, Page 1 of 10. © Cambridge University Press 2014
doi:10.1017/S0950268814002143

Scabies outbreaks in residential care homes: factors associated with late recognition, burden and impact. A mixed methods study in England

K. A. HEWITT[1,2]*, A. NALABANDA[1,3] AND J. A. CASSELL[1,2]

[1] , , ,
[2] , , ,
[3] , , ,

(27 2013; 4 2014; A 30 2014

SUMMARY

Scabies is an important public health problem in residential care homes. Delayed diagnosis contributes to outbreaks, which may be prolonged and difficult to control. We investigated factors influencing outbreak recognition, diagnosis and treatment, and staff experiences of outbreak control, identifying areas for intervention. We carried out a semi-structured survey of managers, affected residents and staff of seven care homes reporting suspected scabies outbreaks in southern England over a 6-month period. Attack rates ranged from 2% to 50%, and most cases had dementia (37/39, 95%). Cases were diagnosed clinically by GPs (59%) or home staff (41%), none by dermatologists. Most outbreaks were attributable to avoidably late diagnosis of the index case. Participants reported considerable challenges in managing scabies outbreaks, including late diagnosis and recognition of outbreaks; logistically difficult mass treatment; distressing treatment processes and high costs. This study demonstrates the need for improved support for care homes in detecting and managing these outbreaks.

Key words: Ectoparasites, occupation-related infections, outbreaks, public health, scabies.

INTRODUCTION

Scabies is an important source of morbidity in residential care homes for the elderly, where outbreaks are common, and control is challenging [1–3]. It is caused by a mite, , which is transmitted via direct skin-to-skin contact, or occasionally by fomites [3].

Scabies is common in tropical and subtropical countries where it is associated with poverty and overcrowded living conditions. Large epidemics are associated with war, poverty, overcrowding and poor hygiene [4]. In developed countries those most vulnerable to scabies infestation are the young, elderly and immunosuppressed, and outbreaks are seen in institutions such as schools and residential care homes. People who are incapacitated, particularly due to dementia, are at particularly high risk of acquiring scabies [5, 6]. Within care homes, unrecognized cases of scabies are a frequent source of transmission to other residents and staff due to their atypical presentation, particularly of the highly infectious crusted 'Norwegian' form [7]. Outbreaks in these settings tend to go on for several months, with a median duration of 120 days in one review, and can have very high attack rates, ranging from 15% to 93% [6]. Controlling outbreaks of scabies is particularly challenging in institutions caring for people with dementia, due to

* Author for correspondence: Mrs K. A. Hewitt, Division of Primary Care and Public Health, Brighton and Sussex Medical School, Mayfield House, University of Brighton, Falmer, Brighton BN1 9PH, UK.
(Email: Kirsty.hewitt@nhs.net)

communication difficulties and patient behaviours such as ‘wandering’ contributing to transmission [8].

Outbreak control in institutional settings requires a carefully coordinated response including mass treatment of all cases and contacts. Public Health England (PHE) is the national agency responsible for communicable disease control in England. PHE provides outbreak management advice via local Health Protection Teams (HPTs), which cover a set geographical area and work alongside the National Health Service (NHS) and local authorities to provide specialist support for communicable disease control. General Practitioners (GPs) are generally responsible for the treatment of scabies in the community; however, specialist dermatology services are provided at many hospitals and may be involved in the care of severe cases of crusted scabies.

Community health service provision varies geographically, but all services in England registered under the Health and Social Care Act 2008 are expected to have an outbreak control policy, which is usually developed with the local Infection Control and Prevention Team. Outbreak management is the joint responsibility of the care home provider, Community Infection Control teams, GPs, PHE, and others as required. The Care Quality Commission regulates homes but does not provide speci

and this can lead to late recognition of outbreaks in care homes [16]. Scabies can be complicated by secondary bacterial infection with *Staphylococcus aureus* and group A streptococci, a particular concern for vulnerable care home residents.

We describe a series of scabies outbreaks in residential care homes in Surrey and Sussex, England. We investigated the factors influencing the recognition of outbreaks in this setting, delays in diagnosis and treatment of cases and the experience of staff dealing with outbreak control.

METHODS

Design

This is a prospective mixed methods study investigating a series of suspected scabies outbreaks in residential care homes, exploring barriers to early recognition and optimal management.

Ethical considerations

This work was carried out as part of a service evaluation to optimize advice and inform practice locally, so ethical review was not required.

Setting

All residential care homes in Surrey and Sussex with outbreaks of scabies occurring between November 2012 and April 2013 were eligible for inclusion. Those which reported outbreaks to Surrey and Sussex HPTs during this time were invited to participate. There are 1194 registered care homes in Surrey and Sussex (458 in Surrey, 386 in West Sussex, 350 in East Sussex), of which 411 (34%) offer specialist care for people with dementia.

Participants

During the study period eight outbreaks of scabies in care homes were reported to the HPT. All eight care homes were invited, and seven agreed to participate in the study.

Recruitment

Homes were recruited on the basis of having reported an outbreak of scabies to the HPT. The outbreaks were all managed by the HPT according to usual practice, which involves provision of advice over the telephone regarding mass treatment and infection control measures, and regular follow-up until the outbreak is declared over. The investigator was undertaking training at the HPT at the time of the study but was not involved in the management of these outbreaks.

Once the HPT had provided their initial advice, details were passed to the investigator, who contacted the home to arrange a data collection visit. Visits were made as soon as possible after the outbreak was reported, at a convenient time agreed with the home management.

Case definitions

Outbreak. A report of two or more clinically suspected cases of scabies in a residential care home in Surrey or Sussex, reported to the Surrey and Sussex HPTs by a GP or care home manager between 1 November 2012 and 30 April 2013.

Resident case. A clinically suspected case of scabies in a resident of the above care homes, in whom scabies was recognized between 1 November 2012 and 30 April 2013.

Staff case. A clinically suspected case of scabies in a staff member of the above care homes, in whom scabies was recognized between 1 November 2012 and 30 April 2013.

The case definitions included suspected cases because definite diagnosis of scabies by dermatoscopy or mi-

staff questionnaires included open-ended exploratory questions about the outbreak, including challenges and experiences of managing the outbreak, and detailed field notes were taken during the interviews. These interviews were not recorded, and responses

DISCUSSION

Diagnosis and management of outbreaks

attribute this to a reluctance to provide support, or insufficient knowledge of scabies. As a result, many cases were not confirmed by a doctor, and two outbreaks had been diagnosed by care staff without exter-

Table 4.

Table 4 (. . .)

Theme	Issues reported	Examples
4. Practical and ethical concerns relating to the population profile		
( ) Transmission	• Several of the index cases were described as 'wanderers' and staff were unsure how to	

outbreak management was their responsibility. In addition there is limited evidence regarding the effectiveness of mass prophylaxis in controlling scabies outbreaks, and this may contribute to the reluctance of GPs to prescribe mass treatment for residents and staff [17]. These problems are further compounded by the fact that residents of care homes are often registered with different GPs.

The problems encountered in these outbreaks related primarily to the availability of diagnostic expertise, prescribing and the logistics of obtaining prescription treatment in bulk. Although this study was not designed to include a formal economic evaluation, it was clear that outbreak control required considerable economic and human resources, reinforcing the importance of accurate diagnosis.

A perceived lack of clinical support in the community for homes dealing with these outbreaks was evident, along with confusion about control measures, leading staff at one home to lock people with dementia in their rooms to prevent wandering and potential further transmission. Several interviewees felt unsupported by GPs; however, it is debatable to what extent it is the role of GPs to manage these situations, over and above the care of their individual patients. Many care homes have residents under the care of a number of GPs, further complicating the process.

Limitations

This study had several limitations. It was not possible to include outbreaks which were not reported to the HPT, and those described here may represent particularly large or challenging outbreaks (e.g. due to a high proportion of residents with dementia) which may be reported more readily. Data collection was carried out in association with the HPT, and this may have in uenced respondents to report adherence to HPT guidance. Over-ascertainment is likely as not all of the cases were con rmed by a doctor, and none microscopically or using a dermatoscope. This was particularly so for staff, who frequently reported symptoms but did not go to a doctor because they were treated en masse. However there may also have been some under-ascertainment due to managers not being aware of all staff cases. A previous study found that . *s* / / was only present in a third of healthcare workers reporting symptoms [20]. Many cases could not recall an exact date of onset so this was generally estimated, and for cases with dementia this was done by a carer.

Scabies outbreak management posed a considerable challenge for the care homes in this study, which demonstrates confusion and a lack of clarity about responsibility for the various aspects of scabies outbreak control. There is an urgent need for extra support for homes managing these outbreaks, both to facilitate earlier recognition of outbreaks and to streamline the outbreak management process. Scabies presents particular logistical dif culties and requires dedicated resources, including access to diagnostic expertise, and practical support with outbreak management, including prescribing and bulk ordering of treatment.

Recommendations

Health service planners and commissioners should identify ways of providing support for the management of institutional scabies outbreaks in their residents, for example through commissioning integrated services, including community dermatology support where required.

Practical, evidence-based national public health guidelines for scabies outbreak management are needed, which clearly outline roles and responsibilities of stakeholders including care home management,

GPs, PHE and others. This would enable a consistent approach to outbreak management and potentially improve adherence to the recommendations of local HPTs. In the meantime, local HPTs should ensure that GPs are aware of local guidance for managing scabies outbreaks.

Scabies is a neglected problem and there are significant research needs relating to the control of institutional outbreaks. The authors of a 2010 Cochrane review noted that approaches to institutional outbreak control require evaluation [11]. Mass treatment with a topical lotion is a substantial undertaking, and the process was stressful for staff in this study, who had real concerns about the intimate nature of the treatment and the inability of many residents to consent to the process. Ivermectin is a potential alternative but requires evaluation as a mass treatment measure in this population.

The distress reported by staff who had applied permethrin lotion to residents suggests that any evaluation of outbreak control measures should include investigation of the acceptability of topical and oral treatment in residential care homes for the elderly, in particular those specializing in dementia care.

Scabies is an unpleasant, debilitating condition and as these outbreaks demonstrate, disproportionately affects those who are most vulnerable, often with multiple comorbidities. Delayed diagnosis, and therefore delayed treatment, prolongs suffering and increases the risk of outbreaks in this setting, where a majority of residents are at particularly high risk of scabies acquisition. Improving the diagnosis of scabies in the elderly is vital not only to identify single cases early and prevent outbreaks arising, but also to prevent unnecessary control efforts being undertaken. Two of the index cases had crusted scabies, which was unrecognized until other residents or staff had developed classical scabies symptoms. There is a need for the development of sensitive tools for diagnosing scabies in primary care, clear diagnostic criteria for scabies in the elderly, and education of GPs and others regarding the clinical presentation of scabies in this population. It is unacceptable for this vulnerable group, often approaching the end of life, to experience the unpleasant, debilitating symptoms of scabies for the extended periods of time demonstrated here.

ACKNOWLEDGEMENTS

This project received no specific grant from any funding agency, commercial or not-for-profit sectors.

DECLARATION OF INTEREST

None.

REFERENCES

1. Scheinfeld N. Controlling scabies in institutional settings: a review of medications, treatment models, and implementation. *A [illegible]* 2004; 5: 31–37.
2. Ladbury G, ***et al***. An outbreak of scabies in multiple linked healthcare settings in The Netherlands. [illegible] 2012; 33: 1047–1050.
3. Hengge UR, ***et al***. Scabies: a ubiquitous neglected skin disease. [illegible] 2006; 6: 769–779.
4. Hay RJ, ***et al***. Scabies: a suitable case for a global control initiative. [illegible] 2013; 26: 107–109.
5. Bouvresse S, Chosidow O. Scabies in healthcare settings. [illegible] 2010;

17. FitzGerald D, Grainger RJ, Reid A. Interventions for preventing the spread of infestation in close contacts of people with scabies. *[illegible]* 2014. Issue 2, Art no. CD009943.
18. Walton SF, Currie BJ. Problems in diagnosing scabies, a global disease in human and animal populations. *[illegible]* 2007; 20: 268–279.
19. Lapeere H, ***et al***. Knowledge and management of scabies in general practitioners and dermatologists. *[illegible]* 2005; 15: 171–175.
20. Garcia C, ***et al***. Use of ivermectin to treat an institutional outbreak of scabies in a low-resource setting. *[illegible]* 2007; 28: 1337–1338.