A study to assess perceptions of, use of and training in dermoscopy among general practitioners

SHORT REPORT

Dr Jonathan Fee, Dr Finbar McGrady and Prof Nigel Hart.

Funded by: HSC R&D Division, Public Health Agency

EVIDENCE BRIEF

Why did we start?

Skin cancers are the commonest cancers diagnosed in UK and Ireland, and melanoma (the fourth commonest cancer) continues to rise in incidence. Melanoma is a time-critical diagnosis as survival rates decrease significantly as tumour thickness increases. Dermoscopy is a relatively new assessment tool that incorporates a microscope lens and light source to allow clinicians to take a closer and deeper look into a skin lesion than is possible with the naked eye. Dermoscopy has been shown to improves the diagnostic accuracy of the assessment of pigmented skin lesions. Dermoscopy has also been to improve the ability of GPs to triage skin lesions. However, GPs do not receive training to dermoscopy during their GP training, and it is unclear how dermoscopy is used in primary care at present.

What did we do?

Scoping reviews of published evidence were undertaken to establish what is known from the literature about how GPs use dermoscopy and how they are trained in its use.

A qualitative study was designed to examine the perceptions of GPs practising in Northern Ireland on dermoscopy. A purposive sample was taken of twelve GPs with a range of dermoscopy experience. Semi-structured interviews were carried out with participants. Audio-recordings of interviews were transcribed verbatim and data analysed using a thematic analysis (Braun and Clarke).

What answer did we get?

Scoping reviews revealed that GPs who used dermoscopy reported feeling more confident in analysing pigmented skin lesions, and in differentiating between cancerous and non-cancerous skin lesions. Dermoscopy training focussed on the assessment of pigmented skin lesions. Of studies that had reported diagnostic performance in a clinical setting after training, most studies showed statistically significant improvement, suggesting that training GPs in dermoscopy can improve their assessment of patients' skin lesions. No study in either scoping review was conducted in UK or Ireland. The qualitative study on factors influencing GPs' use of dermoscopy generated three major themes : (i) GPs' **capability** to use dermoscopy, which required adequate training and support, experience and an appropriate working environment; (ii) GPs' perceived the **clinical impact** of dermoscopy to be generally favourable; (iii) **acceptability** of dermoscopy in primary care was favourable, although there was concern about the perceived complexity of the technique.

What should be done now?

GPs have unmet training needs in dermoscopy. Including dermoscopy training in GP training programmes should be considered to encourage earlier exposure to the technique. Agreed competency standards for dermoscopy use should be developed to facilitate and guide training. Research to examine the cost-effectiveness of dermoscopy use by adequately trained GPs should be prioritised as this is currently unclear from existing evidence. Schemes to reduce the start-up costs of dermoscopy use in primary care need to be considered to facilitate its use among GPs.

BACKGROUND

"Melanoma writes its message on the skin with its own ink and it is there for all to see. Unfortunately some see but do not comprehend [1] ."

Melanoma of the skin is the fourth commonest cancer in Ireland with a 5-year survival of 84%, and its incidence continues to rise across the island[2,3]. Non-melanoma skin cancers are by far the commonest cancers diagnosed in UK and Ireland.[4] The diagnosis of melanoma is time critical, as survival rates rapidly decrease as the tumour thickens increases by even one or two millimetres.[2] Dermoscopy is a relatively new assessment tool that incorporates a microscope lens and light source to allow clinicians to take a closer and deeper look into a skin lesion than is possible with the naked eye. Dermoscopy has been shown to improves the diagnostic accuracy of the assessment of pigmented skin lesions [5]. Dermoscopy has also been to improve the ability of GPs to triage skin lesions.[6] However, GPs do not receive training to dermoscopy during their GP training, and it is unclear how dermoscopy is used in primary care at present.

AIMS AND OBJECTIVES

Research Aim

The overarching aim of this study was to assess how GPs use and are trained in dermoscopy, and to assess what factors influence their use of dermoscopy in clinical practice.

Research Objectives

- To assess, using a scoping review of published evidence, what is known about how dermoscopy is used in primary care.
- To assess, using a scoping review of published evidence, what is known about how GPs are trained in the use of dermoscopy.
- To examine, using a qualitative methodology, GPs' perceptions of dermoscopy and the factors influencing its use in primary care.

METHODS

A rigorous published methodology for conducting the scoping literature reviews was followed,[7] which included five steps: (i) identifying the research question, (ii) identifying relevant studies; (iii) study selection; (iv) charting the data; and (v) collating, summarizing and reporting the results.

A qualitative study was designed to examine the perceptions of GPs practising in Northern Ireland on dermoscopy, based on the principles of grounded theory: (i) an iterative study design, (ii) purposeful sampling, (iii) constant comparison, and (iv) theoretical sufficiency.[8] A purposive sample was taken of twelve GPs with a range of dermoscopy experience. Semi-structured interviews were carried out with participants. Audio-recordings of interviews were transcribed verbatim and data analysed using a thematic analysis (Braun and Clarke).[9]

FINDINGS

Scoping Review of GPs' Use of Dermoscopy

This scoping review identified seven studies, all observational in design, which had investigated the use of dermoscopy in General Practice, mostly by means of questionnaires. The use of dermoscopy by GPs varies between jurisdictions: dermoscopy use is higher in Australia [10], than in other advanced economies.[11,12]. In general it is a small minority of GPs who used dermoscopy. GPs who used dermoscopy reported feeling more confident in analysing pigmented skin lesions,[11] and in differentiating between cancerous and non-cancerous skin lesions.[13] No studies were published from UK or Ireland.

Scoping Review of GPs' Training in Dermoscopy

This second scoping review identified sixteen articles that had addressed GP training in dermoscopy. Ten dermoscopy training programmes were identified in the published literature. Live delivery and delivery via e-learning were equally popular, although the majority used more than one medium to deliver training. Live teaching was generally short. Training programmes varied in content, although all included the use of dermoscopy for the assessment of pigmented skin lesions, and most incorporated at least one dermatoscopic algorithm. The outcome measures reported in the studies were variable. Four studies examined competence in the assessment of dermatoscopic images and all reported significantly improved results with training. Diagnostic performance in the clinical setting was the most commonly reported outcome, and reached statistical significance in the majority of studies, suggesting that training GPs in dermoscopy will improve their assessment of patients' skin lesions. One study addressed the cost-effectiveness of dermoscopy in primary care and deemed its use to have an almost 100% chance of cost-effectiveness given an investment of €1000.[14] Again, no studies were published from UK or Ireland.

Qualitative Study of GPs' Perceptions of Dermoscopy

This empirical qualitative study assessed the factors influencing GPs' use of dermoscopy, including GPs' perceptions of dermoscopy use in primary care, the consequences of using dermoscopy in clinical practice, and GPs' perceptions of dermoscopy training. Three major themes were generated from the qualitative data. Factors influencing GPs' use of dermoscopy included GPs' **capability** to use dermoscopy, which focussed on the need for adequate training and support, experience and an appropriate working environment including access to dermatoscopes. GPs' perceptions of the **clinical impact** of dermoscopy was generally favourable, and it was considered to be of benefit within a GP consultation, within a wider GP practice, and more generally for the health service through better triage of referrals. Perceptions of dermoscopy's **acceptability** were generally favourable towards its use in primary care, albeit with caveats around how much of a priority adopting dermoscopy should be, and concern about the perceived complexity of the technique.

CONCLUSION

The results of two scoping reviews revealed a limited understanding of how GPs use dermoscopy and are training in its use. No published research in this area originated in UK or Ireland. A qualitative study of GPs' perceptions of dermoscopy found that while GPs are generally in favour of dermoscopy as a tool to improve their skin lesion assessments, they have several significant factors including unmet training needs, the start-up costs to using dermoscopy, and concern that they may unintentionally be considered a 'skin expert' by patients or colleagues.

PATIENT AND PUBLIC INVOLVEMENT

During the course of this project, the research team have developed a link with Gillian Nuttall, CEO of Melanoma UK, with whom the study was discussed, and who put us in contact with two lay representatives of her organisation for advice and direction. We will continue to work with these contacts to ensure that opportunities to disseminate findings to a lay audience are maximised. This work has also been presented to members of the PPI group PIER NI at a meeting, with findings and future directions of research discussed.

IMPLICATIONS AND RECOMMENDATIONS

Implications for Research

GPs recognise the need for proficiency in dermoscopy, but the definition of proficiency is unclear, as there are no agreed competency standards for dermoscopy use in the UK, either for GPs or for dermatologists [15,16]. GPs generally value a way of certifying or validating their competency in dermoscopy, and dermoscopy competency standards could be developed using recognised methodologies.[17]

The cost-effectiveness of dermoscopy use in primary care is not clear – while GPs assume that using dermoscopy would reduce their referrals to secondary care, this hypothesis would need to be tested in a trial. However GPs would need to be adequately skilled in dermoscopy prior to such a trial to ensure the validity of research findings.

GPs recognise that short study days in dermoscopy are not always sufficient for training purposes. Understanding how best to train GPs in dermoscopy would need to be the focus of future research.[18]

Implications for Policy

Many GPs believe that dermoscopy should be incorporated into GP training as it is in Australia.[19] Training bodies such as the Royal College of General Practitioners need to consider whether their

training programs furnish GPs with sufficient skill and experience to meet the needs of modern primary care services.

There have been calls for dermoscopy to become a standard piece of medical equivalent to a stethoscope that not only GPs but all qualified doctors have attained competency in using.[20] Some UK medical schools provide an introduction to dermoscopy to undergraduates,[15] and widening access to this across other centres should be encouraged. Early familiarity with the tool among future doctors may help to change the perception highlighted by some participants in this study that dermoscopy is complex and difficult to learn.

Mitigating the costs of dermoscopy and dermoscopy training is considered a priority for many GPs, many of whom report financial barriers as key deterrents to dermoscopy use. Previous initiatives to provide dermatoscopes to practices have been reported in the literature.[21] Similar schemes could be considered and implemented at relatively modest costs in other similar healthcare settings.

Implications for Practice

Patients seem to generally appreciate access to dermoscopy in primary care, and both dermoscopy users and non-users consider it a beneficial service to be able to provide within a practice. The Primary Care Dermatology Society recommends that ideally one GP in each practice would be able to use dermoscopy [22]. A small survey of GPs carried out recently in one UK region found that 62% of GP practices had at least one GP using a dermatoscope.[23] Practices should consider providing this service wherever possible.

Practices need to be mindful that dermoscopy use does not automatically make a GP a skin expert or even define a special interest in dermatology. Novice dermoscopy users in this study reported apprehension about being considered an expert by patients or other doctors in the practice, and care must be taken that this impression is not inadvertently given to patients where it is not applicable. Discussions at a practice level would be prudent to ensure that staff are aware of the level and limitations of a new dermoscopy user's skill, and to clarify the dermoscopy user's willingness to receive internal referrals within the practice for skin lesion assessments.

PATHWAYS TO IMPACT

To date, results from this project have been presented at the Association of University Departments of General Practice in Ireland (AUDGPI) and the Irish College of General Practitioners (ICGP) Joint Scientific Meeting, in Dublin in March 2019; the National General Practice Academic Clinical Fellowship & Early Career Medical Researchers Conference in Manchester in March 2019; the Healthcare Profession Education Research Conference at QUB in June 2019; and the Society for Academic Primary Care Annual Scientific Meeting in Exeter in July 2019.

Both scoping reviews have been published in peer-reviewed journals, one in Dermatology Practical and Conceptual, and the other in the Journal for Cancer Education. A manuscript of the qualitative study is being prepared for submission to a journal in the near future

ACKNOWLEDGEMENTS

My thanks go to:

HSC Public Health Agency Research and Development Division for funding this project;

Prof Nigel Hart and Dr Finbar McGrady for supervising this project;

The academic staff and postgraduate students at the Centre for Medical Education, QUB, for their advice and support;

Mr Richard Fallis, Medicine, Dentistry and Biomedical Sciences Librarian, for his expertise in formulating scoping literature review search strategies;

Prof Cliff Rosendahl, of the University of Queensland, for his guidance and expertise in drafting, revising and preparing the scoping literature reviews for submission for publication.

REFERENCES

1 Davis N. Modern concepts of melanoma and its management. *Ann Plast Surg* 1978;**1**:628–9. doi:10.1097/00000637-197811000-00017

2 Northern Ireland Cancer Registry. N. Ireland Cancer Registry: Malignant Melanoma Skin Cancer. 2017.http://www.qub.ac.uk/research-centres/nicr/CancerInformation/official-statistics/BySite/MalignantMelanoma/ (accessed 12 Feb 2020).

3 National Cancer Registry of Ireland. National Cancer Registry of Ireland. 2017;**2017**.https://www.ncri.ie/data (accessed 27 Sep 2017).

4 Northern Ireland Cancer Registry. N. Ireland Cancer Registry: Non-Melanoma Skin Cancer. 2017.http://www.qub.ac.uk/research-centres/nicr/CancerInformation/official-statistics/BySite/Non-MelanomaSkin/ (accessed 14 Mar 2018).

5 Rosendahl C, Tschandl P, Cameron A, *et al.* Diagnostic accuracy of dermatoscopy for melanocytic and nonmelanocytic pigmented lesions. *J Am Acad Dermatol* 2011;**64**:1068–73. doi:10.1016/j.jaad.2010.03.039

6 Argenziano G, Puig S, Zalaudek I, *et al.* Dermoscopy Improves Accuracy of Primary Care Physicians to Triage Lesions Suggestive of Skin Cancer. *J Clin Oncol* 2006;**24**:1877–82. doi:10.1200/JCO.2005.05.0864

7 Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol* 2005;**8**:19–32. doi:10.1080/1364557032000119616

8 Ng SL, Baker L, Cristancho S, *et al.* Qualitative Research in Medical Education: Methodologies and Methods. In: Swanwick T, Forrest K, O'Brien BC, eds. *Understanding Medical Education: Evidence, Theory, and Practice*. Hoboken, NJ, USA: : Wiley-Blackwell 2019.

9 Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006;**3**:77–101. doi:10.1191/1478088706qp063oa

10 Chamberlain AJ, Kelly JW. Use of dermoscopy in Australia. *Med J Aust* 2007;**187**:252–3.

11 Chappuis P, Duru G, Marchal O, *et al.* Dermoscopy, a useful tool for general practitioners in melanoma screening: a nationwide survey. *Br J Dermatol* 2016;**175**:744–50. doi:10.1111/bjd.14495

12 Morris JB, Alfonso S V, Hernandez N, *et al.* Examining the factors associated with past and present dermoscopy use among family physicians. *Dermatol Pract Concept* 2017;**7**:63–70. doi:10.5826/dpc.0704a13

13 Morris JB, Alfonso S V, Hernandez N, *et al.* Dermascope Use by Osteopathic Primary Care Physicians. *J Am Osteopath Assoc* 2017;**117**:158–64. doi:10.7556/jaoa.2017.030

14 Koelink CJL, Vermeulen KM, Kollen BJ, *et al.* Diagnostic accuracy and cost-effectiveness of dermoscopy in primary care: a cluster randomized clinical trial. *J Eur Acad Dermatology Venereol* 2014;**28**:1442–9. doi:10.1111/jdv.12306

15 Levell N, McHenry P. British Association of Dermatologists ' response to NICE query Clarification on dermoscopy training amongst appropriate healthcare professionals – NICE clinical guideline on the assessment and management of melanoma (GID-CGWAVE0674). 2015.http://www.bad.org.uk/official-responses (accessed 13 Dec 2017).

16 Reid C, Lim K, Henderson C. Clinical Practice The use of dermoscopy amongst dermatology trainees in the United Kingdom. *Br J Med Pract* 2018;**11**:a1110.

17 Galbraith K. *A real-world competency framework for Evidence-Based General Practice*. 2018.

18 Jones OT, Jurascheck LC, Utukuri M, *et al.* Dermoscopy use in UK primary care: a survey of GP s with a special interest in dermatology. *J Eur Acad Dermatology Venereol* 2019;**33**:1706–12. doi:10.1111/jdv.15614

19 RACGP. The RACGP Curriculum for Australian General Practice 2011. 2011.http://curriculum.racgp.org.au/ (accessed 6 Dec 2017).

20 Rosendahl C. Dermatoscopy in general practice. *Br J Dermatol* 2016;**175**:673–4. doi:10.1111/bjd.14609

21 Montgomery BD, McMeniman E, Cameron SK, *et al.* Sex, pain and cranberries - ideas from the 2006 Registrar Research Workshop. *Aust Fam Physician* 2007;**36**:93–4.https://www.racgp.org.au/afpbackissues/2007/200701/20070129montgomery.pdf (accessed 8 Nov 2017).

22 The Primary Care Dermatology Society. Dermoscopy - an overview. 2019.http://www.pcds.org.uk/p/dermoscopy-purpose-of-dermoscopy-in-primary-care (accessed 30 Jul 2019).

23 Fee JA, McGrady FP, Hart ND. Dermoscopy use in UK primary care. *J Eur Acad Dermatology Venereol* Published Online First: 2019. doi:10.1111/jdv.15781