



History of Dermatology

Professor Rona MacKie, Scottish dermatologist and melanoma authority[☆]

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Introduction

Professor Rona MacKie is a world-renowned British dermatologist, best known for her extensive research on melanoma. This article will explore her main contributions to and advancements in the field.

Personal Life

Rona McLeod MacKie was born in 1940 in Dundee, Scotland, an only child. Her father, Norman Davidson, was a biochemistry professor at Glasgow University, and so she was familiar with academic life. She went to four schools before the age of 10 due to family moves, including Aberdeen and London, but finished her education at the Laurel Bank School for Girls in Glasgow (a private school; [University of Glasgow, n.d.b.](#)). The all-female environment, she thinks, encouraged and supported her to pursue her interest in maths and physics. In 1994, she married James Black, a famous Scottish pharmacologist and recipient of the Nobel Prize for medicine, awarded for his work on beta-blockers (leading to the development of propranolol) and for his work on histamine antagonists (developing cimetidine; [Sir James Black, OM, 2010](#)).

Professor MacKie's hobbies include spending time with her family, sport, and music. In particular, she gains huge pleasure from spending time with her five grandchildren, often taking them skiing and being "tail-end Charlie." She is also a keen golfer and hiker. Operatic music is another interest; she completed an external university degree in opera studies 10 years ago and supports a large number of opera companies in the United Kingdom while also serving on the board of the Scottish Opera for the past 6 years.

Professional Life

She studied at Glasgow University, holding the Oliphant Bursary in Medicine and graduating in 1963. The scholarship allowed her to pursue jobs that interested her rather than rely solely for income and supported her during her training. She then went on to earn her MD with commendation in 1970 and became a member of the Royal College of Physicians in 1971. She worked as a consultant dermatologist for the

Greater Glasgow Health Board (1972 to 1978) and also served as an Honorary Clinical Lecturer at the University of Glasgow. In 1978, she was awarded a Professorship, making her the first British female dermatologist to become a professor, and also the first female professor ever appointed at Glasgow University in any subject. While she is now retired from clinical practice, she remains active in research as a Senior Research Fellow in Glasgow's Faculty of Medicine ([University of Glasgow, n.d.b.](#)).

In 1983, she was awarded a lifelong fellowship of the Royal Society of Edinburgh (an organization aimed at stimulating and supporting research excellence across a wide range of disciplines, and also providing independent, authoritative advice on matters of national interest to Scotland; [Royal Society of Edinburgh, 2015](#)) in recognition of her research excellence, and became International Convener of this organization in 2002, responsible for all matters relating to the international activities of the society.

She served as editor of the *British Journal of Dermatology* from 1985 to 1988, helping the journal to commemorate its centenary in 1988 ([MacKie, 1988](#)) and correctly foreseeing the rise of computerized literature searches as well as significant changes in the handling and distribution of information. She also anticipated increasing subspecialization among dermatologists in the future, and urged vigilance for broader journals to remain relevant in the face of competition from subspecialist dermatology journals ([Mackie, 1988](#)).

She was appointed President of the British Association of Dermatologists for 1994 to 1995 ([British Association of Dermatologists, n.d.a.](#)), and President of the Scottish Dermatological Society for 1997 to 2000 ([Scottish Dermatological Society, 2015](#)).

In 1998, she helped to establish the Academy of Medical Sciences, an independent body responsible for promoting the diverse spectrum of medical science within the United Kingdom, and accordingly became a Founding Fellow of this organization ([Academy of Medical Sciences, n.d.](#)). Also in 1998, she was awarded the Sir Archibald Gray Medal by the British Association of Dermatologists for outstanding services to dermatology, one of only 28 dermatologists to receive this award to date ([British Association of Dermatologists, n.d.b.](#)). In 1999, she was further appointed Commander of the Most Excellent Order of the British Empire for services to melanoma research ([University of Glasgow, n.d.a.](#)).

She continues to serve on the scientific advisory board of the Melanoma International Foundation, an organization established to ensure that scientifically sound guidance is freely available to medical

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professionals and patients across the world ([Melanoma International Foundation, n.d.](#)).

Research Interests

While Professor MacKie has published on myriad topics—ranging from a comprehensive undergraduate textbook on clinical dermatology ([MacKie, 1997](#)), to textbooks specifically focusing upon pediatric dermatology and dermatopathology ([MacKie, 1982](#)), to self-help books for patients with eczema ([MacKie, 1983a](#)), to a guide to inflammatory skin conditions for pharmacists ([Whatley and MacKie, 1991](#))—her major interest focuses upon melanoma.

Commencing in 1971, she has thus far published 185 articles on the topic. Aspects of her research helped to answer important clinical questions that are today considered established fact by the worldwide dermatology community.

Diagnosis and triage

Professor MacKie was one of the first to stimulate interest in dermoscopy, publishing on the usefulness of the desktop microscope as an aid to the diagnosis of pigmented lesions ([MacKie, 1971](#)).

She challenged contemporary practice in the follow-up of postoperative melanoma patients in the early 1980s, and advocated that they should undergo complete skin examination rather than a quick inspection of the excision site and palpation of the draining lymph node basin ([MacKie, 1990](#)). She also challenged the contemporary view that melanocytic naevi on the palms, soles, and genitalia are most likely to undergo malignant change ([MacKie, 1990](#)).

Calling upon her own earlier work on risk-factors for melanoma, she developed and subsequently refined a seven-point checklist to assist family doctors and patients in the timely recognition of early invasive malignant melanomas, which is still in widespread usage today ([MacKie, 1990](#); [MacKie and Doherty, 1991](#)). She advocated that a checklist with high sensitivity was important, even at the price of some specificity.

Etiology

Working with the Scottish Melanoma Group, MacKie performed multiple case-control studies that demonstrated that intermittent intense sun exposure inducing sunburn, rather than continuous linear exposure, is a risk factor in the development of malignant melanoma ([MacKie, 1983b](#); [MacKie and Aitchison, 1982](#)).

As remarkable as it may sound to the modern dermatologist, fluorescent lighting had been suggested in some studies in the early 1980s as a possible risk factor for melanoma ([Swerdlow et al., 1988](#)). However, additional case-control studies by MacKie and others thankfully showed this to be highly unlikely, although they did suggest that ultraviolet sunbeds could be a significant risk factor ([Swerdlow et al., 1988](#)).

She also worked on a further case-control study showing that the risk of melanoma is strongly related to overall numbers of benign melanocytic naevi, and advocated that such people should be warned about recognizing early melanoma and risk factor avoidance, especially exposure to ultraviolet radiation ([Swerdlow et al., 1986](#)). Subsequently, using conditional logistic regression, she identified the four strongest risk factors for developing cutaneous melanoma as total numbers of benign naevi, freckling tendency, numbers of clinically atypical naevi, and history of severe sunburn at any time in life. Using this, she developed a personal risk factor chart, for use both by medical professionals and by the general public, to facilitate preventative advice and surveillance of those at greatest risk ([MacKie et al., 1980](#)).

By extension, she showed that children who had undergone chemotherapy for hematological malignancies often developed excessive

numbers of melanocytic naevi, and that it would therefore be prudent for them to undergo regular skin examination ([Baird et al., 1992](#)).

She was also involved in molecular work, showing, for instance, that N-Ras mutations are not specifically associated with melanomas arising on continuously sun-exposed skin ([Carr and MacKie, 1994](#)).

Prognosis

As part of her work with the Scottish Melanoma Group, she was involved in the long-term surveillance of patients diagnosed with melanoma in Scotland in the 1970s and 1980s. Using sophisticated analyses, she was able to determine that the most important prognostic factors were tumor thickness, ulceration, and gender ([MacKie et al., 1995](#)). She also showed that there was no evidence to support so-called checkpoint or transition thicknesses ([Keefe and MacKie, 1991](#)). Another interesting aspect of this work showed that while the incidence of cutaneous melanoma is greater among the more affluent, their prognosis is better than for the less affluent, and this could only partly be explained by earlier diagnosis and treatment ([MacKie and Hole, 1996](#)).

In the mid-1980s, she noted that a greater proportion of British patients tended to present later compared to other developed countries, with thick, poor-prognosis lesions, owing to delayed presentation, and that this probably accounted for the poorer survival in the United Kingdom compared to elsewhere ([Doherty and MacKie, 1986](#)).

Public health

In June 1985, she played a pivotal role in establishing a public health campaign in Scotland that aimed to both update general practitioners and enhance awareness among the general public. It resulted in a significantly greater proportion of thinner, better prognosis tumors being referred, ultimately leading to a documented reduction in mortality ([MacKie and Doherty, 1988](#); [MacKie and Hole, 1992](#)).

She also publicized the possible health effects of further ozone depletion among the dermatology community, alongside the head of the British Antarctic Survey, and was a strong advocate for reducing the production of chlorofluorocarbons ([MacKie and Rycroft, 1988](#)).

Treatments

MacKie was involved in multiple trials focusing upon treatment for metastatic melanoma, including isolated limb perfusion ([Scott et al., 1992](#)), and in evaluating the role of elective regional lymph node dissection in patients with cutaneous melanoma without any clinical evidence of metastatic spread ([Cascinelli et al., 1998](#)).

Mentoring

Professor MacKie has mentored a large number of dermatologists and scientists, both men and women, throughout her career. She has supported women in training during their periods of maternity leave, helping with the planning required for both the individual and the service employing them. Personally, she feels her most successful mentoring has been with her daughter, who is now a senior consultant in palliative care in the West of Scotland Oncology Centre. Her daughter works incredible hours in a highly charged atmosphere while still finding time for her three sons and her gorgeous garden.

Conclusion

Professor MacKie deserves recognition as one of the foremost figures in melanoma epidemiology, diagnosis, and prognostication from the early 1980s to 2000s. Much of what is considered factual with regard to melanoma by today's dermatologist was first established by her.

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