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Asthma in older adults: the need for asthma health promotion interventions

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Asthma in older adults: the need for asthma health promotion interventions

Abstract

Asthma is a serious health issue for older adults. Among Australians aged 55 years and older, asthma prevalence, morbidity, and mortality are relatively high by international comparison and compared to other age groups. As people age, the diagnosis of asthma becomes more complicated, primarily due to comorbid conditions. Treatment and self-management are also more difficult in this age group due to the different medications prescribed for multiple conditions. At the same time, older adults do not perceive that they are susceptible to developing asthma, and they do not consider asthma to be a particularly serious disease, especially compared to other diseases. Therefore, the consequences and impacts of asthma on older people are underestimated by the older adults themselves. Furthermore, there is a lack of awareness among older adults that certain symptoms could be indicative of asthma. In many countries, there has been a strong emphasis on asthma promotion directed at children or parents. Overall, these interventions have been effective and have contributed to the decline in asthma mortality and morbidity in children and adolescents. Many of these effective interventions have utilized a social marketing framework in combination with behavioral theories and other health promotion strategies. Recent social marketing interventions targeting other health behaviors among older adults have been effective in changing health behaviors, leading to improved health outcomes. Thus, we argue that the social marketing framework should be utilized to develop asthma initiatives to increase asthma knowledge and encourage older adults to take control of their respiratory symptoms.

Keywords

need, health, adults, promotion, asthma, activities, older

Disciplines

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Asthma in older adults: the need for asthma health promotion interventions

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Asthma in older adults: the need for asthma health promotion activities

Abstract

Asthma is a serious health issue for older adults. For Australians aged 55 years and over, asthma prevalence, morbidity, and mortality is relatively high by international comparison and compared to other age groups. As people age, the diagnosis of asthma becomes more complicated, primarily due to co-morbid conditions. Treatment and self-management are also more difficult in this age group due to the different medications prescribed for multiple conditions. At the same time, older adults do not perceive that they are susceptible to developing asthma, and do not consider asthma to be a particularly serious disease, especially compared to other diseases. Therefore, the consequences and impacts of asthma on older people are underestimated by the older adults themselves. Further, there is a lack of awareness amongst older adults that certain symptoms could be indicative of asthma. In many countries, there has been a strong emphasis on asthma promotion directed at children or parents. Overall, these interventions have been effective, and have contributed to the decline in asthma mortality and morbidity in children and adolescents. Many of these effective interventions have utilised a social marketing framework in combination with behavioural theories and other health promotion strategies. Recent social marketing interventions targeting other health behaviours among older adults have been effective in changing health behaviours, and leading to improved health outcomes. Thus, we argue that the social marketing framework should be utilised to develop asthma initiatives to increase asthma knowledge and encourage older adults to take control of their respiratory symptoms.

Keywords: asthma, older adults, health promotion, social marketing

Introduction

Asthma awareness interventions directed at older adults are needed to address the high levels of asthma morbidity and mortality for adults aged 55 years and over. Despite the serious impact of asthma on the health of older people, asthma awareness activities have not directly targeted this group. Interventions addressing childhood asthma over the past three decades have been successful in reducing asthma morbidity and mortality amongst younger people¹. At the same time, the impact of asthma on older adults has worsened². A recent review recommended the development and implementation of interventions to increase community awareness and understanding of asthma in older adults³. The purpose of this paper is to highlight the impact asthma has on older adults, review the effectiveness of asthma awareness interventions, and argue for the social marketing framework as an appropriate foundation for future interventions.

Impact of asthma on older persons

The prevalence of diagnosed asthma in older adults in Australia is approximately 10%², which is high by international comparison^{1,4}. Recent research has concluded that asthma is under-diagnosed in older adults^{3,5,6}; the actual prevalence of asthma in this population has been estimated at 15%⁷, 25%⁸, and up to 50%⁹. Asthma mortality is much higher for older adults; almost 90% of deaths attributed to asthma are people aged 55 and over¹⁰. Furthermore, asthma has a considerable impact on quality of life; “years of life lost due to disability” accounts for approximately 65% of the asthma burden in older Australian adults². Older adults with asthma report significantly lower quality of life compared to those without the disease^{11,12}. Asthma not only has a serious impact on older adults with the disease, but also on the community health system², with the average length of stay in hospital for people admitted for asthma being 4.3 days for those aged over 55 years, compared to an average stay of 2.2 days across individuals of all ages¹³.

Complexity of diagnosis

Contrary to the general community perception that asthma is a childhood disease¹⁴, it does develop in older adults¹⁵. Asthma is difficult to diagnose in older people for a number of reasons. Many older adults do

not report asthma-related symptoms to their doctor, often assuming that respiratory difficulties are a normal part of ageing¹⁶. Co-morbid conditions are common in older people, and many of the key asthma symptoms overlap with those of other respiratory diseases, including chronic obstructive pulmonary disease and emphysema¹⁷, and some non-respiratory diseases such as congestive heart failure and gastroesophageal reflux disease¹⁸. Consequently, doctors have the difficult task of ascertaining the correct diagnoses of (potentially) multiple conditions, and then determining an appropriate combination of medications to treat the various presenting symptoms⁵.

Asthma knowledge and perceptions

The available research on asthma knowledge and perceptions of older adults indicates that they have poor knowledge and inaccurate perceptions of their susceptibility to asthma as well as the severity of the disease¹⁴. Older persons do not perceive they are susceptible to developing asthma, and do not consider asthma a particularly serious condition, especially compared to other chronic diseases. Further, there is a lack of awareness amongst older adults that certain symptoms could indicate asthma¹⁸. Tightness in the chest and a persistent cough at night are key signs of asthma, though older adults may attribute these signs to another condition, or even to old age¹⁶. Due to the lack of knowledge and low perceived susceptibility, there is a demonstrated need to raise awareness that certain respiratory symptoms experienced by older people may be indicative of asthma⁹. In this way, asthma-focused health promotion activities directed at older people should lead to more people talking to their doctor about their experience of respiratory symptoms. Older adults with diagnosed asthma could acquire self-management skills and, in the medium to long term, improve their health-related quality of life¹⁹.

Asthma promotion – what has been done?

There has been a strong emphasis on asthma promotion directed at children and parents; interventions to raise public awareness of asthma at regional and national levels have been conducted in many countries including Australia²⁰⁻²², New Zealand^{23,24}, Finland²⁵, and the US²⁶⁻³⁰. Overall, these interventions have been effective in increasing knowledge about asthma symptoms^{21,26,27,29,31}, changing attitudes about asthma²⁷, improving self-management behaviours among individuals with asthma^{20,23,29}, increasing the number of

people who visit their doctor or pharmacist about respiratory symptoms^{21,31}, and decreasing health costs²⁵. Scopus, CINAHL Plus, and Web of Science were utilised to search for evaluated asthma awareness interventions, using the following terms: asthma, campaign, intervention, promotion, knowledge, awareness, and evaluation. The results were limited to articles published after January 1990. Scopus retrieved 290 articles, CINAHL Plus 52 articles, and Web of Science 166 articles. Studies were included when: the intervention aimed to increase asthma knowledge or awareness, the intervention utilized media or mass communication channels, and the intervention was evaluated. The exclusion criteria were: no intervention, no evaluation, school- or hospital-based education programs, interventions to educate physicians or other health professionals, asthma self-management interventions, environmental interventions, drug trials, and interventions focusing on diseases and issues other than asthma. The reference lists of selected articles were also examined to find other studies for inclusion. Seven published studies satisfied the set criteria. Many of these effective interventions utilised social marketing techniques in combination with behavioural theories and other health promotion strategies (see Table 1).

Table 1. *Examples of asthma awareness health promotion interventions*

Campaign	Where & When	Target Audience	Theory/ Framework	Objectives	Communication Channels	Outcomes	Lessons Learned	Reference
“Could it be asthma?”	Australia, 1988	General adult population (all ages)	Social marketing framework; McGuire’s communication/ persuasion model	1. Increase awareness that respiratory symptoms may imply asthma 2. Increase asthma knowledge 3. Indicate that symptoms need to be assessed by a health professional	Initial mail-out to GPs, TV, radio, print media ads (newspapers and magazines)	<ul style="list-style-type: none"> • Increase in asthma message recall ($p<.001$) • Increase in proportion visiting their GP seeking an asthma diagnosis ($p<.001$) • Increase in knowledge of asthma symptoms ($p<.001$) 	Increases in asthma awareness can be effectively achieved utilising mass media.	Bauman et al (1993)
Steps to a HealthierNY “Could it be asthma?”	New York, 2005	Parents and caregivers	Social marketing framework	Educate the public about asthma through a community-wide mass media campaign	TV, brochures, and posters displayed in paediatric offices, pharmacies, ERs, grocery stores & schools	<ul style="list-style-type: none"> • 73% of parents had seen the campaign • Of those, 67% indicated the ads had a positive impact & 44% had learned the symptoms of asthma 	The social marketing framework can be used effectively to educate parents and caregivers in a rural community. Researchers produced a quality intervention on a limited budget.	Briones, Lustik, & LaLone (2010)
National Asthma Campaign (NAC)	Australia, Nov 1991 – Mar 1993	Multifaceted – health care professionals, asthmatics & general public.	Social marketing framework; McGuire’s communication/ persuasion model	1. Increase asthma awareness in the community 2. Improve asthma management in accordance with management guidelines 3. Improve disease outcomes	National TV, radio PSAs, in-flight PSAs, PR activities including media releases, event sponsorship & promotions	<ul style="list-style-type: none"> • Improved awareness of asthma treatment and management strategies ($p<.001$) • Asthma awareness increased following integrated PR activities ($p<.01$) 	Mass media-led public education campaigns can increase community awareness of, and management strategies for, asthma.	Comino et al (1997)
National Asthma Campaign (NAC) & local initiatives	Regional South Australia, 1991	Individuals with asthma (all ages)	Social marketing framework; McGuire’s communication/ persuasion model	1. To compare the impact of the national study (above) with the impact at a local community level	As above (national campaign) plus local initiatives utilising GPs and events held by the Asthma Foundation SA	<ul style="list-style-type: none"> • More than 70% of the community samples recalled seeing an asthma message • Over 2/3 of those were able to recall key content of the messages • Regional sample was 14x more likely to have 	Community-based media campaigns can be more effective in disseminating public health messages than national campaigns, if local media is used effectively	Comino et al (1995)

						seen an asthma message, and 8x more likely to recall a preventative message		
Community promotion of asthma	Canterbury, New Zealand, 1991	Young adults with asthma	Not specified	1. Promote the use of an Asthma Action Plan (AAP) with GP's, pharmacists, nurses & hospital staff 2. Promote the use of the AAP to asthmatics in the community	Print media, radio, posters displayed in GP clinics and pharmacies. Resource kits mailed to health professionals and educational workshops.	<ul style="list-style-type: none"> 94% of GPs indicated they would promote use of the AAP in their practice Over 90% of asthmatics who obtained an AAP were positive, and expressed a high level of confidence in their ability to participate in their own management 	The promotion was successful with health professionals, which is attributed to the labour-intensive education sessions. Promotion to individuals with asthma in the community could have had greater reach had other mass media (e.g. TV) been utilised.	Hodges et al (1993); Town et al (1995)
Asthma Outreach Programs	Orange, NSW, Australia,	Two target audiences: adolescents (16-17 years) & the general community	Triple A Program (Asthma Foundations)	1. Assess feasibility of using community pharmacists to deliver asthma programs 2. Assess program's impact on asthma knowledge and requests for information at the community pharmacy	Programs promoted through radio, TV, newspapers, street banners, newsletters, posters/flyers	<ul style="list-style-type: none"> Increase in proportion of asthma-related pharmacy visits involving requests for asthma info ($p < .001$) Increase in asthma knowledge ($p < .001$) 	Pharmacists can successfully become involved in proactive health promotion, and provide effective outreach programs.	Kritikos et al (2005)
Community Asthma Program (CAP)	Boston, Massachusetts, 2002	General adult population (all ages)	Diffusion of Innovation model; Social marketing framework	1. Improve communication between patients and providers 2. Help patients understand the asthma brochures and pamphlets commonly used in neighbourhood health centres	Direct mail, radio, print media	<ul style="list-style-type: none"> Developed the <i>Asthma: Key Words in Plain English</i> glossary in response to finding lack of appropriate asthma materials 	The readability of health materials can be improved by ensuring "plain English" (no jargon), adequate white space, sentence summaries, and effective use of graphics.	Rudd et al (2004)

Of the seven identified interventions, two were national^{20,21}, two were regional^{22,26}, and the other three targeted populations in specific cities or towns^{23,30,31}. Four interventions were carried out in Australia^{20-22,31}, two in the US^{26,30}, and one in New Zealand²³. The target population differed across interventions; the campaigns targeted adolescents and young people with asthma^{23,31}, parents²⁶, adults with asthma^{20,22}, the general adult population^{20,21,30,31}, and health care professionals²⁰. The primary frameworks and models that these interventions were based on were social marketing^{20-22,26,30}, McGuire's communication/persuasion model²⁰⁻²², and the Diffusion of Innovation model³⁰. A range of communication channels were utilised to communicate key messages to the target audiences, including direct mail, television, radio, print media (newspapers, magazines, brochures, and posters), and various public relations activities. Numerous, and varied, outcome indicators were used to measure the success of these interventions. Campaign recognition was high in the two interventions that measured this indicator, at over 70% in both studies^{22,26}. Two interventions reported accurate message recall following the campaign^{21,22}, and four interventions achieved increases in asthma knowledge and/or awareness^{20,21,26,31}. Some interventions were also successful in increasing the number of individuals visiting their doctor or pharmacist about asthma^{21,31}, and in increasing knowledge²⁰ and self-efficacy²³ about self-management for individuals with asthma. Based on the evidence from interventions aimed at various target audiences, the utilisation of social marketing strategies may be useful in the development of community asthma awareness interventions to increase asthma knowledge and improve self-management behaviours in older adults.

Social marketing

The social marketing framework, defined as "the systematic application of marketing, alongside other concepts and techniques, to achieve specific behavioural goals, for a social good"³², can be applied to the development of asthma interventions targeting older adults. Health promotion interventions utilising this framework have the potential to increase asthma knowledge and awareness in the community, and improve self-management behaviours of those with respiratory symptoms. The social marketing process is a consumer-centred approach involving the target audience in the planning, message and materials development and pre-testing stages through to intervention implementation, final evaluation, and feedback for future promotion efforts with similar audiences³³.

Two recent reviews of the application of social marketing techniques to public health interventions have concluded that social marketing can effectively change specific health behaviours and improve the health of a wide variety of target groups in a range of settings^{34,35}. The reviews highlight the usefulness of social marketing as a 'toolkit' of effective techniques and strategies to change behaviour that can be modified and adapted according to a particular health issue. Importantly, evaluations of recent health promotion interventions have demonstrated the positive impact of social marketing on the health outcomes of older adults. Thus, social marketing interventions targeting older adults have successfully increased physical activity levels³⁶⁻³⁹, improved nutritional behaviours⁴⁰, increased screening for various diseases^{41,42}, and improved knowledge of specific health issues^{36,43-48}.

The eight elements of social marketing interventions are consumer orientation, insight, theory, behaviour, exchange, competition, methods mix, and segmentation³². The relevance of each social marketing element to asthma interventions directed at older adults is outlined in Table 2. Social marketers must be consumer oriented from the planning stage through to evaluation of an intervention; older adults must be involved to ensure maximum engagement with intervention messages and targeted behaviours (Table 2). This means consulting with the target audience in an open, participatory manner to understand their experiences and needs in relation to respiratory health. Moreover, insight into the asthma knowledge and perceptions of older individuals is crucial to intervention success (Table 2). Andrews and Jones¹⁴ gained a preliminary understanding of older adults' asthma perceptions; they tended to perceive that they were not susceptible to developing asthma, and did not perceive asthma as a particularly serious disease. The social marketing framework highlights the need to incorporate behaviour change theories into intervention development (Table 2). The most effective interventions that result in sustained, voluntary healthy behaviours are underpinned by evidence-based behaviour change theories^{49,50}. Individuals will not engage in intervention activities without receiving something in return; an exchange must occur (Table 2). Older adults might take action and see their doctor about their respiratory symptoms if they perceive that they will gain something that they value, for example, a greater ability to participate in physical activities. Social marketers must be aware of competing campaigns and messages that are aimed at older adults, and take into account the possible effects that they could have on their perceptions and actions (Table 2). As in all marketing efforts,

the social marketing mix of product, price, place, and promotion of asthma must be carefully considered to address the needs of older adults (Table 2). Social marketers must offer a valued product focused on respiratory health, for a price that older adults are willing to pay, at the right place, and at the right time. Finally, the meaningful segmentation of the broader older adult population into defined groups is essential for targeting messages and encouraging appropriate asthma-related behaviours (Table 2). One evidence-based method for grouping older adults for asthma promotion interventions is to segment the audience on the basis of recent experience of breathlessness and asthma diagnosis⁵¹. This segmentation defines two distinct target groups of older adults who have had recent respiratory symptoms; one group of individuals that have an asthma diagnosis, and another group of individuals with no diagnosis who may benefit from seeking medical advice.

Table 2. *The application of the eight social marketing elements to asthma interventions for older adults*

Social Marketing Element	Application to Interventions on Asthma for Older Adults
Consumer Orientation	Researchers need to actively involve older persons from the target population in all stages of the research. Older adults must be involved in the initial planning phases, and then throughout intervention development, implementation and evaluation. The literature and evaluations of previous health promotion campaigns targeting similar groups need to be examined in order to incorporate recommendations from past interventions.
Insight	Andrews and Jones ¹⁴ provide an initial insight into the asthma-related beliefs and perceptions of older adults. Further quantitative data are needed to ascertain the apparent gaps in asthma knowledge and to gain additional insight into the asthma perceptions of this group. Qualitative research methods, such as focus groups, would enable an understanding of older people's reactions to proposed intervention messages and materials.
Theory	Health behaviour change theories should be used in conjunction with the social marketing framework to better understand the health beliefs of older adults and to determine how interventions can best encourage voluntary health behaviour change ^{49,50} . The key theories utilised in health promotion activities that have demonstrated utility in health behaviour change include the Health Belief Model, the Theory of Reasoned Action, the Theory of Planned Behaviour and the Trans-Theoretical Model ⁵² .

Behaviour	Social marketing efforts should promote particular behaviours to the target audience. For example, interventions directed at older adults with uncontrolled respiratory symptoms need to support these individuals to seek further information about asthma and encourage them to discuss their unexplained symptoms with their doctor. This, in turn, may lead to the adoption of appropriate self-management behaviours.
Exchange	The concept of exchange appreciates that there are costs involved for an individual to gain the benefits offered by an intervention. Interventions should provide solutions to uncontrolled respiratory symptoms, and empower older adults to take control of their health. The primary benefit that would be offered to older adults with respiratory symptoms is the opportunity to improve their health related quality of life, and the ability to participate more fully in the activities they enjoy. However, individuals must give up their time to seek information; there may be costs involved with visiting the doctor; and the new knowledge that their symptoms could indicate asthma could cause psychological distress.
Competition	Health promotion interventions must compete for audiences' time and attention. In this instance, other local and national health promotion interventions conducted in the same timeframe are considered the primary competition. Unfortunately, commercial advertising also competes with health promotion efforts, often promoting negative health behaviours that hinder the attainment of optimal health. For example, advertisements for cigarettes and fast food encourage smoking and increase obesity, both of which have been linked to asthma and respiratory symptoms more broadly.
Methods Mix	Interventions are most effective when a combination of appropriate methods and theories are integrated to best understand and reach the older adult audience. This can be achieved by utilising best-practice methods for data collection in formative phases and then determining the most effective marketing mix to promote asthma to older people; addressing the 4Ps of product, price, place, and promotion.
Segmentation	Health promotion interventions are rarely effective when target audiences are assumed to have the same perceptions and behaviours. Older adult audiences need to be segmented according to relevant variables. In the case of asthma promotion, these variables could include asthma threat perceptions, recent experience of respiratory symptoms, and the presence of an asthma diagnosis, amongst other demographic, socio-economic, and psychographic characteristics. Segmentation enables targeted messaging to specific groups of older adults on the basis of their distinct asthma knowledge and perceptions.

A pilot social marketing intervention

Specifically, we recommend the development of a pilot social marketing intervention to target a community of older adults. This intervention should take into account the lessons learned from past asthma awareness programs (see Table 1), beginning with formative research with older adults in order to

segment the target audience appropriately and tailor the intervention for a particular community. Asthma educators involved in the planning and development of the pilot intervention should engage target audience members in order to understand the asthma perspectives of older adults, and seek expert advice from peak asthma organisations. Individuals or agencies experienced in marketing and design should then utilise the formative research to create campaign concepts for pre-testing with representative members of the target audience. The implementation of an intervention requires the involvement of many groups and individuals. Asthma educators should enlist staff and community volunteers to disseminate campaign materials, in addition to organising paid and/or unpaid advertising within the intervention community. Further, asthma educators should seek to partner with organisations that represent potential partners, such as pharmacists and general practitioners, to ensure materials are distributed throughout the community and that health professionals are aware of the asthma intervention and its objectives. Finally, it is important to attract (news/editorial) exposure in media outlets utilised by older adults during the campaign to engage the target audience.

Recommended intervention outcomes and associated evaluation measures are outlined in Table 3. Short term outcomes of campaign materials recognition, message recall, increase in asthma knowledge, and change in asthma perceptions could be measured by a pre- and post-intervention survey to examine the impact of the intervention, preferably compared to a control group that is not exposed to the intervention. Actions undertaken by individuals as a result of the intervention should also be measured; information seeking behaviours such as calling an information line or visiting a website could be measured by the frequency of calls and website visits, while visits to the doctor regarding respiratory symptoms and increases in self-management behaviours could be examined with de-identified medical records from general practices and medical centres. In the longer-term, changes in perceived health-related quality of life could be assessed by a follow-up survey.

Table 3. *Proposed outcomes of an asthma awareness social marketing campaign for older adults*

Outcome	Measurement
Short term outcomes	
<ul style="list-style-type: none"> • Recognition of campaign materials and recall of key asthma messages • Change in perceptions of asthma susceptibility and severity • Increase in asthma knowledge • Increase in information-seeking: <ul style="list-style-type: none"> ○ Calls to a toll-free asthma hotline ○ Visits to a campaign website 	<ul style="list-style-type: none"> • Pre- and post-intervention survey* • Pre- and post-intervention survey* • Pre- and post-intervention survey* • Number of calls • Number of website visits
Medium to long term outcomes	
<ul style="list-style-type: none"> • Increase in older adults visiting their doctor about respiratory symptoms and/or asthma • Increase in asthma self-management • Increase in perceived health-related quality of life 	<ul style="list-style-type: none"> • GP/Medical centre records • GP/Medical centre records • Follow-up survey

*Assumption of a pretest-posttest experimental design, ideally with a control group for comparison

All health promotion interventions face potential obstacles to the attainment of intervention objectives. From the perspective of the asthma educator, funding and the costs of developing and delivering effective interventions are often the primary obstacles. Lack of resources and funds may prevent the full incorporation of all evidence-based development, implementation, and evaluation elements of an intervention. Asthma educators should ensure that goals for specific intervention outcomes are realistic and achievable taking into account the resources at their disposal. Additionally, there are also potential obstacles faced by the older adults in the target audience. Issues concerning access to medical advice, barriers to seeking information, and older adults' asthma knowledge and perceptions can affect the success of an intervention. Asthma educators should ensure that these potential obstacles for older adults are identified and addressed in the development of an asthma awareness intervention.

Conclusion and importance to asthma and allergy educators

Older adults are an important target group for asthma-focused health promotion. The severe impact of the disease on this population, combined with a general lack of asthma knowledge and commonly held misperceptions about asthma, provides a compelling case for the necessity of asthma awareness activities directed at those aged 55 years and over. Asthma and allergy educators need to be aware of undiagnosed, misdiagnosed, and undertreated asthma in older persons, and make it a priority to raise community awareness that asthma can develop in later years and that the experience of respiratory symptoms is not a normal part of the ageing process. The social marketing framework is recommended to address the issue, by aiming asthma promotion at the community level, and involving older adults throughout the process of development and implementation of interventions. The aim of interventions should be twofold: to identify cases of undiagnosed asthma, and to encourage individuals to manage their respiratory symptoms, whether or not they have an asthma diagnosis. The impact of interventions need to be evaluated initially by examining changes in asthma knowledge and perceptions and, in the longer term, improvements in the respiratory health and quality of life of older people in the target communities.

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