

Contents lists available at ScienceDirect

Research in Social and Administrative Pharmacy

journal homepage: www.rsap.org

Dermatological cancer screening: Evaluation of a new community pharmacy service

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ARTICLE INFO

Article history:

Received 25 November 2016

Accepted 1 December 2016

Keywords:

Cancer
Malignant melanoma
Community pharmacy
Mole scanning
Siascope

ABSTRACT

Background: Skin cancer accounts for one third of all cancers. Prognosis is inversely related to identification stage.

Objectives: To describe a novel service, mole scans, performed in community pharmacy, the findings from the first 3.5 years it was in place, and to explore patient acceptability of the service.

Methods: Norwegian Boots' pharmacies offer a mole scanning service in cooperation with ScreenCancer. Scans are undertaken within pharmacy consultation rooms. Image interpretation is undertaken remotely by a specialist. Number and result of scans performed from 2010 to 2014 are reported. A satisfaction questionnaire was returned by 10% of participants.

Results: A total of 25836 scans were performed on 15777 individuals. Of these, 83.6% had normal scans, 1% had melanoma, and 15.4% had another skin condition. In 2014 the service identified 4.1% of melanoma cases registered in the Norwegian Cancer Registry. Most responders (88%) would use a similar service again. Nearly all (99%) felt the pharmacy was a suitable venue, and 95% would recommend the service to others. In total, 99% of respondents scored their overall satisfaction as "good" or higher.

Conclusions: This approach was acceptable among participants who provided feedback. Providing mole scanning through pharmacies enables individuals to obtain a rapid check of moles causing concern, in an acceptable environment with a high level of satisfaction.

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1. Background

Skin cancer accounts for one third of all cancers being diagnosed globally and its incidence is increasing.¹ Prognosis for the disease is inversely related to the stage of identification^{2,3} and consequently effective approaches for identifying suspect lesions at an early stage are required.⁴ Whilst evidence supporting the cost-effectiveness of population screening for malignant melanoma is weak it has been suggested that focussing on high-risk individuals is likely to be reasonably cost-effective compared with other cancer screening strategies.^{5,6}

The main strategy currently used to identify skin cancer at an early stage is raising public awareness of melanoma, and self-referral to a general practitioner (GP) when moles change in appearance.⁷ This approach requires GPs to be suitably trained to identify the moles that require referral to a dermatologist,⁸ and the public having sufficient access to such services.

One approach to improve early identification is to provide a mole scanning service through pharmacies. Due to extended opening hours, the presence of healthcare professionals, ease of access, and availability of consultation rooms, community pharmacies are increasingly being used for the provision of early detection services as part of their public health remit.⁹

In 2010 ScreenCancer, who provides cancer screening services, set up a novel mole scanning services in cooperation with Boots Norge AS, in Boots community pharmacies. Scans were undertaken within consultation rooms in the pharmacy, while the

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<http://dx.doi.org/10.1016/j.sapharm.2016.12.001>

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interpretation of the results was undertaken remotely by a trained specialist in dermatology. Whilst participant feedback on the service was sought during the first years, the acceptability and effectiveness of this service have not been reported.

2. Objectives

The objectives of this service evaluation were to describe a novel community pharmacy service, and to report findings from the first 3 ½ years when the service was in place. The paper will also explore patient acceptability of mole scans performed in community pharmacies.

3. Methods

3.1. Setting & study duration

The service was provided from Boots community pharmacies in Norway. In this paper, data are presented from all who purchased the service from when it was introduced in August 2010, throughout 2014.

3.2. Intervention

Moles were scanned using the ScreenCancer Mole Navigator[®] system, in combination with SIAscope-technology. SIAscopy is a non-invasive scanning technique where a handheld device shines near infrared and visible spectra light through the skin. The image shows collagen and haemoglobin content of the papillary dermis, and melanin content of the epidermis and papillary dermis that can indicate pathological changes consistent with melanoma.¹⁰ The image captured in the pharmacy was sent to a trained specialist in dermatology for interpretation. The method shows a reported sensitivity in a similar setting of 94.5% and a specificity of 64%.¹¹ Fig. 1 shows the basic steps of the service.

The patient received a letter from ScreenCancer with the result of the scan within 2 weeks. If the mole was deemed to need further investigation, health personnel in ScreenCancer contacted the individual by phone and provided advice on how to proceed. The customer was then contacted again after approximately 2 months, and the result of the follow up was recorded in ScreenCancer's files.

3.3. Service promotion

Pharmacies raised awareness of the service and the importance of sun protection and self-checks of moles by providing an information leaflet to pharmacy patients about skin cancer which described the ABCDE-criteria¹² used to identify suspicious moles.

3.4. Staff training

All pharmacy staff performing mole scans were required to read the procedure involved and take an online course, followed by practical training in use of the Siascope and the Mole Navigator[®] system. A final practical test, where the employee performed the service and the resulting scans were approved by ScreenCancer, was required before certification was given.

3.5. Inclusion criteria

Patients self-selected for the service and identified the moles they wanted to scan, paying a set fee per mole, 350 NOK (approximately 50 USD) for the first mole, and 150 NOK (21 USD) for subsequent scans.

If they were unsure as to which moles to scan, or if there were more than 3 suspicious moles, the pharmacy staff referred the individual to their GP.

3.6. Data collection

Anonymous information, including number and result of scans, was extracted from the computer system for all patients accessing the service. Gender was not included in the database; therefore, the investigators used ScreenCancer's files to obtain this data for random sample of participants to provide some insight into the population accessing the service. Numbers on the national identification rates are publicly available, and were obtained through the website of the Cancer Registry of Norway.¹³

During the first 2 years and 8 months after implementing the service (August 2010–May 2013), alongside the scan results that were sent to patients, ScreenCancer included a simple, non-validated patient satisfaction questionnaire and a pre-paid return envelope. The questionnaire consisted of questions regarding

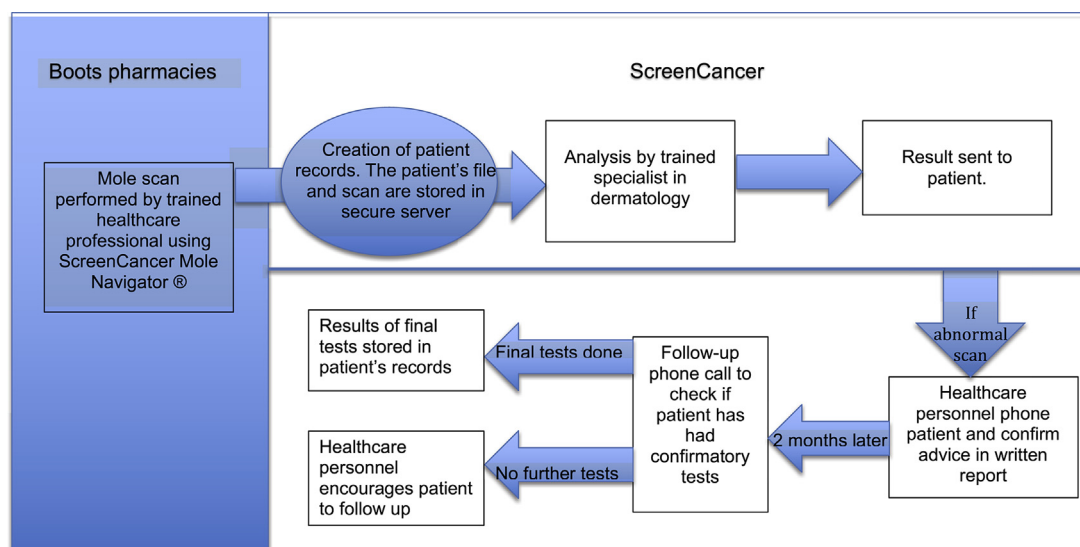


Fig. 1. Overview over the ScreenCancer mole scanning service in Boots pharmacies in Norway.

Table 1
Results of follow-up of the mole scans that required further testing.

Result	Number of customers	Percent of follow-up
Normal	915	51.0
Sun damage	45	2.5
Other skin condition	413	23.0
Melanoma: cancer or pre-cancer	154	8.6
Other skin cancer	166	9.3
Customer did not follow-up/could not confirm result with customer	100	5.6
Total	1793	100

suitability of location, staff competence, quality of information provided, total satisfaction and whether they would use the service again or recommend it to others. Reminders were not sent out if patients did not respond as responses were anonymous.

3.7. Data analysis

Data analysis was purely descriptive, using measures of central tendency, description of variance and proportion, as appropriate.

The Cancer Registry of Norway was used to identify the contribution the service had made to national detection rates.

3.8. Ethical approval

No ethics approval was needed as this was a routine service evaluation where data which was analysed was anonymous and had been routinely collected.

4. Results

4.1. Demographics

During the period from 2010 throughout 2014 a total of 25836 scans were performed on 15777 individuals in 109 different

community pharmacies. Participants' age ranged from 1 to 96, median age was 56 (mean 52.7). Among the 410 persons for whom gender was recorded 290 (71%) were female.

4.2. Scan results

Of the 25836 scans, 22803 (88.3%) were normal, 631 (2.4%) showed non-cancerous sun damage, and 369 (1.4%) showed other, non-cancerous skin condition. The remaining 2033 images (7.9%) (1813 individuals) required further confirmatory tests. Table 1 provides the results in the 1793 individuals that ScreenCancer were able to follow up. In total, 13185 individuals (83.6%) had only normal scans, 154 (1%) were found to have melanoma, and 2438 (15.4%) had some other skin condition.

4.3. Contribution to national identification rates

In 2011, the Cancer Registry of Norway¹³ stated 1747 cases of melanoma; in 2012, 1779 cases; in 2013, 1738 cases; and in 2014, 2003 cases. Of these, the Boots mole scanning service found 15 (0.9%) in 2011, 18 (1%) in 2012, 38 (2.2%) in 2013 and 83 (4.1%) in 2014.

4.4. Patient satisfaction

A total of 690 persons returned the satisfaction questionnaire out of 6930 individuals that were scanned in the period from 2010 throughout April 2013, thus yielding a response rate of 10%. The majority (88%) answered that they would use similar services in the future, 11% said maybe and 1% said no. Most participants (99%) felt that the pharmacy was a suitable venue for such a service, and 95% would recommend the service to others. Fig. 2 shows how the responders scored their satisfaction.

5. Discussion

In this paper, data collected as part of an ongoing service in Boots community pharmacies was used to assess outcomes and

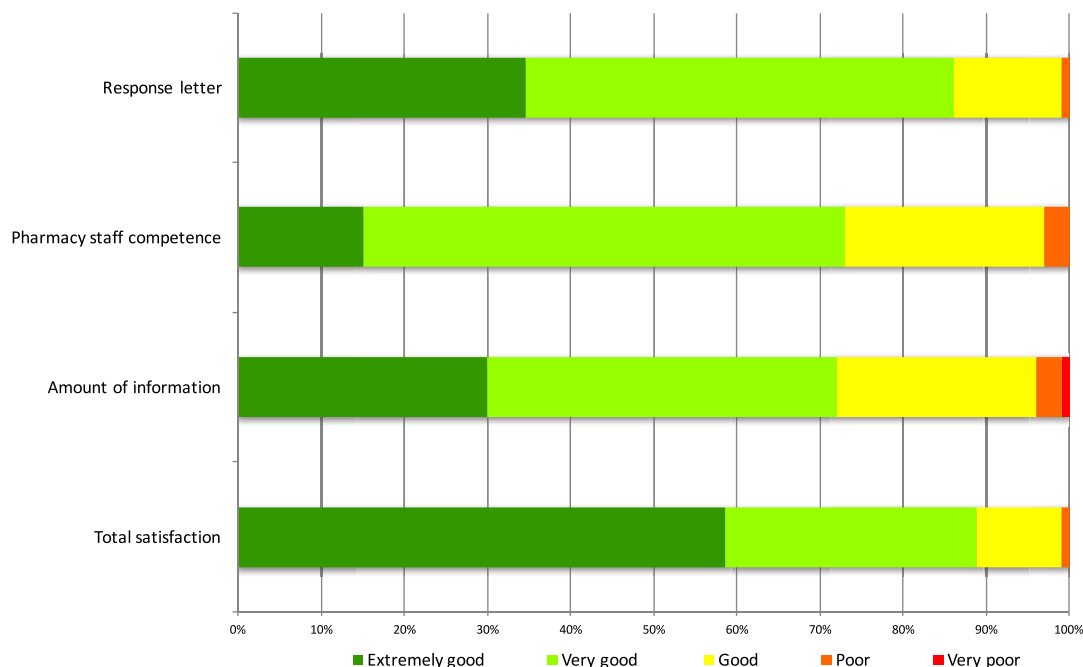


Fig. 2. The reported satisfaction of respondents after using the pharmacy mole scanning service.

acceptability of a mole cancer scanning service in community pharmacy. To the authors' knowledge, this is the first paper reporting the results of mole scans performed in community pharmacies.

A large majority of the responding patients believed that community pharmacy was a suitable location for mole scans, stating that they would use the service again and recommend it to others. On the whole, satisfaction was high; nearly all respondents scored their total satisfaction as good, very good or extremely good. At the end of data collection in 2013, ScreenCancer and Boots Norway AS used the patient feedback to improve the staff training program by adding an e-learning course with instructive videos, to further improve staff competency and the information given to patients.

By uncovering melanoma in 1% of those who attended the service, which in 2014 accounted for 4% of the total cases identified nationally, and by uncovering other, less serious skin conditions, the service shows potential to benefit public health. The information the pharmacies provided on advocating staying safe in the sun and use of sun protection products also had a potential public health benefit.

The substantial number of pharmacy patients who chose to use the pharmacy and pay themselves rather than going to their GP for the initial scan represents a potential significant saving for the government and the importance placed on this service by patients. Furthermore, using pharmacies as the first-line identifier to separate those who require follow up from those who do not, gives the GPs and the specialists more time for those who require intervention. It is not possible to identify what proportion of individuals seen within the pharmacy who would have gone to their doctor had the service not existed and therefore one cannot determine the true cost saving. If, however, the service recruited mainly individuals who would otherwise not have been tested, this would mean reaching a broader segment of the population, thus allowing for early treatment of cases that otherwise would not have been found at an early stage.

5.1. Limitations

This paper reports the results of the implementation of a novel community pharmacy service. The service has not been assessed for cost-effectiveness.

While the responders to the satisfaction questionnaire were very positive towards the service, the questionnaire used was a simple, non-validated questionnaire, developed by the service providers, and thus the results must be interpreted with caution. Further, the low response rate means limits generalizability of responses.

6. Conclusion

While further studies are required to assess cost-effectiveness, results from 3.5 years of mole scanning in a community pharmacy setting suggests that the service contributes to earlier identification of skin cancer at no additional cost to the government and a high acceptability among patients.

Declaration of conflicting interests

A-KBB is Director of Quality and Process Management at Boots Norge AS. KWG is Manager of Professional Services at Boots Norge AS. MV is Managing Director of ScreenCancer. DJW regularly undertakes paid consultancy for community pharmacy companies to undertake service evaluations. RLSK has received a 3 year 50% research grant from the Foundation for the Advancement of Norwegian Pharmacy (Stiftelsen til fremme av norsk apotekfarmasi).

Funding

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

Acknowledgements

The authors would like to thank Tracey Thornley, Senior Manager Contract Framework and Outcomes, Boots UK, and Guillaume Nebout, Head of International Professional Services from Walgreens Boots Alliance, for valuable feedback on the final manuscript.

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