



Exploring Asthma in the Workplace: A Triangulation of Perspectives from Management, Employees and People with Asthma

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Abstract

Objectives: People with asthma spend a significant amount of time in the workplace but little is known about the current state of disease management in such contexts. The aim of the current study is to explore the experiences, attitudes and perceptions of asthma across different stakeholders in the workplace to help inform potential recommendations for workplace asthma policies.

Methods: Using a purposive convenience sampling method, in-depth semi-structured interviews were conducted in Australia with 5 human resource personnel, 10 employees with asthma and 10 employees without asthma. Interviews were guided by a schedule of questions focusing on attitudes and experiences of asthma in the workplace, which were audio recorded, transcribed verbatim and thematically analysed.

Results: Analysis of the qualitative dataset revealed three key themes: *Beliefs and Attitudes about Asthma, Asthma Solutions in the Workplace and Workplace Obstacles*. Findings suggest employees with asthma experience problems managing their asthma at work and there is a lack of workplace support in relation to asthma emergency management.

Conclusion: Key recommendations for workplace asthma policies have been made to provide better support for employees with asthma. However, further investigation into the experience of managing asthma is required in a wider variety of occupations and work experiences to inform the development of a workplace asthma policy.

Introduction

Asthma is a chronic health condition which currently affects an estimated 334 million individuals worldwide [1]. It can severely limit the daily functioning and overall quality of life of individuals [2, 3], posing a significant social and financial burden [4]. Australia has one of the highest prevalence of asthma in the world, with one in nine Australians living with asthma [5, 6], many of whom participate in the workforce, spending at least a third of the day at work. In Australia, it is estimated that 9.5% of adult-onset asthma is related to workplace allergen exposure [7]. A recent Australian economic analysis estimates the total costs of asthma to be \$27.9 AUD billion per annum or nearly \$11,740 AUD per person in 2015 [8]. When total costs were further broken down, indirect costs such as those of asthma related productivity loss amount to an estimated \$1.1 billion AUD, of which temporary absenteeism makes up the largest proportion [9]. Comparable indirect costs have also been observed in the United States [10] and Europe [11]. Recent health economics research further highlight the impact of presenteeism in contributing to asthma-related productivity loss [12]. Taken together, workplace asthma control is an important part of attenuating the burden of disease. However, little research has been directed towards understanding asthma management by the individual in a workplace context.

Workplace asthma can be broadly conceptualised into occupational and non-occupational [13]. Occupational asthma is composed of asthma caused by occupational exposures, such as sensitizers and irritants [14, 15]. Conversely, non-occupational asthma may be conceptualised as the experience of asthma symptoms at work but not necessarily caused by exposure to

occupational triggers [14]. However, there is overlap between the two categories where work conditions that worsen pre-existing asthma is further defined as Work-Exacerbated Asthma (WEA) [16]. Current interventions targeting occupational asthma have largely stemmed from a workplace safety compliance perspective [17-19]. Interventions include the appropriate surveillance of asthma prevalence in the workplace and controlling exposure to known workplace triggers, in particular, chemicals [14, 18, 19]. In comparison, the management of non-occupational asthma in the workplace is less well understood [15]. Workplace modifications could be used to reduce triggers and alternative work arrangements could help employees with asthma to carry out their core responsibilities. Emerging research from Canada and the USA have demonstrated positive effects of workplace asthma management programs in terms of improving asthma control and self-management behaviours [20, 21].

In Australia, considerable effort has been expended in improving asthma management by the government. However, asthma related policies have only been formally socialised in schools such as the Asthma Friendly Schools Program [22, 23]. To our knowledge, there are no data on workplace asthma policies in support of effective asthma management for working adults in Australia despite the high prevalence [15]. This may be a result of the paucity of information or insight into the health experience of adults with asthma at work or the general perception of asthma in the workplace. Since the workplace could be an ideal site to provide support and deliver health and wellbeing initiatives, the availability of such data could be used to prompt policy makers to address general asthma management issues and adopt protocols for asthma emergencies. Therefore, this exploratory study aims to investigate workplace support,

experiences, attitudes and perceptions towards employees with asthma, both occupational and non-occupational, and to provide recommendations for workplace asthma policies.

Methods

In-depth semi-structured interviews were conducted by DZ between August and October 2013. Ethics approval for the study was granted by the University of Sydney Human Research Ethics Committee (HREC: 2013/559).

Recruitment

To capture the diverse perspectives on workplace asthma management, the sampling frame included three key stakeholder groups: human resource personnel (HR), employees without asthma (EWOA) and employees with self-reported asthma (EWA). The latter group included individuals with both occupational and non-occupational asthma. Individuals ≥ 18 years of age and conversant in spoken English were eligible to participate. To obtain a representative sample of a metropolitan study population, subjects were invited to participate in the study via emails, advertisements in staff newsletters of health organisations, educational institutes and pharmacy settings. Additionally, convenience sampling and snowballing methods were also used in the recruitment process. An interview was arranged with interested individuals meeting the selection criteria. Informed consent and confidentiality agreements were obtained prior to the interview. The interview venues were selected by mutual convenience of the participants and interviewers. Recruitment continued until thematic saturation was achieved (i.e. additional interviews from the respective stakeholder groups did not generate new thematic categories). In practice, a suggested

sample size between 20 and 30 participants is considered reasonable for achieving saturation [24].

Interview process and data analysis

Semi-structured interviews were conducted face-to-face or via telephone. Questions for the interview schedule were derived from previous literature review findings conducted by the authors and framed within a social policy research paradigm to enable key stakeholders to respond to questions of interest [25, 26]. Table 1 outlines the schedule of interview questions. Interviews were audio recorded, transcribed verbatim and analysed for emergent themes [27] assisted by QSR NVivo 10© Software [28]. Two of the authors (D.Z. & B.S.) independently coded the first three transcripts, followed by a review and comparison of coding between the authors. Areas of discrepancy were discussed until a consensus was reached. One researcher (D.Z.) then coded the remaining transcripts using a constant comparative method to capture any anticipatory and emergent thematic categories identified in each transcript [28]. A chart of key themes was mapped to allow for interpretation of key findings and comparative analysis within and between each of the stakeholder groups (i.e. HR, EWA and EWOA) before abstraction into the final set of superordinate themes.

Results

Participant demographic and occupational characteristics are outlined in Tables 2 and 3. Twenty-five interviews were conducted and included HR personnel (n=5), EWAs (n=10) and EWOAs (n=10). Synthesis of qualitative data revealed the perspectives of the key stakeholders in the workplace (i.e. HR, EWA, EWOA) with discussion pertaining to the workplace needs of

people with asthma, integration of support measures in the workplace as well ethical handling of illness disclosure. Three key overarching themes emerged from the data: *Beliefs and Attitudes about Asthma*, *Asthma Solutions in the Workplace*, and *Workplace Obstacles* (Table 4).

Participant quotes have also been included to highlight findings. For confidentiality, each participant has been allocated a code starting with age, gender and stakeholder group (HR, EWA or EWOA) followed by the industry of work. An additional synthesis of key findings relating to current workplace policies and support for asthma is presented in Table 5.

Theme 1: Beliefs and Attitudes about Asthma

a. Seriousness of Asthma

Participant responses highlighted variability in asthma awareness. Complacent attitudes were mostly found amongst HR personnel with limited experience in working with EWAs. In these instances, the potential consequences of asthma were grossly underestimated. In contrast, HR personnel working in healthcare settings recognised that the lack of asthma awareness and education contributed to complacent attitudes in the workplace. Participants from the EWOA subgroup believed that the onus was on the person with asthma to manage their own condition. Similar to the HR subgroup, individuals without asthma had limited experience in handling asthma in the workplace and did not appear to understand the full extent of its consequences.

‘I think many people who are uneducated go it’s just a bit of a breathing problem they have a puffer and they’re fine...’ (33yo F Manager Pharmacy services)

'I've never really been exposed to anything like that (asthma attack). I guess it's not really a concern of mine.' (26yo F EWOA Educational institute)

Consistent with these complacent attitudes, EWAs' workplace encounters with colleagues also illustrate a certain level of disease trivialisation where *'they don't take it (asthma) as seriously...'* (44yo F EWA Government body). Some EWAs suggested that the absence of physically obvious illness cues might be driving current workplace attitudes towards asthma.

b. Roles and Responsibilities

The roles and responsibilities in managing workplace asthma varied between the different participant groups. HR personnel tended to view asthma within the scope of compliance to work health and safety (WHS) regulations. As such, asthma management was mostly spoken in terms of trigger avoidance and emergencies as part of their 'duty of care'. In fact, employee safety, including those with asthma, appeared as a recurring theme in this participant subgroup and was most apparent among those involved with high-risk industries such as environmental, engineering and construction companies. Despite expressing their role in overseeing workplace safety, most HR personnel noted that it was a shared responsibility between the employee and workplace.

'...where safety is such a big issue because we have blue collar workers on site constructing things...asthma might be one of those things that's part of the SWM –the safe work method statement and job safety checklist...so that they are kept safe.' (49yo F HR Manager Engineering/Construction)

Among EWOAs, workplace asthma was only spoken in terms of the ‘*asthma attack*’. While many were concerned for their colleagues with asthma they believed that they had limited involvement in the active management of asthma in the workplace. The responsibility of asthma management was often delegated to other people in the workplace such as first aid officers or health care professionals among staff.

‘I’d ask one of the doctors because there’s doctors everywhere, so that’s what I’d do.’

(35yo F EWOA Hospital)

Consistent with the other perspectives, EWAs saw the need to take a proactive approach and assumed most of the responsibility for managing their asthma. In these instances participants made sure to carry their inhaler at all times and developed a set of surveillance behaviours for identifying potential triggers and self-assessing symptoms. When probed about the need for asthma policies contrasting views were captured. Most EWAs supported the idea of implementing such a policy. However, those with well-controlled asthma had no perceived need for a policy and claimed to be self-sufficient, detaching disease management from the workplace.

‘...to be honest I wouldn’t be too fussed if they implement one or not, I don’t see what the workplace has to do with my asthma or work so yeah I couldn’t care less either way.’

(38yo M EWA Financial consultancy)

c. Consequences of Asthma in the Workplace

Participant views about the consequence of asthma were mostly related to productivity issues.

However, responses varied depending on prior exposure to colleagues with asthma as well as the nature of the work. HR personnel concerns were centred on reduced productivity of the individual, the impact on other workers and the downstream effects on the ‘bottom line’ of the business.

‘...it is or can be a problem productivity wise...a hassle for their supervisor and probably other people who are around as well.’ (56yo M HR Manager Environmental rehabilitation)

On the other hand, EWOAs appeared less concerned about the effects of asthma on workplace productivity provided that the work was not physically strenuous and therefore would not trigger asthma. However, those with experience of working with someone living with asthma, acknowledged some degree of productivity loss with higher rates of absenteeism.

‘...it has definitely affected her ability to attend work at times when she’s been sick.’
(45yo F EWOA Non-profit health organisation)

Conversely, EWAs were highly concerned that work colleagues might view their asthma negatively and felt uncomfortable letting management know. Reasons stemmed from the fear of being perceived as incompetent at work and potentially losing employment.

‘... I’m very scared of going to someone and saying oh I think you know I’m fatigued because of my asthma...I know what the answer would be, oh why don’t you shift to part time so I feel there’s no real empathy.’ (45yo F EWA Educational institute)

2. Theme 2: Asthma Solutions in the Workplace

a. Self-Management Strategies

EWAs adopted a number of strategies to self-manage their asthma in the workplace (e.g. always carrying asthma inhalers and avoiding triggers). The most common triggers identified were dust, physical activity (e.g. walking upstairs and temperature changes). It appears that the perceived lack of workplace asthma support has led to the development of heightened levels of symptom recognition among EWAs. Participants developed various coping mechanisms in their workplace either through re-organising their daily routines or having contingency plans to minimise the impact of asthma. The following participant’s management of temperature changes exemplifies these adaptive health behaviours.

‘...as soon as the temperature changes quickly if I go from outside to an air-conditioned building if I don’t sit down for a few minutes and breathe kind of deeply, I start to get really wheezy.’ (28yo F EWA Educational institute)

b. Workplace Support

The perceived level of asthma support in the workplace varied among EWAs. Some EWAs reported positive outcomes in workplace adjustments that have come about through informing HR personnel. Some adjustments included workplace modifications to reduce exposure to triggers and alternative work arrangements to continue fulfilling core responsibilities. However, some workplaces were less empathetic and did not provide EWAs with adequate support measures such as sick leave during asthma exacerbations, prompting the need for a supportive workplace health culture.

‘...they said you know if you can’t feel like you can stay while- the building works, renovation rather, you can move to a different part of the building.’ (44yo F EWA Government body)

‘I wanted to go see the GP because my asthma was getting worse and worse and my boss just you know she kind of laughed at me... I got the impression she thought I was being ridiculous but I was actually at stage 3 of my asthma management plan.’ (44yo F EWA Government body)

Interestingly, participant responses were divided when probed about implementing a workplace policy for asthma. HR personnel with prior experiences with workplace asthma were generally supportive of implementing an asthma policy particularly during emergencies. However, other

HR personnel were less supportive of formalising an asthma-specific policy and thought that a case-by-case assessment was more equitable in light of other potential chronic illnesses in the workplace.

‘I would see how I can help them, helping them with medication management or if there are certain tasks that they may not be able to complete...we’ll try to manage it in that way definitely.’ (33yo M Manager Pharmacy)

Interestingly, EWOAs were supportive of an asthma policy but also raised a number of concerns around implementation. These included financial costs of equipment, staff training and policy implementation (i.e. training, logistics and illness disclosure). Conversely, EWAs were less inclined to disclose their workplace needs where structured processes/policies were perceived to be lacking.

3. Theme 3: Workplace Obstacles

a. Illness Disclosure

Uncertainty of asthma status was another theme apparent among HR personnel. Privacy laws imply that employees have a right not to disclose health information and from the perspective of HR personnel, most employees tend not to. The limited disclosure also posed challenges for HR personnel to make suitable workplace adjustments for individuals. However, higher risk industries had different expectations from employees. Health issues that could affect safety were

encouraged to be disclosed or employees were required to undertake medical assessments to ensure worker safety.

‘...that’s on our pre-employment medical, asthma is one of those things that are covered, because if you’re operating equipment or machinery, that could put you in danger as well as other employees, we need to know about it.’ we don’t see the results, he (doctor) will tell us if someone’s fit for duties or not.’ (49yo F HR Manager Engineering/Construction)

On the other hand, EWAs’ readiness to disclose their asthma status was dependent on whom their illness was being disclosed to. Most participants with asthma felt more comfortable disclosing their asthma status to co-workers than to management. Some reasons for disclosing to co-workers included increasing awareness of their condition so that co-workers were more understanding and supportive. Conversely, those who did not disclose their asthma had no perceived need to.

‘...making it a point mostly letting everyone know that I have asthma, that’s a tactic to prevent embarrassment to myself.’ (45yo F EWA Educational institute)

b. Lack of Preparedness

A number of pragmatic issues were raised with regards to handling asthma emergencies in the workplace. HR personnel pointed out that there is a lack of standard protocols for managing asthma attacks and the absence of appropriate equipment such as reliever medications in the first aid box. Participants pointed out the problems of obtaining these rescue medications in the event

of an emergency. More importantly, despite receiving relevant first aid training, HR participants highlighted that they lacked confidence and real-world experience in handling asthma emergencies.

‘...there’s certainly nothing in the first aid kits that would be used to treat an asthma attack.’

(56yo M HR Manager Environmental rehabilitation)

‘...I know what they need to do but in front of me I don’t know...I think I’d be 80% confident, not very confident saying that as well.’ (33yo F Manager Pharmacy Services)

EWOAs expressed similar concerns and pointed out their limited asthma knowledge, in particular, not being able to recognise an asthma attack and not having a clear understanding of how to support an individual having an asthma attack. At present, the support that is afforded by EWOAs is relatively passive such as calling emergency services. Most EWAs believed WHS officers had a responsibility to help support them if asthma emergencies were to occur. However, most EWAs in the sample reported a lack of HR support and that the workplace did not have asthma first aid equipment. Thus, the onus of carrying asthma inhalers was on the individual with asthma and this lack of support made some EWAs feel insecure in the event of an asthma emergency as exemplified by the EWA working in an educational institute. Participants also recognised issues with logistics and WHS, including information dilution through bureaucratic layers where *‘it doesn’t get to the important people [and] the message gets lost’* (26yo F EWA Educational institute).

'...if I were to have an asthma attack...I would be very concerned, I would be very very worried, where do I go to get help?' (26yo F EWA Educational institute)

c. Asthma Medicines at Work

HR personnel and EWOAs appeared to have limited exposure to asthma management. There was an assumption that the individual with asthma would be primarily responsible for their medication use.

'I've never really been exposed to anything like that (asthma attack) I guess it's not really a concern of mine.' (26yo F EWOA Educational institute)

A lack of privacy was identified as a key problem among EWAs in using medications during the workday. Feelings of self-consciousness, embarrassment and inconvenience were often reported during the interview. For example, a participant reported feeling self-conscious rinsing her mouth in the public bathroom after using an inhaled corticosteroid. This led to an increased reliance on her symptom reliever despite being aware of her prescribed medication regimen. In other cases, the progressive worsening of asthma led individuals to overcome issues of self-consciousness out of sheer necessity.

'I feel weird rinsing my mouth in the bathroom so I sometimes don't use [combination inhaler] when I really should be...I used [reliever inhaler] instead.' (26yo F EWA Educational institute)

‘...from years of being a little shy about using inhalers...now my asthma is severe enough that if I want to live and be comfortable I have to take them.’ (45yo F EWA Educational institute).

Discussion

This is the first study exploring the experiences, opinions and concerns about asthma across key stakeholders in the workplace. Findings provide unique insight about the current state of asthma management in the workplace. Specifically, the health experiences unveiled from the perspective of EWAs highlight priority areas that need greater attention such as asthma literacy, self-management and privacy relating to illness disclosure in the workplace.

Our findings suggest that EWOAs and HR personnel underestimate the potential seriousness of asthma. Our study indicates that in response to the perceived general lack of understanding and complacency among HR personnel and EWOAs, EWAs often felt both self-conscious and concerned about their asthma impacting on work performance. These findings are also consistent with a recent study exploring the perceptions and experiences of employees with diabetes in the workplace where productivity levels are prioritised over glucose control [29]. Perceived self-consciousness also poses as a barrier to effective self-management, adherence to medication and social support [30, 31]. This is exemplified by EWAs who will tolerate symptoms rather than taking their medication in public, thus worsening control and increasing risk of hospitalisations [30]. Furthermore, media representations of asthma have been shown to perpetuate self-consciousness among children, the same could be true for adults [32]. Consistent

with other chronic diseases, employers' concerns about lower levels of productivity and quality of work has also been associated with impeded career development [33]. Thus, concerted efforts are needed by the asthma research community and asthma advocacy organisations to enhance asthma awareness and provide education to create asthma-friendly workplaces [33].

Whilst most first aid training courses in Australia include modules for emergency asthma management, participants in our study reported not having asthma equipment in first aid kits or adequately trained staff. This gap in organisational health/safety and first aid policies is a concern to working adults with asthma and raises questions about role acceptance and willingness of employers to take responsibility for employees' well-being in the workplace [34]. In a comparative setting, namely schools, asthma first aid training has been recommended for teaching staff as well as school peers [35] and indeed many courses for school staff are available in Australia. Translating this notion to a workplace setting, it is clear that volunteer employees can be trained in asthma first aid, not just designated first aid officers. This may be a feasible practice given that EWAs felt comfortable with co-workers and are often co-located. In addition, this could also apply to smaller workplaces without formal WHS departments.

Previous studies [36-40] have investigated the socioeconomic costs of asthma in association with productivity loss as well as the impact of medication adherence on work productivity [41]. In this study, concerns regarding worker productivity were also reported by HR personnel, yet workplace wellness programs affords an opportunity to improve the health and productivity of staff [42]. Furthermore, appropriate self-management strategies could also be facilitated with

social support [30]. As mentioned, studies have already shown the benefits of asthma self-management education programs in the workplace in Canada and the USA [20, 21]. Workplaces that are conducive for enabling the use of written asthma action plans and appropriate drug therapy, are likely to have an impact on reducing morbidity and mortality rates in adults with asthma [15].

Privacy issues relate to disclosure and current legislations that support workplace equality [43, 44]. Moreover, there are ethical issues of disclosure and maintaining privacy, and although organisations are expected to provide reasonable work accommodation [29], they are constrained from doing so if employees do not communicate their needs. The findings of the current study suggest that management could build better rapport and have procedures in place to facilitate employee disclosure of health information. If employers were more aware of workplace asthma, then perhaps this would make the provision of work accommodation easier [44]. Disclosure may be particularly important for those with asthma at the severe end of the spectrum, as work disability is common among adults with severe asthma [45]. Supportive asthma management practices, reduction of exposure to workplace asthmagens and other workplace health initiatives such as offering influenza vaccinations coupled with flexible working arrangements may reduce work disability, productivity loss and work stress in those with severe asthma.

Several limitations of this study are acknowledged. Due to cost and time restraints, the purposive convenience sampling method was used and restricted the sampling frame to metropolitan areas. This could increase the potential for bias as the current self-selected sample represents

individuals with greater interest in asthma compared to the general population and limit the generalisability of our findings. Further, the exclusion of non-English speakers may further limit the transferability findings to the multicultural dynamics of Australia. Ideally, a maximum variation sampling method would have been used to cover a larger range of occupations/work experiences, cultures, workplace environments and relevant HR personnel in both metropolitan and rural populations. On the other hand, this was the first study that explored asthma in an Australian workplace context. It provides insight from a triad of perspectives to contextualise the workplace health experience of EWAs. A proportion of interviews were conducted via telephone, which precludes researchers from gauging non-verbal cues such as body language. However, the anonymity of telephone interviews may lead to more honest responses and avoid socially desirable answers [46]. Furthermore, previous social policy research has demonstrated comparable data quality across the two interview mediums [47]. In terms of interpretative rigour, areas of discrepancy were discussed amongst two of the authors until reaching a consensus regarding the coding of data. This increases validity and objectivity of the interpretation of data.

Conclusion

Findings suggest that employees who have asthma face issues such as self-consciousness, lack of support and fears about disclosing their asthma status. Asthma is often trivialised by those who do not have asthma in the workplace, and even though HR personnel recognise the need for policies around employee safety at work, they do not have training, resources or confidence in providing actual assistance to those experiencing an asthma exacerbation. Priority areas to develop workplace strategies for include standardising emergency asthma management

protocols, having appropriate asthma first aid equipment as well as workplace education modules to enhance asthma awareness. Clearly, asthma in the workplace that is not necessarily linked to occupational exposures has been under-researched. Future research is needed to explore this notion in a larger variety of workplaces to develop appropriate workplace asthma policies and to facilitate improvements in the management of workers with asthma.

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Declaration of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this manuscript.

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TABLE 1 –Key Topics in the semi-structured interview schedule

Roles and Duties at Work	
1	Could we start by you telling me a little about your work here – what your role and duties are? (Prompts: type of work, nature of the workplace)
2	Do you have asthma?
Health Policy and Programs at Work	
3	What sorts of policies or programs does your workplace provide with respect to asthma? (Prompts: Other chronic conditions e.g. diabetes, arthritis, informing and educating employees about policies?)
4	What sorts of support is provided by your workplace for people with asthma? (Prompts: flexible work hours, Time off/ leave for medical appointments, storage of medicines)
5	What suggestions can you make for improving/changing current workplace practices regarding policies/programs? (Prompts: resources/ equipment?)
For Interviewees with Asthma:	
6	Would you please tell me a little about how you manage your asthma at work? (Prompts: taking medications, storage, avoiding triggers)
7	To what extent does your asthma affect your work? (Prompts: limitations- physical/emotional, adjustments, productivity)
8	Do you need to take much time off work because of your asthma? (Prompts: sick leave, medical appointments)

9	How comfortable do you feel disclosing to your workmates that you have asthma? Why is that so? (Prompts: Safety? Concerns?)
10	How comfortable do you feel disclosing to your managers/supervisors/HR/boss that you have asthma? Why is that so? (Prompts: Safety? Concerns? Career opportunities?)
11	Have you had an episode of uncontrolled asthma at work? If so, what happened? (Prompts: workmate response, availability of help?)
12	How did your workmates respond? (Prompts: Assistance with medications? Getting help? Helpful?)
For Interviewees without Asthma:	
13	What do you know about colleagues/staff who have asthma and how they manage their asthma at work? (Prompts: taking medications, storage, avoiding triggers)
14	Have you worked with someone who has asthma and it has affected their work? If so, tell me about this. (Prompts: limitations, adjustments, productivity, time off for sick leave, medical appointments).
15	Do you have colleagues/staff with asthma who have disclosed that they have asthma? If so, how did they go about that? How did you feel about that? (Prompts: Communication strategy? Triggered by incident?)
16	How comfortable are you working with someone with asthma? Why is that so? (Prompts: Concerns? Safety at work?)
17	If a workmate/staff member had an episode of uncontrolled asthma at work would you know what to do? If yes, tell me more. Can you recall an example of this happening? (Prompts: assisting with medications? Calling for help? First aid?)

TABLE 2 –Participant demographics

Characteristic	Frequency (%)
Age (yrs)	
20-29	7(28)
30-39	8 (32)
40-49	5 (20)
50-59	4 (16)
60-69	1 (4)
Gender	
Female	18 (72)
Male	7 (28)
Grouping	
HR/Manager	5 (20)
Employee with asthma (EWA)	10 (40)
Employee without asthma (EWOA)	10 (40)

TABLE 3 –Occupational Characteristics of participants

Occupational classification (ANZSCO ^a)	Frequency (%)
Managerial	2 (8)
Professional	17 (68)
Community and personal service work	4 (16)
Clerical and Administrative work	2 (8)
Types of organisations	
Educational Institute	9 (36)
Non-profit health organisation	4 (16)
Pharmacy and pharmacy services	2 (8)
Hospital	1 (4)
Managing/Financial	3 (12)

consultancy	
Engineering/Construction	1 (4)
Environmental	1 (4)
rehabilitation	
Research Institute	1 (4)
Media/Publishing	1 (4)
Law firm	1 (4)
Government Body	1 (4)
Length of service (yrs)	
0-5	19 (76)
6-10	2 (8)
10+	4 (16)

^a Australian and New Zealand Standard Classification of Occupations

TABLE 4 –Summary of Thematic Analysis

Theme 1: Beliefs and Attitudes about Asthma	
<i>a Seriousness of Asthma</i>	• Variability in asthma awareness in the workplace • Underestimation of the potential consequences of asthma in the workplace among HR personnel and EWOAs
<i>b Roles and Responsibilities</i>	• Asthma management viewed within the scope of WHS regulations and ‘duty of care’ • EWOAs tended to delegate responsibility of asthma management to the first aid officers and health professionals in the workplace • EWAs are proactive about their asthma management. • Perceived level of self-efficacy influenced perceived need for implementing asthma policy in the workplace
<i>c Consequences of Asthma in the Workplace</i>	• The perceived consequences of asthma in the workplace varied depending on the nature of the work • Concerns raised about productivity loss through absenteeism
Theme 2: Asthma Solutions in the Workplace	
<i>a Self-Management Strategies</i>	• EWAs made a conscientious effort to carry medications and avoid triggers • Common triggers in the workplace: dust, physical activity and temperature fluctuations • EWAs developed various coping mechanisms to manage

	their asthma
<i>b Workplace Support</i>	• Workplace support measures for asthma varied between EWAs
	• HR personnel thought asthma should be dealt with on a case-by-case assessment to accommodate for other chronic illnesses in the workplace
	• EWOAs were supportive for an asthma policy but uncertain about the logistics of implementation in the workplace
Theme 3: Workplace Obstacles	
<i>a Illness Disclosure</i>	• Except for certain industries, ambiguity about disclosure and privacy posed challenges to HR personnel
	• EWAs were more comfortable disclosing their asthma status to co-workers to increase awareness
<i>b Lack of Preparedness</i>	• No standard protocols for managing asthma emergencies and rescue medication not readily available in the workplace
	• HR personnel felt they lacked real-world experience and confidence in handling asthma emergencies
	• EWOAs assumed a relatively passive role such as calling emergency services when necessary
<i>c Asthma Medicines at Work</i>	• Lack of privacy in the workplace made EWAs feel self-conscious about medication use at work

TABLE 5 –Synthesis of Findings Relating to Current Asthma Workplace Policies

Policies or programs in the current workplace for asthma
• HR personnel considered asthma within broader workplace safety policies (e.g. trigger avoidance)
• Medical examinations to assess fitness-to-work in high risk industries
Types of support provided by current workplace for people with asthma
• Flexible work arrangements (e.g. work from home, change office locations during construction)
• Perception of limited support among some EWAs
Suggestions for improving/changing current workplace practices regarding policies/programs
• Greater transparency and changing the culture of illness disclosure in the workplace
• Forming a collaborative relationship between EWAs and HR personnel to better communicate workplace needs
• First aid training in asthma and standardising protocols for asthma emergencies in the

workplace
• Greater asthma awareness among EWOAs and HR personnel
• Access to rescue medication in first aid equipment
• Greater privacy for using inhalers in the workplace