Insight into the management of actinic keratosis: a qualitative interview study among general practitioners and dermatologists

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ABSTRACT

Background The increasing incidence of actinic keratosis (AK) is causing a large burden on healthcare systems. The current management of patients with AK seems to vary within and between primary and secondary care; however, an in-depth understanding of healthcare providers' management of AK is currently lacking.

Objectives To gain insight into the management of AK by exploring the underlying motives of current practices among general practitioners (GPs) and dermatologists in the Netherlands.

Methods A qualitative study was conducted consisting of semi-structured individual interviews with 22 GPs and 18 dermatologists focusing on the underlying motives regarding AK management. A predefined topic list was used. All interviews were audiotaped, transcribed verbatim and inductively analysed by two researchers drawing on elements of grounded theory.

Results GPs reported conducting limited proactive clinical assessments of cutaneous photodamage due to a perceived lack of value, varying in their method of diagnosing AK, mainly applying cryotherapy or referral to secondary care due to lack of experience, varying in their applications and providing mostly patient-driven follow-up care. They also reported a great need for guidelines due to a lack of knowledge of AK management. Dermatologists indicated pursuing proactive clinical assessments of cutaneous photodamage and the goal of providing guideline-driven AK care. However, patient preferences still largely influence both treatment choices and follow-up regimens. Furthermore, dermatologists reported the need to improve AK and skin cancer management in primary care.

Conclusions For AK care to become more standardized and uniform in Dutch primary care, the implementation of guidelines and (continuing) education are needed to address the commonly reported barriers of lack of value, experience and knowledge among GPs. For efficient use of care among dermatologists, shared decision-making tools along with adequate (framing of) patient information may be useful.

INTRODUCTION

Actinic keratosis (AK) is a chronic skin condition caused by long-term sun exposure. AK is the most common premalignant skin condition, and its incidence is steadily increasing.[1-3] Prevalence rates vary among the different countries and populations under review;[4-8] estimates from population-based data show that 24% (Netherlands) to 60% (Australia) of people above the age of 50 years have at least one AK. The large and increasing number of patients with AK presents a challenge for healthcare systems.

In the Netherlands, as in many other European countries, both general practitioners (GPs) and dermatologists are involved in medical care of patients with AK. Dutch GPs are the gatekeepers to specialist care and can decide either to treat the patient themselves or to refer the patient to a medical specialist.[9] The recently published primary care guideline on 'suspicious cutaneous lesions' from the Dutch College of General practitioners (in Dutch: Nederlands Huisartsen Genootschap) provides recommendations on the management of AK by GPs.[10, 11] Although AK is considered to require low-risk care that can be provided by the GP, a rather substantial proportion of patients are referred to secondary care, resulting in 40 000 new dermatology consultations annually.[12] Dermatologists, who have been equipped with national AK guidelines since 2010, still have a prominent role in the diagnosis and treatment of AK.[1, 3, 10]

As AK is a high-volume condition, it requires an optimal use of resources. A previous study showed that AK management varies within and between primary and secondary care.[12] However, an in-depth understanding of healthcare providers' management of AK is currently lacking. The aim of this qualitative study was therefore to gain insight into the management of AK by exploring the underlying motives of current practices regarding the diagnosis, treatment and follow-up of AK among GPs and dermatologists.

PATIENTS AND METHODS

Study design

A qualitative study was conducted consisting of 22 one-on-one semi-structured interviews with GPs and 18 one-on-one semi-structured interviews with dermatologists. Individual interviews were considered the most appropriate method to explore current practices and underlying motives, as they encourage participants to propagate their views and opinions freely.[13-17]

Selection of participants

Purposive sampling was used in the identification and selection of information-rich participants for the subject of interest.[18] Potential participants were selected through the

authors' personal networks. To create a sample with maximum variation, we took age, sex, setting and years of professional experience of GPs and dermatologists into account. Initially, five GPs and five dermatologists were invited to participate in a pilot study. This invitation was extended to 22 GPs and 18 dermatologists in total. Potential participants received an invitation by e-mail containing an information leaflet about the study. Physicians could register for participation by contacting one of the researchers.

Data collection

The interviews were conducted immediately prior to the issuing of the primary care guideline (June 2017). All interviews were conducted by an experienced independent qualitative researcher (M.L.) either in a face-to-face setting (n = 28) or by telephone (n = 12). A predefined topic guide based on prior experiences of the authors[12, 19, 20] was used for the interviews and included the following main themes: AK care in general, diagnosis of AK, treatment of AK and follow-up care of AK (Appendix S1; see Supporting Information). Participants were asked to complete a short questionnaire to provide demographic information. In addition to AK, physicians were also asked about management concerning basal and squamous cell carcinomas; this information falls outside the scope of this paper. After the pilot, only minor changes were made to the topic guide. All interviews were audiotaped with the consent of the participants and were subsequently transcribed verbatim anonymously.

Data processing and analysis

Transcripts were imported to ATLAS.ti 8.0 for analysis (ATLAS.ti, Berlin, Germany). An inductive approach to data analysis was applied drawing on elements of grounded theory (e.g. open coding, constant comparison).[17] Two researchers (E.C.N., S.vE.) independently openly coded the first four transcripts.[17] The obtained codes were discussed by the research team (E.C.N., S.vE., M.L.) and adjusted when needed. This resulted in a preliminary thematic coding scheme. This frame was applied to all transcripts, which were coded by one researcher (E.C.N. or S.vE.) and subsequently checked by a second researcher (E.C.N. or S.vE.). New codes were created until needed. Differences in (new) codes were discussed and refined until agreement between the researchers was reached. After 18 interviews with dermatologists and 22 interviews with GPs, thematic saturation, which was defined as little or no changes made to the codes, was reached in all research areas.[21]

Iterative and interpretive constant comparison followed the initial coding phase.[17] Different codes were compared, and the relationship between codes was explored to detect emerging themes. This process was performed separately and independently for codes of GPs and dermatologists; for comparable themes, the same terms were used.

Ethical considerations

Ethical approval for this study was granted by the medical ethics committee of the Erasmus University Medical Center in Rotterdam (MEC-2016-204). All participants provided written informed consent. This qualitative study was designed and reported in accordance with the recommendations of SRQR (Standards for Reporting Qualitative Research), which aims to improve the transparency of qualitative research by providing reporting standards.[22]

RESULTS

Description of participants

Of the 22 participating GPs, 68% were male and the median age was 41 years (Table 1). Two physicians in the GP group were residents. Of the 18 participating dermatologists, 56% were male and the median age was 45 years. One half worked in a peripheral hospital (n = 9).

Table 1. Characteristics of participants

Characteristic	GPs	Dermatologists
Total	22	18
Male, *n* (%)	15 (68)	10 (56)
Age in years, median (IQR)	41 (38–53)	45 (38–54)
Years of professional experience, median (IQR)	8 (6–23)	12 (6–20)
Dermatologists, *n* (%)		
Academic hospital	N/A	2 (11)
Peripheral hospital	N/A	9 (50)
ISTC	N/A	3 (17)
Combination of the above	N/A	4 (22)
GPs, *n* (%)		
Individual practice	6 (27)	N/A
Group practice	15 (68)	N/A
Medical centre	1 (5)	N/A

Abbreviations: IQR, interquartile range; ISTC, independent-sector treatment centre; GP, general practitioner; N/A, not applicable.

Management of actinic keratosis

Five main themes emerged from the data for GPs and four main themes for dermatologists. These themes are described in detail below. Additional illustrative quotations for each theme are presented in Appendix S2 (see Supporting Information).

General practitioners

Limited proactive clinical assessment of cutaneous photodamage due to perceived lack of value

Most GPs reported never proactively assessing cutaneous photodamage, and others reported only assessing photodamage when it is highly noticeable in patients or when it concerns high-risk patients. Reported reasons for these limited proactive cutaneous photodamage assessments were mainly a perceived lack of value and need due to the low risk of AKs, as well as a lack of time to perform an additional evaluation. In addition, they stated that it is not part of their routine or system, and they questioned whether this should be a task for GPs, as they are trained only to respond to the requests of patients.

However, some GPs are more actively involved in proactive cutaneous photodamage assessments and indicated either always discussing cutaneous photodamage with patients or conducting assessments when they believe they are necessary. In contrast to other GPs, they consider this practice to be of great importance.

> *"No, or it has to be something melanoma-like, but if it is just actinic, no, that is not part of my routine. (…) The risk is also very low, only a few per cent." (GP interview 7)*

> *"In specialist training GPs are trained to do anamnesis to identify the request and if you then discuss something different with the patient, well, that is then of course the opposite of what you are taught. The patient is not coming for the keratosis, but of course you can say 'I see you are a sun lover, I think it is wise to have your skin check sometime'. But that is not in our standard for now, no I don't think GPs do this." (GP interview 18)*

Varying but mostly clinical diagnosis of actinic keratosis

GPs seem to vary in their method of diagnosing AK. Most GPs reported AK to be a clinical diagnosis and to start treatment pragmatically. Ineffective treatment may subsequently be a reason to perform a biopsy or to refer to a dermatologist. Some GPs mentioned never using biopsies and always referring patients to a dermatologist as they do not treat patients with AK themselves. Reported motives for not performing a biopsy were the perceived lack of added clinical value, the lack of experience with performing biopsies, unnecessary additional costs, the need to treat a patient twice (i.e. biopsy and subsequent excision in case of malignancy), the feeling of 'messing around' with a malignant tumour, and not wanting to treat it anyway.

However, other GPs stated using a biopsy as a diagnostic tool for confirming AK on a more regular basis and even promoting the use of biopsies among colleagues. Low costs and receiving a definitive diagnosis on short notice were also mentioned as reasons to perform a biopsy. Other motivations were the direct learning effect of a biopsy and that it may

increase the patient's motivation regarding treatment. Other diagnostic tools reported by GPs used in the diagnosis of AK were (tele)dermatoscopy and teledermatology.

> *"I depend on my safe–unsafe feeling, that's how it works. And eh, does it need to be removed or not, and that differentiation seems to work better most of the times than to have a very specific diagnosis." (GP interview 2)*

> *"When in doubt, to be sure. It is of course low cost and then you know what it is. I wouldn't dare to just use cryotherapy and say oh it will be all right." (GP interview 1)*

Use of cryotherapy as the main therapy due to a lack of experience with alternatives

GPs seem to vary in their treatment of AKs. While some GPs stated that they treat most patients themselves and only refer certain cases, others reported that they instantly refer all patients with AK to a dermatologist. Motives to refer patients are the lack of a primary care guideline (and therefore a lack of knowledge and confidence to treat AKs), believing that GPs should not be administering cryotherapy or topical treatments, and the need for a dermatologist to propose the indication for treatment. Other factors that were reported to influence referral included treatment failure, uncertainty about the diagnosis, extensive or progressive AK, AK located on the face, patients with a history of skin cancer and patient preferences.

GPs treating patients with AK reported cryotherapy as the main treatment modality. Some GPs reported cryotherapy to be the only treatment modality used regardless of AK extensiveness because they lack knowledge, experience and/or competence regarding other therapies. However, some GPs stated a willingness to add topical field treatment to their therapeutic arsenal if they received clear instructions such as guidelines for use.

A smaller group of GPs reported using various treatment strategies, including topical drugs. They mentioned using cryotherapy when AK is less extensive or due to reservations regarding therapy compliance. When AK is extensive or after cryotherapy is ineffective, these GPs reported preferring topical treatment. When choosing between different treatment modalities, some GPs reported taking into account associated costs and patients' age and preferences. Furthermore, it was mentioned that AKs might be excised if this is requested by the patient.

> *"Those AKs, with that cream I think we are not allowed to prescribe that, right, that Aldara. That's what I thought. (…) I also think we are not supposed to apply nitrogen." (GP interview 21)*

"Sometimes the AK is so extensive, then I need to dip his whole head in nitrogen. Eh, yes or treat it with topicals, such like Aldara, but I don't feel competent to treat such large areas, so those patients I tend to refer to a dermatologist." (GP interview 9)

"In principle I do the treatment myself, and when despite that it's coming back or is very persistent, I refer to a dermatologist for example for Efudix treatment. And I don't do that myself because I do not have any experience with that. I know that it often gives blisters and that kind of things, and that's why I don't do it, but maybe if I could get training for that that I might be able to do it." (GP interview 19)

"We [in our GP practice] always treat AK ourselves, only when it is an extreme large area such its total head, or three-quarters of the thoracic region what we last saw, then we don't do it. But the average patient with smaller areas, mostly on the head, we do the treatment ourselves. And depending on the shape, size and sharpness of the edges we sometimes use cryotherapy, and often Efudix or Picato." (GP interview 3)

Variable and mainly patient-driven follow-up care

GPs seem to vary in their follow-up schedules for patients with AK in terms of both frequency and content of follow-up. Some GPs stated opting for a clear follow-up schedule (although with varying frequency) because AK is a chronic skin condition, which they believe requires monitoring, and given the risk of AK progressing into squamous cell carcinoma. Other GPs place the responsibility in the hands of the patient and do not schedule regular follow-up visits, due to the perceived lack of value of follow-up care given the low risk of AK and its time-consuming nature or because they believe it will result in over diagnosis. Additionally, GPs stated a lack of knowledge on what is needed for AK follow-up care.

Regarding the content of follow-up visits, some GPs reported conducting full-body skin examinations (FBSEs), while others reported not performing them due to a perceived lack of value or because it is too time-consuming within their already restricted consultation time. Furthermore, some GPs mentioned that they do not feel competent to perform an FBSE, and it would offer false security to the patient as the GPs question the quality of the FBSE. However, GPs performing FBSEs advocate the notion that skin cancer does not only occur on sun-exposed areas; therefore, there is a need to check all of the skin.

"It is the question whether it [FBSE] is necessary. The patients also come to you the first time, so they have found it themselves. And eh, so to check everyone, well, I think that that would be just over diagnosing. I think that would be way too time-consuming." (GP interview 5)

"Yes, I do follow up on it. And I also explain prevention, like wearing hats, use SPF. But I mean, I order them back often. (…) Actually more from moment to moment. It is not that I have a clear schedule, but when I think it is becoming less, then I say like 'you know, see how it goes and if it comes up again then you can come back'. I don't have a special guideline for this." (GP interview 22)

"No, well yes, maybe it [not performing a FBSE] has to do with the hesitation and the idea of then I might miss things, kind of false security." (GP interview 4)

"It is not always the case that they [cutaneous (pre)malignancies] are on sun-exposed areas. Because it is still the question if it is related to UV exposure, we don't know this for sure yet, we think it is but it is still questioned. It is often located on places the sun doesn't reach." (GP interview 1)

Need for a primary care skin cancer guideline in actinic keratosis management

GPs expressed a high need for guidelines in AK (and skin cancer) management in primary care due to a perceived lack of knowledge on AK management. The GPs mentioned that guidelines would influence their management of AKs, reduce unnecessary referrals and increase the proportion of patients treated in primary care. However, they also stated that implementation depends on the type and interest of the GP and that a guideline on its own would not be sufficient to make a difference. Therefore, GPs commented that the issuing of the guideline must be accompanied by education.

"Now you have to depend on if it is your own hobby how far you go with it. And now there are clear guidelines what you could do and maybe can take you a step further that you do now, such as with Efudix cream for instance what you can do with that. GPs are hesitative with that." (GP interview 6)

"It is a good case there is a guideline for primary care coming. (…) It is important business, and eh dermatology, I think that for many GPs it keeps being tough, ehm look, we see the whole iceberg. And the dermatologist only sees the tip of the iceberg. We need to separate the chaff from the wheat, and that makes it hard." (GP interview 16)

"Primary care has a very broad spectrum, and there are many guidelines. What we have seen in the past 20 years is that with every issuing of a new guideline, primary care has shaped itself around that guideline. And ehm, I expect that this suspicious lesions guideline will give some direction to what GPs will offer in general, but there will always be GPs who don't like it, and that will stay the same. Also if the guideline will say

they can do it, I don't think they will naturally. So it depends on what type of GP you are, do you like it, can you do it. Well, everybody has their own specialty." (GP interview 3)

Dermatologists

Proactive clinical assessment of cutaneous photodamage is generally pursued

Whereas some dermatologists reported never failing to conduct a clinical assessment of cutaneous photodamage proactively, others restrict this to high-risk patients or to patients with obviously photodamaged skin. In general, dermatologists reported pursuing proactive photodamage assessment in every patient. However, whether to conduct an assessment constitutes an internal struggle. On one hand, they stated experiencing barriers in terms of time restrictions and increasing waiting lists. On the other hand, they do not want to make mistakes and want to provide the best possible care.

"You always look at it, but it is not like…there is too little time to fully undress everyone, and do an FBSE." (Dermatologist interview 9)

"Yes look, if someone consults me for varicose veins and I look at those legs and a half year later that person appears to have metastasized melanoma on the leg, then I think that I have dropped a few stitches. And that is not going to happen to me of course." (Dermatologist interview 7)

Guideline-driven choice of treatment and taking into account patient preferences

Dermatologists generally reported treating AKs using a wide range of treatment modalities, but some stated that they do not treat all AKs (or patients) due to the low risk of AK progression.

Regarding the underlying motives concerning treatment choices, dermatologists generally indicated that treatment is guideline driven, taking into account factors such as AK extensiveness, location, costs, season, prior effects and side-effects. In addition, patient factors and, in particular, patient preferences were stated to play an important role. Patient factors that were said to influence the choice of treatment were age, sex, cosmetics, burden for the patient and patient motivation. With respect to patient preferences, dermatologists reported often applying shared decision making when choosing a specific treatment. Dermatologists mentioned that patients with AK increasingly comprise a younger group who in general want to be (more) involved in decision making. According to some dermatologists, shared decision making also improves patients' compliance to therapy and keeps patients satisfied.

Dermatologist

"I also do nothing often, so then I think, yes."

Interviewer

"What is the reason for that?"

Dermatologist

"You can also just keep an eye on it, and not treat it. Basically it is not an early stage, more a precursor, so it does not necessarily becomes skin cancer." (Dermatologist interview 9)

"It is customized. It depends on the patient, the lesion, if it is solitaire or multiple, the localization." (Dermatologist interview 15)

"There are also guys that don't want to use topical creams because it hinders them, they are just not that into creams. They just say, I'm not interested, just do 30 times cryotherapy and I'll come back more often. (…) If you want patients to come back, you need to take their preferences into account. Of course within limits." (Dermatologist interview 7)

Patient-driven extensive follow-up regimens

Dermatologists mentioned risk differentiation (in relation to the extensiveness of AK) to determine follow-up schedules, although follow-up is often extensive and, in some cases, lifelong. Aside from risk differentiation, dermatologists indicated follow-up regimens to be largely patient driven (e.g. patient preferences, patients being used to follow-up consultations, patients who are less capable of checking themselves), often resulting in extensive follow-up schedules. In addition, they mentioned checking younger patients more extensively than older patients. Extensive photodamage is also reported to be a factor in opting for more extensive follow-up schedules. However, some dermatologists attribute the responsibility exclusively to the patient or GP. They argued that it is unnecessary to perform follow-up checks for these patients and believe it is not manageable to keep all patients with AK in secondary care.

Other factors influencing follow-up regimens according to dermatologists are doubt about the presence of squamous cell carcinoma and having prescribed topical treatments. Furthermore, dermatologists reported that financial incentives might contribute to more extensive follow-up; however, they noted this to be the case only for their colleagues and not for themselves.

Interviewer

"How often do you see patients for follow-up?"

Dermatologist

"Often those patients come back once a year. (…) They are kind of used to it, I try to discharge part of them, because part of them can easily go to the GP, but well,

I have a lot of people who come to the dermatologist on a yearly basis at their own request." (Dermatologist interview 9)

Interviewer

"If it is just one lesion, what is your follow-up policy?"

Dermatologist

"Well then it is one follow-up visit, ehm mostly after like 8 weeks, to evaluate the treatment effect. And after that they don't need to come back. If patients have like really chronic multiple AKs, then they come back few times a year, sometimes once per 6 months, but we mostly try once a year". (Dermatologist interview 14)

"My colleagues have done it [more follow-up then recommended by the guideline], also to gain more income with it." (Dermatologist interview 9)

Need for improving skin cancer management including actinic keratosis in primary care

As a result of the high and increasing burden of AK, dermatologists suggested that GPs need to recognize their role in the prevention of skin cancer and that the quality of AK management in primary care needs to be improved. According to dermatologists, this could be achieved by expanding skin cancer education in general, which also covers the management of AK. Further mentioned in this respect were the use of biopsies in cases of diagnostic uncertainty, increasing patient screening in the form of proactive clinical assessment of cutaneous photodamage, and the use of a cryospray to apply cryotherapy instead of a cotton-tipped dipstick.

"Look, I think that those patients with only a few lesions, that they don't need to come to us for that. We are too expensive for that so you need to leave it up to the GP. But you know, they have a different cryo apparatus with a thing, eh, they actually need to have something better, that you know what they are doing, eh, and I would say some better cryo apparatus. I don't know what the evidence is of applying nitrogen with a stick or with a different apparatus, but instinctively I would say the other is better." (Dermatologist interview 1)

DISCUSSION

This qualitative study confirms the previously found quantitative variation in AK management within and between primary and secondary care[12] and reveals the underlying motives reported by GPs and dermatologists. In contrast to dermatologists, GPs reported

limitedly conducting proactive clinical assessment of cutaneous photodamage, mainly due to a perceived lack of value. Cryotherapy was indicated to be the main and, for some, the only treatment modality among GPs due to lack of experience with alternatives. In addition, treatment choices of dermatologists seemed to be more guideline driven; dermatologists reported taking into account the risk differentiation, patient preferences and other patient factors. Follow-up care seemed to vary largely among both GPs and dermatologists and was reported to be mainly patient driven. Particularly in secondary care, patient preferences were reported to result in more extensive follow-up schedules.

GPs reported variations in diagnosing AK and in determining treatment and follow-up schedules. Whereas some of the GPs seemed to perform structured and guideline-conforming AK management, others reported less familiarity with different aspects of AK care. A commonly reported motive to diverge from guidelines or refer to secondary care was a lack of knowledge and experience. For example, the need for a diagnostic biopsy was reported as a reason for referral by many GPs. In addition, many GPs reported using only cryotherapy (which is generally available in Dutch primary care practices) due to a lack of experience with other treatment modalities. This is consistent with the findings of a previous quantitative study on AK management, showing that GPs use limited treatment modalities.[12]

The perceived lack of knowledge and experience of AK among GPs is probably related to limited education on skin cancer management in GP training and may lead to a sense of feeling unqualified to perform skin cancer care.[23-25] Investing in improving GPs' knowledge of AK may increase GPs' confidence in performing AK and skin cancer care and subsequently lead to more standardized and uniform AK management in primary care. Additional training and promoting awareness among GPs was previously shown to result in GPs having a larger role in the treatment of AK and fewer referrals to secondary care.[25-28] In countries with dedicated and specialized GPs, such as Australia and the U.K., GPs are more engaged in the management of AK.[26-28] Especially with the challenges regarding ageing populations and rising numbers of patients with AK, strengthening primary care physicians' roles may provide opportunities to relieve the overburdened secondary care setting.[12, 25-30]

GPs indicated conducting limited clinical assessments of cutaneous photodamage proactively, which is consistent with the current primary care guideline on 'suspicious cutaneous lesions', which does not include recommendations concerning proactive cutaneous photodamage assessments.[10] Reported underlying motives consist mainly of a perceived lack of value and time, and also of doubt whether this should be a task for GPs. In contrast, dermatologists reported at least pursuing proactive photodamage assessment in every patient, as they believed this is an important aspect of care. Related to this is the reported difference between GPs and dermatologists in consistently conducting FBSEs, which has also been found in a previous quantitative study.[24]

In the current setting, Dutch GPs primarily respond to the requests of patients, which are mostly lesion directed and do not include active overall assessments of photodamage.

Although the risk of skin cancer and the need for treatment are low for those with solitary AK, both increase with the extensiveness of AK.[2, 6, 8, 10] Evaluating the patient's skin for overall photodamage when a patient presents with a single AK is therefore useful and may help GPs to determine which patients with AK can be treated in primary care and which should be referred to secondary care. Stimulating the implementation of the primary care guideline, in which conducting an FBSE is recommended[10, 31], combined with (continued) AK and skin cancer education, is therefore advocated to support GPs' vital role in this growing population.

Although dermatologists reported striving for guideline-driven care, patient preferences and other patient-related factors often seem to influence treatment choices. A recent study showed significant variation between patients regarding their preferred treatment for AK, and it was therefore advocated that patient preferences should be taken into account to increase treatment compliance.[32] With patient-centred care becoming increasingly important in modern medicine, integrating patient preferences becomes more important as well.[32-35] To facilitate dermatologists in managing patient preferences, a shared decision-making tool may be integrated within the AK guidelines.[36-38] Our study also indicated that patient preferences may often lead to extensive follow-up regimens among dermatologists; however, the AK guideline for secondary care advises to restrict follow-up only to high-risk patients.[1] As providing (extensive) follow-up care to patients with AK can be considered low-value care, efforts to reduce patients' need for follow-up care may be useful, for example by providing personalized patient information or changes in framing the information given by physicians.[39, 40]

The strength of this study is that it provides an in-depth understanding of healthcare providers' management of AK. Although previous quantitative research signalled specific AK practices in primary and secondary care, this qualitative study helps to reveal the underlying motives. Moreover, by interviewing both GPs and dermatologists, collating information of primary and secondary care provides a comprehensive overview of current opinions and views concerning AK care. Patient preferences were found to be important in physicians' motives to perform AK care. However, we did not include patients in our study as patients' perceived needs and preferences according to the physicians determine their practices.

A limitation to be considered in interpreting our findings is that the interviews were conducted immediately prior to the issuing of the primary care guideline. Although it is expected to have influenced GPs' behaviour to some extent, implementation of changes in practice can in fact take many years.[41-43] Guidelines are often not applied uniformly in practice, and the development of a guideline alone does not necessarily lead to a change in clinical practice.[42, 43] For example, if the value of AK management is considered to be low, GPs may not be inclined to follow guideline recommendations in practice. For the implementation of a guideline to be successful, multifaceted and barrier-driven interven-

tions are often needed (i.e. interventions that are based on a prior barrier analysis among the stakeholders), adapted to the preferences of the stakeholders.[19, 20] Finally, although this study is set within the context of the Dutch healthcare system, we believe our findings are also valuable to other countries dealing with similar AK issues, particularly those with comparable GP gatekeeper systems.

In conclusion, this qualitative study provides insight into the underlying motives of the current AK management of GPs and dermatologists. Adequate implementation of the primary care guideline combined with (continuing) AK education for GPs is needed to address the commonly reported barriers of lack of value, experience and knowledge. For efficient use of care among dermatologists, shared decision-making tools along with adequate (framing of) patient information may be useful.

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SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article at the publisher's website:

Appendix S1 Topic guides.

Appendix S2 Additional illustrative quotations.