



THE UNIVERSITY *of* EDINBURGH

Edinburgh Research Explorer

## COVID-19 information for people living with asthma

**Citation for published version:**

McClatchey, K, Jackson, T, Delaney, B, Morgan, N, Pinnock, H & Chan, AHY 2021, 'COVID-19 information for people living with asthma: A rapid review of publicly available information', *The Journal of Allergy and Clinical Immunology: In Practice*. <https://doi.org/10.1016/j.jaip.2021.01.003>

**Digital Object Identifier (DOI):**

[10.1016/j.jaip.2021.01.003](https://doi.org/10.1016/j.jaip.2021.01.003)

**Link:**

[Link to publication record in Edinburgh Research Explorer](#)

**Document Version:**

Peer reviewed version

**Published In:**

The Journal of Allergy and Clinical Immunology: In Practice

**General rights**

Copyright for the publications made accessible via the Edinburgh Research Explorer is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

**Take down policy**

The University of Edinburgh has made every reasonable effort to ensure that Edinburgh Research Explorer content complies with UK legislation. If you believe that the public display of this file breaches copyright please contact [openaccess@ed.ac.uk](mailto:openaccess@ed.ac.uk) providing details, and we will remove access to the work immediately and investigate your claim.



**COVID-19 information for people living with asthma: A rapid review of publicly available information**

**Team:** Kirstie McClatchey, PhD<sup>1</sup>; Tracy Jackson, PhD<sup>1</sup>; Brigitte Delaney, BA (Hons)<sup>2</sup>; Noelle Morgan, BSc (Hons)<sup>1</sup>, Hilary Pinnock, MD<sup>1</sup>; Amy Hai Yan Chan, PhD<sup>3</sup>

<sup>1</sup>*Asthma UK Centre for Applied Research, Usher Institute, The University of Edinburgh*

<sup>2</sup>*Academic Unit of Primary Medical Care, The University of Sheffield*

<sup>3</sup>*School of Pharmacy, Faculty of Medical and Health Sciences, The University of Auckland*

**Corresponding Author:** Dr Kirstie McClatchey

**Address:** The University of Edinburgh, Usher Institute, Old Medical School, Teviot Place, Edinburgh, EH8 9AG

**Email:** [kirstie.mcclatchey@ed.ac.uk](mailto:kirstie.mcclatchey@ed.ac.uk)

**Abstract word count:** 250

**Text word Count:** 1057

## ABSTRACT

**Background:** In 2020, COVID-19 was declared a pandemic, posing risk to high-risk communities, such as people living with severe asthma.

**Objective:** To rapidly review COVID-19 information available online for people with asthma, to assess whether information aligns with risk communication and asthma self-management guidelines.

**Methods:** Information from five English-speaking countries and global websites providing COVID-19 information for people with asthma (including those at high-risk of severe disease) were downloaded at two time points (20<sup>th</sup> April and 18<sup>th</sup> May 2020). Downloaded webpages were analysed using a coding framework developed by a multidisciplinary team, informed by the World Health Organization (WHO) emergency risk communication guideline and the National Institute for Health and Care Excellence (NICE) asthma guidelines.

**Results:** We identified 102 webpages from 43 unique organisations that provided asthma-related health information. Only 14 (33%) organisations stated that their information had been reviewed/updated within the week prior to the first download date. Half of the organisations acknowledged/communicated uncertainty about current COVID-19 knowledge (n=22, 51%). Most organisations provided generic COVID-19 health information e.g. handwashing guidance (n=38, 88%), and most discussed asthma self-management strategies (n=36, 84%). However, only 24 (56%) provided information relevant to the self-management elements of the NICE guidelines, with only 14 (33%) discussing asthma action plans.

**Conclusion:** COVID-19 online information for people with asthma largely followed the WHO emergency risk communication guideline and provided some self-management strategies, though omitted asthma action plan advice. We propose that when providing information about COVID-19 for individuals with asthma, explicit asthma self-management information should be included.

**Clinical Implications:**

Health information should build trust, promote health protection actions, and ensure adherence to recommended health measures. Despite the context of a coronavirus pandemic that has potential to trigger acute asthma attacks, only a minority of sources provided explicit self-management information.

**Keywords:** *Risk communication; health communication; health information; online health information; pandemic; COVID-19; asthma; self-management; internet; patient information*

**Abbreviations:** COVID-19, 2019 novel coronavirus; F-K, Flesch-Kincaid grade level formula; NICE, National Institute for Health and Care Excellence; SMOG, Simple Measure of Gobbledygook grade formula; UK, United Kingdom; US, United States; WHO, World Health Organization; WHO ERC, World Health Organization emergency risk communication guideline.

## **COVID-19 information for people living with asthma: A rapid review of publicly available information**

Asthma affects over 339 million people worldwide<sup>1</sup> and, according to the World Health Organization (WHO), those with severe asthma may be at high-risk of becoming severely ill with COVID-19<sup>2</sup>. In addition to following COVID-19 prevention information, people with asthma need to be supported to self-manage their condition; such as having an asthma action plan and ensuring adherence to medication. Supporting asthma self-management reduces hospitalisations, emergency department attendances, and unscheduled consultations<sup>3</sup>, which is important when healthcare services are stretched<sup>4</sup>. We aimed to rapidly review online COVID-19 information publicly available in English for people with asthma, to explore whether the information addresses relevant health actions to minimise the risk of contracting and spreading COVID-19, and encourages asthma self-management.

We searched for online COVID-19 information for people with asthma using Google™ search terms e.g. “asthma patient support”, “government health information”. Organisations were identified at a global level, and for five majority English-speaking countries (Australia, Canada, New Zealand, United Kingdom [UK], United States [US]). The inclusion and exclusion criteria are outlined in Table 1. Webpages that met the inclusion criteria were downloaded on 20 April 2020, and on 18 May 2020 to assess information changes over time. We developed a coding framework informed by the WHO guideline for emergency risk communication (ERC)<sup>5</sup> and the National Institute for Health and Care Excellence (NICE) asthma guidelines<sup>6</sup>. Relevant WHO ERC guidance components included: building trust (e.g. timeliness, acknowledging uncertainty, providing links to other services), providing non-technical and consistent messaging, and promoting health protection actions. Self-management elements of the NICE asthma guidelines e.g. adherence to preventer medication, having an asthma action plan, speaking to a healthcare professional, were included. Data were extracted and text (excluding images and videos) was coded by the authors (AHYC, BD, TJ, or KM). Readability was assessed using the Flesch-Kincaid (F-K) and the Simple Measure of Gobbledygook (SMOG) grade formulas. Intercoder reliability was assessed at random with approximately 15% of the included webpages.

We identified and included 102 webpages from 43 unique organisations that provided COVID-19 information for those categorised as high-risk across the six countries/areas (Data files are available from Edinburgh DataShare <https://doi.org/10.7488/ds/2969>). Organisations included intergovernmental/global organisations (n=6), government organisations (n=8), patient support organisation/charities (n=16), private health information organisations (n=6), and public health organisations (n=7). Terms used to define risk groups varied across and within organisations and ranged from specific terms e.g. asthma to severe asthma; or broader terms e.g. lung or respiratory conditions. Some organisations used multiple categories to describe those at risk.

All but one of the organisations provided information relevant to the WHO ERC guideline. Most organisations (n=35, 81%) provided links to other services or information. In terms of timeliness, only 14 (33%) organisations reported reviewing or updating information within the week before the initial download date (20 April 2020). By the second download date (18 May 2020), three-quarters (n=32, 74%) stated they had reviewed or updated their information. Half of the organisations (n=22, 51%) acknowledged or communicated uncertainty in their information e.g. *“We are learning more about COVID-19 every day; CDC will update the advice below as new information becomes available.”* Most (n=32, 74%) organisations provided consistent messaging e.g. by linking to other information organisations or providing figures and statistics from reputable organisations (e.g. WHO). The mean F-K readability across all organisations was 10.4 (range=4.7-15.5), and the mean SMOG score was 9.9 (range=5.5-15.8), both equating to approximately a US Grade level 10 (15-16 years). Only nine (21%) organisations provided information written at or below the average US grade level of 8 (13-14 years). Organisations provided the following precautions that people could take to protect their health during the pandemic: 38 of the 43 (88%) provided COVID-19 specific advice e.g. handwashing, isolating with symptoms, whilst 18 (42%) organisations provided information on optimising general physical health e.g. guidance on exercise or diet; and 15 (35%) provided information about mental health and wellbeing.

All but seven organisations provided information about asthma self-management (n=36, 84%) (Figure 1). Just over half (n=24, 56%) covered information related to NICE guideline recommendations, with most highlighting adherence to medication (n=22, 51%) and speaking to a healthcare professional (n=21, 49%). Only 14 (33%) organisations advised following an asthma action plan, or discussed the (initially debated) role of steroids in the context of COVID-19. Of the 19 organisations that were focused on respiratory conditions or allergies, 5 (26%) did not provide any self-management information alongside their COVID-19 information. Most organisations (n=34, 79%) provided other asthma self-management information e.g. information about medications (n=26), inhalers or spacer use (n=12), triggers (n=7), flu vaccination (n=7), access to services (n=6), monitoring peak flow (n=4), breathing control (n=3), and annual asthma reviews (n=1).

To summarise, our rapid review found that almost all of the information organisations provided information relevant to the WHO ERC guideline, with approximately half of organisations providing guideline recommended self-management information. However, less than a third referenced following an asthma action plan – an important omission from information that is intended to help people manage potential deteriorations in asthma control. Second waves of COVID-19 are already being reported<sup>7-8</sup> highlighting the need to ensure optimal asthma management to reduce unscheduled care<sup>3</sup>. We found important variations in the definitions of risk, which could lead to confusion especially in countries with multiple sources of information; we thus recommend that risk categories should be agreed and clarified. Future COVID-19 information should also be written to lower readability scores to increase information accessibility.

Limitations include exclusion of social media posts in the review. However, health information websites are more trusted than social media<sup>9</sup>; therefore, its exclusion may not limit findings. Whilst we used the WHO ERC guideline to assess the information content, we also used the NICE guidelines, which may have been less relevant to risk communication since the guidelines focus on asthma management rather than pandemic risk communication.

In conclusion, COVID-19 online information developed for people categorised as high-risk of severe illness from COVID-19, largely followed the WHO ERC guideline and provided some asthma self-management strategies, though omitted advice to use (or arrange to be provided with) an asthma action plan. Whilst rates of provision of asthma action plans are suboptimal, in the context of a pandemic, having explicit asthma self-management information, when providing COVID-19 information for individuals with asthma, is particularly important to ensure asthma outcomes are optimised.

**Disclaimers:** The authors report no conflicts of interest.

**Funding:** This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

**Source(s) of support:** This project received no funding. Outside the submitted work, KM and BD are supported by the National Institute for Health Research (NIHR) IMP<sup>2</sup>ART (IMProving IMPLementation of Asthma self-management as RouTine) programme of work (RP-PG-1016-20008) and TJ is supported by the Asthma UK Centre for Applied Research (AC-2018-01).

AC reports grants from Innovate UK, A+ charitable trust (Auckland District Health Board), Maurice and Phyllis Paykel trust, Universitas 21, New Zealand Pharmacy Education Research Fund, Auckland Academic Health Alliance, Asthma UK, University of Auckland and consultancy fees from Janssen-Cilag, and from UCL-Business spin-out company Spoonful of Sugar Ltd. AC is also the recipient of the Robert Irwin Postdoctoral Fellowship, outside the submitted work.

**Acknowledgments:** We thank Atena Barat PhD, Vicky Hammersley PhD, and Momoko Phelan for their contribution to this work.

**Author Contributions:** KM, TJ, BD, NM, HP, AHYC all contributed to the conception and design of the study. KM, TJ, BD, AHYC were involved in the data collection, analysis, and interpretation. KM, TJ, BD, HP, AHYC were involved with the development of the manuscript, and KM, TJ, BD, NM, HP, AHYC approved the final draft.



## REFERENCES

1. Global Asthma Network. The Global Asthma Report 2018. Auckland, New Zealand: 2018.
2. World Health Organization (2020). *Coronavirus disease (COVID-19) advice for the public: Mythbusters*. Available from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/myth-busters>
3. Pinnock, H., Parke, H. L., Panagioti, M., Daines, L., Pearce, G., Epiphaniou, E., ... & Taylor, S. J. (2017). Systematic meta-review of supported self-management for asthma: a healthcare perspective. *BMC Medicine*, 15(1), 64.
4. Willan, J., King, A. J., Jeffery, K., & Bienz, N. (2020). Challenges for NHS hospitals during covid-19 epidemic. *BMJ*, 368 :m1117
5. World Health Organization (2017). Communicating risk in public health emergencies: a WHO guideline for emergency risk communication (ERC) policy and practice. Geneva: World Health Organization; 2017. Licence: CC BY-NC-SA 3.0 IGO.
6. National Institute for Health and Care Excellence (NICE). (2017). Asthma: diagnosis, monitoring and chronic asthma management. NICE Guideline [NG80].
7. World Health Organisation (2020). WHO speaks at the European Parliament on the COVID-19 response. Available from: <https://www.who.int/news-room/detail/30-06-2020-who-speaks-at-the-european-parliament-on-the-covid-19-response>
8. Wise, J. (2020). Covid-19: Risk of second wave is very real, say researchers. *BMJ: British Medical Journal (Online)*, 369, 2294 doi: 10.1136/bmj.m2294
9. Williams, S. L., Ames, K., & Lawson, C. (2019). Preferences and trust in traditional and non-traditional sources of health information—a study of middle to older aged Australian adults. *Journal of Communication in Healthcare*, 12(2), 134-142.

*Table 1. COVID-19 information for people with asthma inclusion/exclusion criteria*

Inclusion Criteria	Exclusion Criteria
Freely and currently available online COVID-19 information.	COVID-19 information that is not freely available online (therefore difficult for the public to access) or not currently available (e.g. archived information).
Information aimed at people categorised as high-risk/vulnerable, or those with respiratory conditions e.g. asthma, or those with generic long-term conditions.	Information aimed at the general population who are not at high-risk (e.g. information about COVID-19 for the general public), or information aimed at healthcare professionals.
Information from organisations within the five majority native English-speaking countries (Australia; Canada; New Zealand; UK; US), or global-level information (e.g. WHO).	Country specific information that is not from one of the five included countries (Australia; Canada; New Zealand; UK; US), and information that is not for a global audience.
Information from health information providers; global intergovernmental organisations; national governments; public health organisations; patient support organisations; and private health information services.	Information from online health providers e.g. online pharmacies, medical practices, and information from other sources not listed in the inclusion criteria (e.g. social media, forums, blogs, news websites).
Information within countries should be at a government level and not state level.	State-level information.
Information available in the English language.	Non-English information, even if an English translated version exists.

COVID-19 = 2019 novel coronavirus; UK = United Kingdom; US = United States; WHO = World Health Organisation

Figure 1. Provision of asthma self-management information by self-management information type

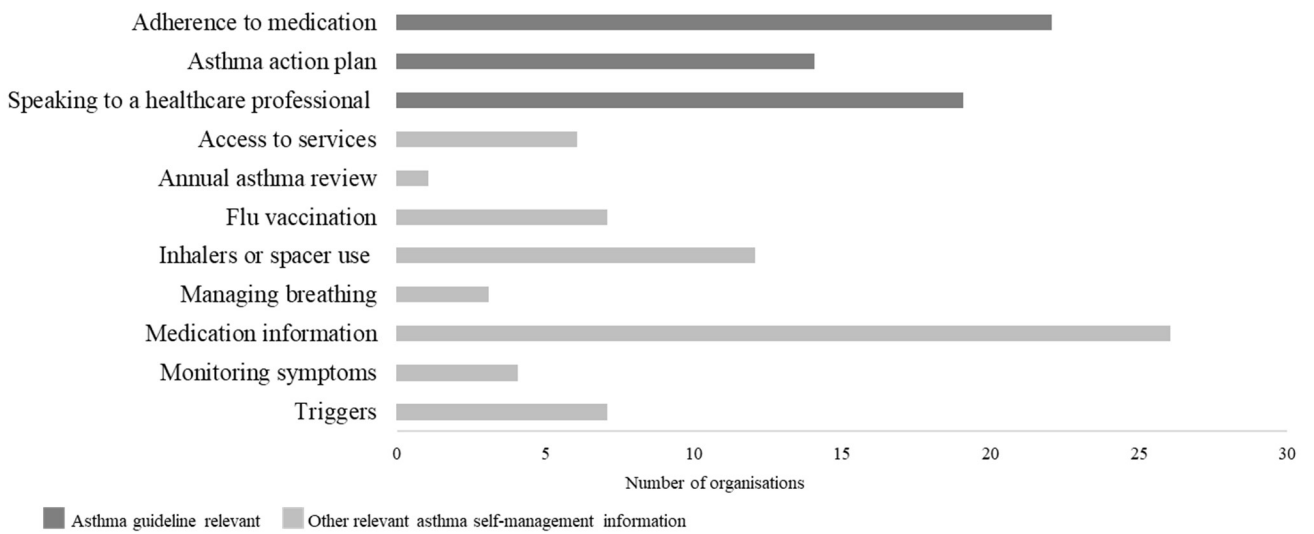


Figure 1. Provision of asthma self-management information by self-management information type. The graph illustrates the number of organisations that provide information in the different asthma self-management categories. The dark lines are information related to asthma guidelines; the pale grey lines are other self-management information for people with asthma.