

Impact of COVID-19 on asthma management in general practice: A qualitative study

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Background and objective

The COVID-19 pandemic catalysed unprecedented changes to healthcare delivery in Australia, leading to a rapid transformation of asthma management, to which healthcare providers and patients have had to adapt. Understanding the impact of these changes is critical as we emerge from pandemic-affected workflows.

Methods

A qualitative study using semistructured interviews was conducted with 19 general practitioners across Sydney and regional New South Wales. Reflexive thematic analysis of interview data was undertaken.

Results

Four key themes were identified: disorganised asthma care before COVID-19; chaotic asthma care during the pandemic; adapting to non-guideline-driven telehealth asthma care; and widening health agenda misalignment.

Discussion

This study highlights the triumphs and gaps in asthma management during the pandemic and the vulnerability of existing asthma care systems to disruption. These lessons can be used to re-evaluate how we deliver asthma care and inform future models of care as we transition towards a 'post-COVID' landscape.

THE COVID-19 PANDEMIC has catalysed a series of unprecedented changes to healthcare models in Australia as part of a necessary public health response. Although the focus has been on controlling the spread of COVID-19, disrupted care of chronic diseases such as asthma is concerning. Asthma is a chronic respiratory condition characterised by wheeze, shortness of breath, chest tightness and cough due to airway inflammation and obstruction caused by triggers such as respiratory tract infection, allergens, cold weather or exercise.¹ Asthma is one of Australia's most common chronic conditions, affecting more than one in 10 Australians and contributing to a significant disease burden and healthcare expenditure.^{2,3} Despite existing frameworks for quality asthma care, poor medication adherence and inhaler technique remain prevalent.⁴

Based on best practice, evidence-based asthma management in adults⁵ is based on a structured, clinical approach to provide a reliable diagnosis using spirometry, identify management goals in collaboration with the patient, assess disease control, manage exacerbations, review and adjust medication and provide patient education and support to enable self-management. This approach relies on regular review at least every six months, traditionally through face-to-face consultation with the general practitioner (GP). Decreased in-person consultations⁶ combined with the rapid transition into telehealth consultations and restrictions

on spirometry⁷ are likely to have fragmented the usual frameworks for quality asthma care.

Although an adverse effect of the COVID-19 pandemic on chronic disease outcomes has been foreshadowed,^{8,9} little research has been conducted to explore the experiences and perceptions of GPs during this time. This qualitative study aimed to understand the impact of the COVID-19 pandemic on the ability of GPs to deliver quality asthma care and to identify facilitators and barriers to asthma management during this time. We examined the hypothesis that the COVID-19 pandemic widened existing gaps in the delivery of recommended asthma care by Australian GPs. This research will help inform general practice and the broader community of the triumphs and gaps in asthma management during the COVID-19 pandemic and aid the development of future models of asthma care.

Methods

Study design

This qualitative study used data collected from semi-structured interviews with GPs. The research team comprised a GP engaged in clinical practice and primary care research, a medical researcher with a background in respiratory pharmacy and a GP academic registrar interested in asthma. The research team developed the interview guide, informed by the emerging literature on COVID-19 healthcare challenges and

evidence-based asthma management guidelines.^{5,7} Interview data were analysed using a reflexive thematic approach.¹⁰

The study was approved by the University of Notre Dame Human Research Ethics Committee (Reference: 2020-200S).

Participants

A purposive sampling method was used to achieve participants' heterogeneity in age, gender, experience, geography and practice size. GPs were eligible to participate if they had continuously practised as a GP in 2019 and 2020 and provided asthma care during this time. Those who had not practised as a GP during the pandemic, or as a GP for at least 12 months prior to the pandemic, were excluded from the study. Between March and October 2021, 19 participants were interviewed, including three GP registrars. Sixteen GPs were recruited across urban Sydney, and three from regional NSW. One participant was excluded from the study because they had not practised as a GP in both 2019 and 2020.

Recruitment

Participants were recruited via email from a database of GP tutors affiliated with the Department of General Practice teaching program at the University of Notre Dame. Snowball sampling was also used by extending invitations to colleagues of the GP Faculty staff.¹¹ Email invitations to prospective participants included a brief introduction, participant information sheet and a link to an online Qualtrics questionnaire to collect contact details, demographic data, employment details and consent.

Data collection

Semi-structured interviews were conducted by the primary researcher (LL), a female GP academic registrar interested in asthma. Interviews were conducted via Zoom videoconference or telephone between March and October 2021. The discussions ranged from 20 to 50 minutes. Field notes were taken during the interviews, along with an audio recording. Audio recordings of each interview were de-identified and transcribed using digital and audio transcription services. During the recruitment and consenting process, participants were made aware of the interviewer's credentials

and the purpose of the research. Three GP registrars were involved in pilot interview testing. Their interview responses were used by the authors to both assess the interview guide and improve questions and probes for future interviews.

A participant-led discussion was encouraged, and, as data collection progressed, focused probes were added to gain further insights into emerging themes and subthemes (Table 1).

Data analysis

Data collection and analysis were undertaken simultaneously. Interviewees were each allocated a de-identified pseudonym that recorded their gender (F, female; M, male) and location. NVivo 12 software (QSR International) was used for data storage and management. Interview data were coded by the primary researcher (LL), and the consistency of codes was checked by an independent coder (SB). Interview data were initially analysed using a reflexive thematic analysis method.¹⁰ A mixed inductive and realist theoretical approach to thematic analysis was then used to allow for a more detailed analysis of data relevant to the research questions and hypotheses while allowing for new themes and concepts.¹² The initial transcripts were familiarised through repeated reading. Recurring patterns and codes in the initial transcripts were noted and discussed among the research team to form a thematic framework that was examined against new data from subsequent interviews. Variations in coding were minor and resolved through regular meetings with the research team to achieve consensus.

Results

Nineteen participants were interviewed for this study. All participants were GPs who had practised in 2019 and 2020 and managed asthmatic patients during this time. Participants varied in age, experience, gender, location and practice size (Appendix 1, available online only). Four main themes were identified from the recurrent themes in interview data: disorganised asthma care before COVID-19; chaotic asthma care during the pandemic; adapting to non-guideline-driven telehealth asthma care; and widening health agenda misalignment.

Disorganised asthma care before COVID-19

Before the COVID-19 pandemic, many participants recalled providing on-demand or opportunistic asthma care, whereas some reported delivering asthma care as part of an established framework of regular reviews and examination. Some participants described asthma care as less organised and less prioritised compared with other chronic diseases, such as diabetes. Other reasons included lack of financial incentive exacerbated by the recent removal of the asthma cycle-of-care payment. As described by one GP:

When I (had) that cycle-of-care (service incentive payment [SIP]) thing, we were much better at keeping our asthma patients regularly reviewed. When that went, that incentive went. (P4, Inner-West Sydney)

Further reasons for disorganised care included a lack of available skilled nursing

Table 1. Semi-structured interview guide

Question	Examples of probes
Asthma care before the pandemic	Diagnosis, assessment and reviews recalls, GP/RN role, reimbursement
Effect of COVID-19 on asthma management	Workflow changes, pandemic plan, challenges, facilitators, telehealth, guidelines
Health outcomes of patients with asthma	Groups of concern, what could have been done differently
Lessons from the pandemic and future challenges	Processes, education, catching-up, pandemic planning, telehealth

GP, general practitioner; RN, registered nurse.

support, the absence of a sense of clinical responsibility for patients with multiple GPs and less concern for a cohort of young and otherwise healthy patients. Before starting the academic year, school requirements for an updated asthma action plan were a common prompt for children to receive a routine, asymptomatic asthma check-up.

Chaotic asthma care during the pandemic

Almost all participants described a period of uncertainty, fear and disruption at the onset of the pandemic:

There was so much information, and none of it was consistent. It was all kind of left up to the individual practice to find their own way ... It was just like stabbing in the dark. (P9, Northern Beaches)

Many found it challenging to navigate the influx of information and changing advice, and recalled a lack of clear guidance to support the sudden shift to pandemic workflows.

GPs previously conducting routine asthma reviews experienced a stark reduction in patient presentations for routine and acute asthma care. This appeared to be due to both patient fear of COVID-19 exposure in healthcare environments and fewer viral-induced asthma exacerbations due to public health measures. One GP (GP M10, Greater Western Sydney) reported patients to be fearful of attending practices, respiratory clinics and hospitals due to fear of COVID-19 exposure in a clinical environment. Some participants recalled suspending existing systems for chronic disease management, often unintentionally, to cope with the initial stages of the pandemic.

Lack of personal protective equipment (PPE) and isolation areas were reported as significant barriers to reviewing asthma symptoms. Staff safety and workforce preservation were frequently voiced concerns from GPs who feared their practices would close in the event of a COVID-19 outbreak among staff. Patients with respiratory symptoms were usually asked to undergo COVID-19 polymerase chain reaction (PCR) testing before seeing their GP to mitigate these risks. However, this was reported to be poorly received by asthmatic patients, who viewed testing as a barrier to medical care.

Adapting to non-guideline-driven telehealth asthma care

Many GPs reported anxiety about misdiagnosis or delayed diagnosis during the pandemic, driven by perceived limitations of telehealth and the lack of guidelines to support telehealth asthma care. Although all GPs reported using telehealth, many felt ill-equipped to pivot to the recommended video consultations due to lack of familiarity, limited access to hardware, concerns about web conferencing security and privacy and a lack of streamlined workflows:

No one had any hardware ... there was a global shortage of webcams. No one knew what the workflows were. Even if the doctor was ready to go, the admin staff weren't ready to go. (P7, Northern Beaches)

As a result, most GPs reported using predominantly telephone-based consultations after a short trial or no trial of videoconferencing.

Diagnostic assessment of respiratory symptoms, including asthma, was reported to be particularly challenging through telephone consultations. Many GPs reported clinical uncertainty from history-based assessments, with some acknowledging that this occasionally resulted in overinvestigating and over-treating. Some participants felt anxious about the possibility of misdiagnosis, or missing a deteriorating child who may later require emergency department management.

Higher-risk presentations were often redirected to the local respiratory clinic or emergency department, where an in-person review of a 'COVID-undifferentiated' patient could be facilitated. Lower-risk patients were usually requested to present for in-person review after obtaining a negative COVID-19 PCR result. Local respiratory clinics, when available, were unanimously reported by GPs to be valuable in facilitating in-person reviews.

Despite limitations in assessing respiratory symptoms, most GPs reported they were comfortable prescribing a trial of salbutamol to low-risk patients who presented with possible asthma. Some GPs were comfortable providing telephone advice to asthmatic patients who presented with an exacerbation of asthma symptoms if there was an existing therapeutic relationship.

A few GPs adapted routine asthma reviews to be conducted by telehealth, using peak flow meter measurements and asthma control questionnaires to assess control and guide continuing asthma management. This was felt to be an adequate way of providing care for patients who were not acutely unwell.

Telehealth was appreciated by all GPs as a facilitator for asthma care, particularly for patients who might not have otherwise sought care during the pandemic. Despite this, many participants continue to view telehealth as a suboptimal alternative to in-person consultations for the provision of asthma care, with most anticipating a return to full face-to-face consultations for both routine and acute asthma care after the pandemic.

Widening health agenda misalignment

Misaligned expectations between GPs and patients were a frequently reported barrier to continuing asthma care during the pandemic. Despite the respiratory nature of COVID-19 infection, asthma was felt to have lost focus during the pandemic. This was attributed to high patient anxiety levels about COVID-19 mortality and comparatively lower perceived risk from asthma, resulting in the postponement of routine asthma reviews:

I think they might see using a Ventolin every other day as acceptable. And I'm like, hang on, that's not well controlled. But going out their daily business in a pandemic, that was the least of their problems. (P8, Inner-West Sydney)

Other participants felt asthma lost focus due to fewer asthma exacerbations due to lockdowns, mask wearing and physical distancing. Conversely, there were occasional reports of patients seeking earlier asthma treatment to manage symptoms such as coughing in an environment where respiratory symptoms were increasingly stigmatised.

Misaligned healthcare expectations were further exacerbated by disparate understandings of infection control measures. Repeated requests for patients to undergo COVID-19 PCR testing were reported by GPs to be often met with protest in patients:

Even suspicion around COVID made the (patient) relationship very awkward ... and added to the look that I don't know

what I'm doing, or I'm too concerned about COVID. (P1, Southern Sydney)

Telehealth was felt by some GPs to have contributed to misaligned healthcare expectations. Some felt telehealth consultations were less valued by patients compared with in-person consultations. Others voiced concern about patient expectations of what was achievable through telehealth and a lack of patient understanding about the issues requiring face-to-face review.

Discussion

This study aimed to understand how the COVID-19 pandemic impacted the quality of asthma care delivered by Australian GPs and to identify facilitators and barriers to asthma management during this time. The findings of this study show that although GPs have demonstrated adaptability during this time, continuous disruption and rapid remodelling of care have uncovered gaps in asthma care. Asthma management before the COVID-19 pandemic was reported by several participants as 'less prioritised' than other chronic diseases, with only some participants describing the use of an established framework of reviews and recalls for routine asthma care. It is possible this reflects GPs' perception of asthma as a less severe illness compared with chronic diseases such as diabetes, hypertension and chronic kidney disease, which are associated with higher mortality.¹³

Despite the respiratory nature of COVID-19 disease, asthma seems to have been further deprioritised during the pandemic. Asthma reviews were frequently reported to be postponed by both clinicians and patients, a phenomenon that has been reported worldwide.^{8,9,14} Common reasons included fear of COVID-19 transmission, fewer asthma exacerbations due to public health measures^{15,16} and redirection of clinician time and effort towards adapting to changing workflows and health advice. The rapid rollout of telephone and video-based telehealth, for example, arrived with little guidance on implementation and quality usage, and its incorporation into usual practice was determined by individual GPs and practices. Although integrated telehealth asthma management through web, telephone

and video modalities have previously been demonstrated as non-inferior to in-person consultations for asthma care,^{17,18} lack of experience with telehealth, anxiety about misdiagnosis, lack of support systems and uncertain financial viability were common challenges faced by GPs.¹⁹⁻²¹ These challenges might explain why only a small fraction of participants in this study reported incorporating telephone or video-based telehealth into their frameworks for routine asthma reviews, with most expecting to return to predominantly in-person asthma consultations. Establishing telehealth models for asthma care provision might be beneficial to address predictable disruptions to face-to-face delivery of healthcare in the future.

Presentations suggestive of an acute asthma flare during the pandemic were often redirected to the Federal Government-funded GP-led respiratory clinics where the review of COVID-19 undifferentiated patients with respiratory symptoms could be facilitated.^{22,23} Participants who used their local respiratory clinics reported them as valuable and crucial in facilitating respiratory assessments, echoing a mixed-method evaluation of a similar clinic in the UK by Hibberd et al.²⁴ The lack of communication and information sharing pathways between respiratory clinics and the patient's usual GP was noted. This might have contributed to the short-term fragmentation of asthma and other respiratory care in general practice²² and is a barrier that should be addressed in developing models for GP-led clinics.

Although challenges in asthma care provision during the pandemic have been significant, most participants felt asthma outcomes were not adversely affected due to fewer viral exacerbations overall. However, it is essential to acknowledge the importance of re-establishing regular asthma reviews to avoid perpetuating a cycle of chronic asthma under-treatment as we transition out of pandemic workflows.

The lack of financial incentives for asthma care, including the recent withdrawal of the 'asthma cycle-of-care' SIP, was voiced by several participants as a possible reason for the lack of established asthma care frameworks and is a factor that requires consideration as we re-establish routine asthma care. Between 2019 and 2020, following the withdrawal of the SIP, there was a 70% reduction in 'asthma

cycle-of-care' item number claims,⁶ likely reflecting GPs who continued routine asthma reviews without billing the item number and GPs who deprioritised regular reviews after losing the financial incentive. Instituting mechanisms to incentivise quality and regular asthma care will likely motivate GPs to re-examine the systems they currently have in place for asthma and establish new and more deeply embedded frameworks for asthma care, incorporating new learnings such as telehealth.

Strengths and limitations

This is the first qualitative study exploring the views of Australian GPs on asthma management during the COVID-19 pandemic. Semi-structured interviews have allowed us to explore and understand the challenges and triumphs in asthma management during this time. A purposive sampling method enabled us to achieve variability in age, gender, experience and geography among participants. Many of the participants were GPs affiliated with the teaching program at the University of Notre Dame, Australia. This has resulted in selection bias and, in turn, possibly a narrower spectrum of responses that might not represent the opinions of a broader group of Australian GPs. The results should therefore be interpreted with caution. We also acknowledge the results of this study have been limited to the perspectives of GPs only, and that a more comprehensive understanding of the issue might be achieved by exploring patient perspectives of their asthma management during the COVID-19 pandemic.

Conclusion

Although the COVID-19 pandemic has demonstrated the adaptability and resilience of Australian general practice, it has highlighted the vulnerability of our existing asthma care systems to disruption and fragmentation. Strong, consistent messaging and education about quality asthma care and the importance of continuing care should be provided to patients and GPs. New skills and strategies developed during the pandemic should be refined and incorporated into usual practice. More focus should be placed on the value of robust, well-systemised frameworks for asthma care in the general practice setting,

including consideration of how this might be incentivised, so that asthma care may better withstand future disruptions including disaster and pandemic environments.

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Competing interests: None.

Funding: This research project and the lead author's position as an academic registrar at the University of Notre Dame were supported by The Royal Australian College of General Practitioners with funding from the Australian Government under the Australian General Practice Training Program.

Provenance and peer review: Not commissioned, externally peer reviewed.

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