)
6. See: https://www.reuters.com/article/uk-factcheck-norway/fact-check-discussion-of-deaths-in-elderly-vaccine-recipients-in-norway-lacks-context-idUSKBN29P2R1, , (accessed 21 June 2021)
7. See: https://www.wcpo.com/news/coronavirus/fact-check-friday-no-proof-covid-19-vaccine-contributed-to-norway-deaths, (accessed 21 June 2021)
8. See: https://www.connexionfrance.com/French-news/Five-deaths-in-France-reported-after-Covid-Pfizer-BioNTech-vaccination, (accessed 22 June 2021)
9. France C. Covid France: Five deaths after vaccine, no link proven. https://www.connexionfrance.com/French-news/Five-deaths-in-France-reported-after-Covid-Pfizer BioNTech-vaccination (accessed January 25, 2021).
10. See: https://www.rappler.com/newsbreak/fact-check/deaths-germany-after-receiving-pfizer-covid-19-vaccine, (accessed 22 June 2021)
11. Pardi, N., Hogan, M.J., Porter, F.W. and Weissman, D., 2018. mRNA vaccines—a new era in vaccinology. *Nature reviews Drug discovery*, *17*(4), p.261.
12. Polack FP, Thomas SJ, Kitchin N, et al. Safety and Efficacy of the BNT162b2 mRNA Covid-19 Vaccine. New England Journal of Medicine 2020; 383: 2603–15.
13. Who can take the Pfizer-BioNTech COVID-19 vaccine? https://www.who.int/news-room/feature-stories/detail/who-can-take-the-pfizer-biontech-covid-19--vaccine (accessed January 25, 2021).
14. Mahase, E., 2020. Covid-19: Moderna vaccine is nearly 95% effective, trial involving high risk and elderly people shows. *BMJ: British Medical Journal (Online)*, *371*.