

ORIGINAL RESEARCH

Patch testing in New Zealand: Barriers to evidence-based care

Sabrina Sapsford¹  | Harriet Cheng^{1,2}  | Lissa Judd³ 

¹University of Auckland, Auckland, ²Department of Dermatology, Auckland District Health Board, Auckland, and ³Anywl Specialist Medical Centre, Wellington, New Zealand

ABSTRACT

Allergic contact dermatitis is a disabling condition, significantly impacting on quality of life, which can only be alleviated by identification and avoidance of a relevant allergen. Patch testing remains the gold standard diagnostic test for allergic contact dermatitis. The consistency with which patch testing is used varies throughout the world. The purpose of this study was to look at the adequacy of current patch testing practice in New Zealand. We undertook literature review of current guidance regarding patch testing and created a web-based survey to evaluate use of patch testing in New Zealand. This was sent to all 75 vocationally registered New Zealand dermatologists. Of respondents, 46% do not perform patch testing. The most commonly cited barriers were lack of nursing support, poor remuneration, time pressure and lack of facilities. 23% noted that public patch testing services are not available in their region. The majority do not record patch test results in a database. Access to and utilisation of patch testing in New Zealand is suboptimal. Increasing services in the public sector requires investment by health boards, as there remains a dermatology workforce shortage in New Zealand. In private practice, patients often find it unsatisfactory to pay for negative tests, and adequate remuneration of patch testing by private insurers is necessary. Surveillance of patch test results at a national level is lacking, and the development of a centralised database to identify common allergens affecting our population is recommended.

Key words: dermatitis, allergic, contact, dermatitis, contact/diagnosis, dermatitis, contact/prevention & control, patch tests/methods.

INTRODUCTION

Allergic contact dermatitis is a disabling condition, with significant impact on quality of life, which can only be alleviated by identification and subsequent avoidance of relevant allergens.¹ Contact dermatitis is an unexpectedly high cause of morbidity in many populations. A recent European study estimates up to 20% of the German population is affected by contact dermatitis.² Seventy-nine per cent of reported occupational skin disease in the UK is contact dermatitis.³ The American Academy of Dermatology estimates contact dermatitis resulted in costs of more than \$1.5 billion in 2013.⁴

Patch testing remains the gold standard diagnostic test for allergic contact dermatitis.⁵ However, it can be a time-consuming test requiring dermatology expertise and the consistency with which patch testing is used varies throughout the world. In Australia, a recent study indicated the rate of patch testing is inadequate.⁶

The purpose of this study was to investigate how patch testing was incorporated in New Zealand (NZ) dermatology practice with regard to both access to testing and patch testing methodology.

MATERIALS AND METHODS

A literature review of current patch testing guidelines was conducted using Medline with search terms including 'Dermatitis, patch testing, contact allergy' with an emphasis on current international patch test guidelines and review articles. After literature review, a web-based survey was designed and sent to NZ dermatologists (Appendix 1).

Survey answers were anonymous, and completion was voluntary. Data were collected about scope of practice, current patch testing practice, referral for patch tests and potential barriers to testing. For those performing patch

Correspondence: Sabrina Sapsford, University of Auckland, 95 Grafton Rd, Auckland 1142, New Zealand. Email: sabrina.sapsford@auckland.ac.nz

The authors received no financial support for the research, authorship and/or publication of this article.

The authors declare that there is no conflict of interest.

Sabrina Sapsford, MBChB. Harriet Cheng, FRACP. Lissa Judd, DipOHP DIH FAFOEM.

Submitted 15 July 2020; accepted 5 August 2020.

testing, we asked regarding choice of baseline series, additional series added, testing patient's own products, recording of results and test outcomes. Responses were collated and analysed using Microsoft Excel.

RESULTS

Forty eight (64%) of the 75 NZ dermatologists responded; not all answered all questions. 42% worked solely in private practice, 10% only in public hospitals and the remainder worked in a mixture of public and private practice. Respondents were predominantly from the major centres of Auckland (44%), Christchurch (21%), Wellington (10%), Hamilton (8%) and Tauranga (8%). 10% worked in other regions.

Only 54% of responders performed patch testing in their practice, with some also referring for patch testing in the public sector. In total, 67% referred for patch testing (Figure 1). However, the numbers actually referred were small; 42% respondents referred <2 patients per month for patch testing, and 35% referred 2-4 patients per month. This is despite the majority of respondents reported 10-20 cases of dermatitis/eczema seen per week.

We asked respondents to rank the barriers to patch testing in order of importance. There were many barriers to patch testing identified; lack of nursing support, remuneration and time were the most commonly cited (Figure 2). Other reasons included difficulty obtaining needed allergens and materials, long waiting times, strict referral criteria in public system, minimal patch test exposure during dermatology training and poor understanding of contact allergy and patch testing amongst patients and primary care providers. Difficulty scheduling appointments for readings when working part-time was also noted as a barrier.

Of the 48 responses, 28 answered the question asking which baseline series was used. All respondents used either the Australian baseline series, ($n = 12$) European baseline series ($n = 11$), T.R.U.E (Thin-Layer Rapid-Use Epicutaneous) tests ($n = 4$) or a combination of these. British guidelines suggest adding supplemental series and

testing patients' own products depending on the history and the majority of respondents do this.¹ Seventy-eight per cent add supplemental series and 66% regularly test patients' own products. Of patient's products tested, those most commonly added are moisturisers and cosmetics.

Seventy-five per cent do not formally record results in a database. Of the respondents who do record their data, 60% do so manually. Others use spreadsheets, hospital software and scanned letters.

DISCUSSION

Patch testing for contact dermatitis is useful and can improve quality of life.⁷ The suggested optimum rate for patch tests is 1416 per million population per year.⁸ Comprehensive testing with supplemental specialised series' and patients' own products have been shown to improve diagnostic yield.^{9,10,11} However, comprehensive patch testing is time-consuming and requires specialist dermatologist expertise and nursing support. These aspects likely contributed to the findings in Australia which showed patch testing to be under-utilised.⁶ Our results show this to also be the case in New Zealand. Just over half of respondents (54%) routinely perform patch testing.

Perceived barriers to patch testing were numerous, but lack of nursing support was the most commonly cited reason. Preparation and application of patches is laborious and requires meticulous attention to detail and nursing support is valuable for this aspect of testing as well as enhancing patient education. Insufficient remuneration and time were also commonly reported barriers in our survey. In the Australian study, the main barriers were staffing, cost of materials and remuneration.⁶ Of interest, this study found increased use of T.R.U.E test compared to our study. The T.R.U.E test was FDA approved in 1995, it is convenient to use and subsequent patch testing rates increased in the United States. However, because it only tests a limited number of allergens, T.R.U.E tests are less sensitive than comprehensive patch testing.¹² The majority of our respondents used either the Australian or European baseline series'. It is not known which baseline series is most appropriate for the NZ population and an evidence-based NZ baseline series is currently not available.

The health system in New Zealand includes government subsidised health care in the public sector with patient/insurance funded care in the private sector. Interestingly a proportion of our responders reported no access to public hospital patch testing, this likely reflects both the dermatology workforce shortage in New Zealand as well as gaps in organised centralised care for patch testing in larger centres. Given that contact dermatitis disproportionately affects working class individuals, who may be less able to fund testing in the private sector, this is an example of the health inequalities pervasive in New Zealand. In Australia, the majority of patch testing is done in private practice, where a Medicare rebate provides a partial cost subsidy to the patient.

We found no uniform approach to documenting the results of patch testing with use of manual recording,

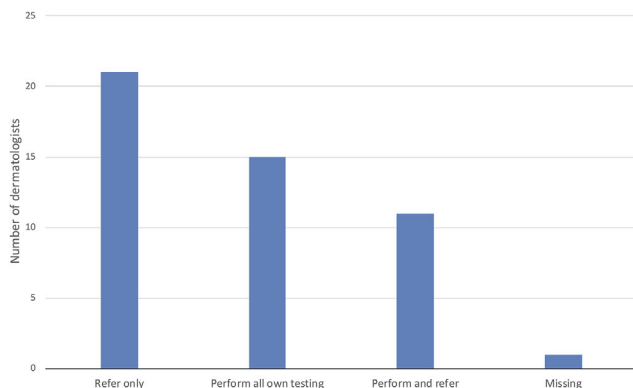


Figure 1 Proportion of New Zealand Dermatologists performing or referring for patch testing ($n = 48$).

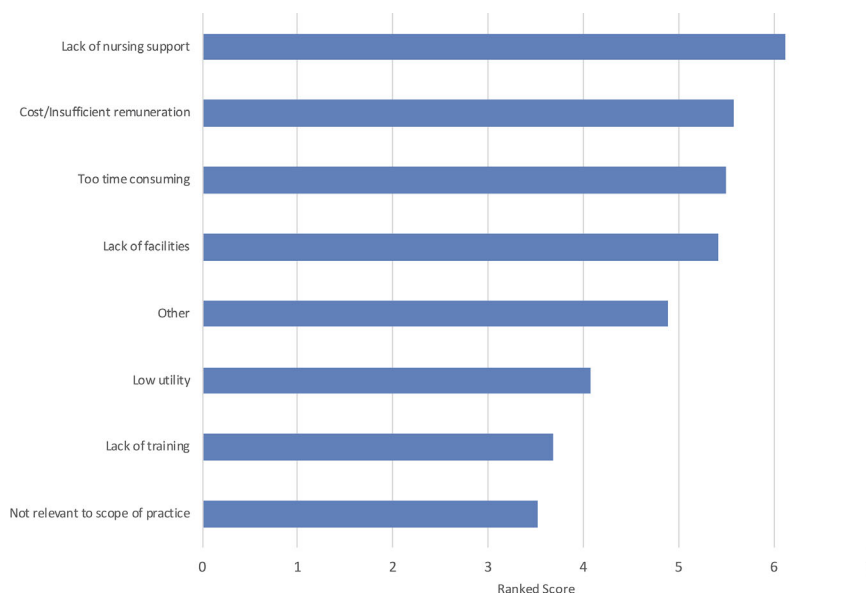


Figure 2 Barriers to patch testing reported by New Zealand dermatologists.

spreadsheets, hospital software and scanned letters as means of recording data. Ideally, a national database to record results would allow for ongoing surveillance of contact allergens in NZ. In Australia, a contact allergy bank has been established which makes comprehensive testing more user friendly.⁶ Supply of allergens via a centralised contact allergen bank improves access to and convenience of testing for those in smaller centres, or centres with less on-site nursing support.

Limitations of this study include the small number of responders (reflecting the small number of dermatologists in NZ). Those with interest in patch testing were more likely to respond, and this may conversely have led to an overestimation of the rates which dermatologists in NZ undertake patch testing. Data on the number of patients patch tested are difficult to capture as we do not have a Medicare item number for patch testing as in Australia. Finally, a higher proportion of respondents work in the public sector and private sector activity is therefore under-represented.

In summary, despite the important role of patch testing, patient access to testing in NZ is inadequate due to the small number of dermatologists performing testing. The reasons for this are multifactorial, but lack of nursing staff, insufficient remuneration, time and lack of facilities remain the main causes of low uptake. A centralised contact allergen bank, similar to that in Australia, may overcome some of these issues. Improving access in the public sector would require investment by health boards in regions where dermatologists and patch testing are unavailable. Cost is a barrier in the private sector, and there is a need for recognition and remuneration of patch testing by private insurers. Finally, surveillance of patch test results, ideally at a national level, is required to identify common allergens affecting our specific population.

ACKNOWLEDGMENTS

The authors would like to thank the New Zealand dermatologists who participated in our survey.

REFERENCES

1. Johnston GA, Exton LS, Mohd Mustapa MF *et al.* British Association of Dermatologists' guidelines for the management of contact dermatitis 2017. *Br. J. Dermatol.* 2017; **176**: 317–29.
2. Mahler V, Geier J, Schnuch A. Current trends in patch testing - new data from the German Contact Dermatitis Research Group (DKG) and the Information Network of Departments of Dermatology (IVDK). *J. Dtsch Dermatol. Ges.* 2014; **12**: 585–92.
3. *Health and safety statistics: 2018 to 2019 annual release.* October 2019. <http://www.hse.gov.uk/statistics/index.htm>. Last accessed 1 June 2020.
4. Lim HW, Collins SAB, Resneck JS Jr *et al.* The burden of skin disease in the United States. *J. Am. Acad. Dermatol.* 2017; **76**: 958–72.e2.
5. Hebert AA, Nguyen QBD. *Atopic Dermatitis.* BMJ Best Practice. 2020. <https://bestpractice.bmj.com/topics/en-us/87>. Last accessed 1 June 2020.
6. Tizi S, Nixon RL. Patch testing in Australia: Is it adequate? *Australas J. Dermatol.* 2016; **57**: 192–8.
7. Zhu TH, Suresh R, Farahnik B *et al.* Survey of patch test business models in the United States by the American contact dermatitis society. *Dermatitis* 2018; **29**: 85–8.
8. Bhushan M, Beck MH. An audit to identify the optimum referral rate to a contact dermatitis investigation unit. *Br. J. Dermatol.* 1999; **141**: 570–2.
9. Watts TJ, Watts S, Thursfield D *et al.* A patch testing initiative for the investigation of allergic contact dermatitis in a UK allergy practice: a retrospective study. *J. Allergy Clin. Immunol. Pract.* 2019; **7**: 89–95.
10. Scheman A, Hylwa-Deufel S, Jacob SE *et al.* Alternatives for Allergens in the 2018 American Contact Dermatitis Society Core Series: Report by the American Contact Alternatives Group. *Dermatitis* 2019; **30**: 87–105.

11. Johansen JD, Aalto-Korte K, Agner Tet *al.* European Society of Contact Dermatitis guideline for patch testing-Recommendations on best practice. *Contact Derm* 2015; 73: 195–221.
12. Nelson JL, Mowad CM. Allergic Contact Dermatitis: Patch Testing Beyond the TRUE Test. *J. Clin. Aesthet Dermatol.* 2010; 5: 36–41.

APPENDIX 1

QUESTIONNAIRE

1. In which city or town do you practice?
2. Where do you practice Dermatology (public or private)?
3. If you practice in both settings, how is your FTE divided?
4. Do you routinely perform patch testing?
5. Which of the following reasons apply to your decision not to perform patch testing? Please rank in order of importance

Lack of facilities

Lack of nursing support

Cost/Insufficient remuneration

Too time consuming

Low utility

Lack of training

Not relevant to scope of practice

Other

6. If you answered 'Other', please explain

7. How many patients with eczema/dermatitis do you see on an average week?
8. How many patients per month do you patch test or refer for patch tests
9. Are public patch testing services available in your area
10. If you don't do patch testing yourself, do you refer for patch testing to public or private services or both
11. If you perform patch tests, which baseline series do you use eg European, Australian, TRUE tests. If more than one is used please rank in order of frequency
12. Do you ever add supplemental series to the baseline series based on the patient's history?
13. Do you routinely test patients' own products when patch testing?

If the answer is yes, can you please give examples; for example, own moisturisers, gloves etc.

14. Do you record patch test results in a database?
15. If yes, is this manual or electronic.
16. If your database is electronic, what do you use? For example; Excel, Word, other.
17. If you perform patch tests, in what percentage of patients was a relevant allergen found?
18. Do you routinely follow up patients after patch testing
19. If yes, what percentage of your patients achieve improvement or remission through avoiding relevant allergens
20. Please list any other comments regarding patch testing in New Zealand.