

Appendices

Appendix A

STROBE Guidelines Checklist for Observational Studies¹⁶

STROBE Statement—checklist of items that should be included in reports of observational studies

	Item No.	Recommendation	Page No.	Relevant text from manuscript (line no.)
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	1	1-2
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	1	6-16
Introduction				
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	1-2	19-31
Objectives	3	State specific objectives, including any prespecified hypotheses	2	32-36
Methods				
Study design	4	Present key elements of study design early in the paper	-	-
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	2	39-55
Participants	6	(a) <i>Cohort study</i> —Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up	2-3	57-62
		<i>Case-control study</i> —Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls	-	-
		<i>Cross-sectional study</i> —Give the eligibility criteria, and the sources and methods of selection of participants	-	-
Variables	7	(b) <i>Cohort study</i> —For matched studies, give matching criteria and number of exposed and unexposed	-	-
		<i>Case-control study</i> —For matched studies, give matching criteria and the number of controls per case	-	-
		Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	3	64-72
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	3	74-76
Bias	9	Describe any efforts to address potential sources of bias	-	-
Study size	10	Explain how the study size was arrived at	3	78-79
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	-	-
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	3	81-84
		(b) Describe any methods used to examine subgroups and interactions	-	-
		€ Explain how missing data were addressed	3	84
		(d) <i>Cohort study</i> —If applicable, explain how loss to follow-up was addressed	-	-
		<i>Case-control study</i> —If applicable, explain how matching of cases and controls was addressed	-	-
		<i>Cross-sectional study</i> —If applicable, describe analytical methods taking account of sampling strategy	-	-
		€ Describe any sensitivity analyses	-	-
Results				
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	3-4	87-91
		(b) Give reasons for non-participation at each stage	-	-
		© Consider use of a flow diagram	-	-
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	4-6	94-122
		(b) Indicate number of participants with missing data for each variable of interest	-	-
		(c) <i>Cohort study</i> —Summarise follow-up time (eg, average and total amount)	-	-
Outcome data	15*	<i>Cohort study</i> —Report numbers of outcome events or summary measures over time	6-7	125-142
		<i>Case-control study</i> —Report numbers in each exposure category, or summary measures of exposure	-	-
		<i>Cross-sectional study</i> —Report numbers of outcome events or summary measures	-	-
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	7-8	145-161
		(b) Report category boundaries when continuous variables were categorized	-	-
		© If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	-	-
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	8	162-165
Discussion				
Key results	18	Summarise key results with reference to study objectives	8	168-176
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	10	214-218
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	8-9	177-212
Generalisability	21	Discuss the generalisability (external validity) of the study results	10	227-237
Other information				
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	-	-

Appendix B

Healthline call outcomes

ED outcomes in this research include “111 Emergency”, “Emergency Department” and “111 for Transport Only” outcomes. All three outcomes advise a service user to go to the ED, the only difference being transport by an ambulance. Other outcomes discussed in this research involve advice to go to an urgent care clinic (“Urgent Care”), stay on call to speak with a Whakarongorau doctor/GP or other health professionals (“On Call Dr”), book an appointment with their GP (“GP”) and go to a pharmacy to speak with a pharmacist (“Pharmacist”). The “Other” outcome includes “General Information”, where a service user has sought information rather than needing health advice, and service users who have hung up mid-call or called the wrong number.

Table 1: Healthline and skin condition calls by outcome from 2019–2022.

Call outcomes	Healthline calls	Skin condition calls
111 Emergency	52,408 (3.7%)	406 (0.7%)
Emergency department	119,721 (8.5%)	2,735 (4.4%)
Ambulance for transport	16,102 (1.1%)	153 (0.3%)
Urgent care	242,321 (17.1)	11,785 (19.1%)
Queued for doctor (on call)	687 (0.0%)	46 (0.1%)
On-call practitioner	14,235 (1.0%)	887 (1.4%)
Other professional	18,286 (1.3%)	279 (0.5%)
GP	374,568 (26.5%)	26,680 (43.2%)
Pharmacist	11,304 (0.8%)	1,110 (1.8%)
Self care	248,930 (17.6%)	15,439 (25.0%)
General health info	121,764 (8.6%)	730 (1.2%)
Other	194,338 (13.7%)	1,534 (2.5%)
Total	1,414,664	61,876
%	100%	4.37%

Appendix C

Index of Multiple Deprivation 2018 (IMD18) data¹⁸

Deprivation of education is calculated using five indicators, which include school leavers who left before the age of 17 (1), those who did not gain Level 2 NCEA (2) and those who did not enrol in tertiary studies (3). The last two indicators involve the proportion of youth (aged 15–24 years) not in education, work or training (4), and finally, the proportion of the population without a formal qualification (5).¹⁸ The “access to services deprivation” involves the cost and distance of accessing services, including “*supermarkets, primary health care providers, service stations, early childhood centres and schools*”.¹⁸ Overall deprivation is calculated using seven indicators, including access to services, education, employment, income, crime, housing and health.¹⁸

Table 2: The district deprivation ranking by each social category; data provided from The University of Auckland.¹⁸ Each ranking is out of 20, making 20 the highest deprivation and 1 the lowest.

District	Income	Health	Access to services	Employment	Crime	Housing	Education	Overall
Auckland City	3	8	1	4	18	20	2	5
Bay of Plenty	11	11	18	9	8	10	10	13
Canterbury	4	4	5	3	11	5	4	3
Capital & Coast	1	3	4	6	4	6	1	1
Counties Manukau	9	13	2	7	9	18	8	8
Hawke's Bay	13	10	3	10	17	11	7	10
Hutt Valley	8	16	6	15	7	7	6	9
Lakes	12	12	7	14	20	15	15	14
MidCentral	19	14	8	17	13	8	12	15
Nelson Marlborough	7	1	15	8	3	1	9	7
Northland	20	7	19	20	16	16	20	19
South Canterbury	5	2	10	2	5	3	13	6
Southern	2	5	11	1	1	2	5	2
Tairāwhiti	17	20	9	18	19	19	14	17
Taranaki	15	18	14	11	6	9	16	11
Waikato	14	15	13	12	14	17	11	16
Wairarapa	10	9	16	16	10	4	17	12
Waitematā	6	6	12	5	2	14	3	4
West Coast	16	17	20	13	15	12	18	20
Whanganui	18	19	17	19	12	13	19	18

Appendix D

Figure 5: Line chart representing all skin condition calls (2019–2022) with the time of day the calls were received. Skin condition calls peaked each day between 6–7 pm.

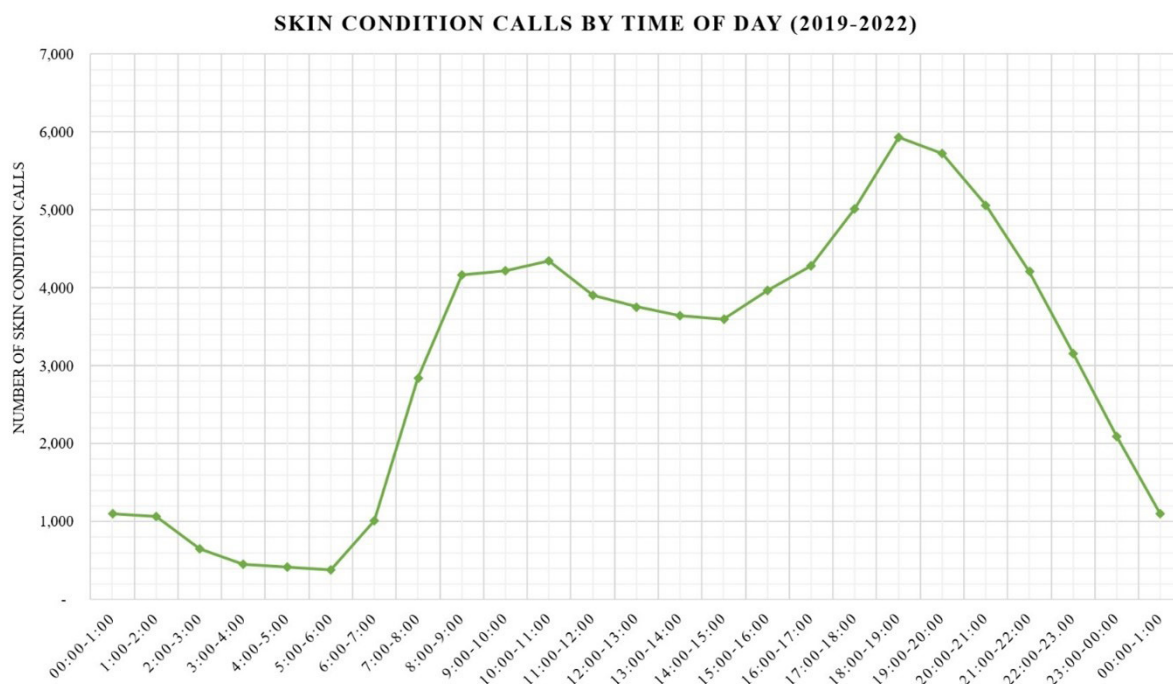
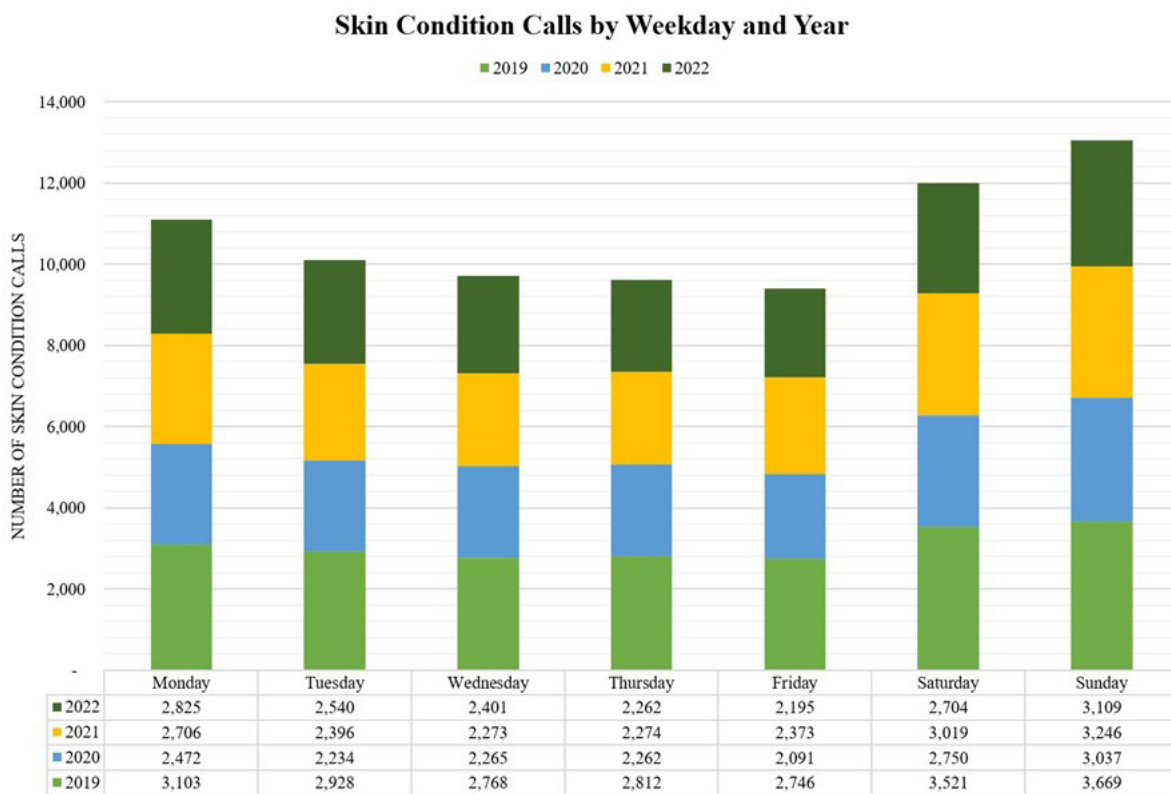


Figure 6: Stacked bar chart representing the number of skin condition calls by weekday and year (2019–2022). Skin condition calls peaked on Sundays each year.



Appendix E

Table 3: Skin condition ED outcomes by ethnicity by year for the calendar years 2019–2022.

Year	European	Māori	Pasifika	Asian	MELAA	Other	Unknown	Total
2019	473	285	77	24	3	91	10	963
2020	395	193	43	17	3	55	14	720
2021	406	236	44	20	5	46	10	767
2022	492	228	39	25	10	41	9	844
Total	1,766	942	203	86	21	233	43	3,294
%	53.6%	28.6%	6.2%	2.6%	0.6%	7.1%	1.3%	
Total skin condition calls %	56.8%	23.6%	5.9%	4.0%	0.6%	8.3%	0.9%	
New Zealand demographic ²⁰	70%	17%	8%	15%	2%	1%	-	

*MELAA stands for “Middle Eastern, Latin American and African” ethnicities

Appendix F

Table 4: Skin condition ED outcomes by age range and ethnicity between 2019 and 2022 (with total Healthline calls).

Age group	NZ European	Māori	Pasifika	Asian	MELAA	Other	Unknown	Total	Healthline calls total
Under 1	109	125	32	10	4	23	5	308	4,775 (7.7%)
1-2	152	140	40	15	2	18	3	370	7,355 (11.9%)
3-5	275	208	46	10	1	35	5	580	13,861 (22.4%)
6-12	163	110	14	7	3	26	0	323	7,719 (12.5%)
13-19	130	50	7	7	0	13	3	210	3,422 (5.5%)
20-24	149	60	13	6	1	13	6	248	4,450 (7.2%)
25-29	121	48	15	4	1	27	5	221	4,063 (6.6%)
30-34	121	50	6	14	0	13	4	208	3,578 (5.8%)
35-39	84	33	6	3	2	16	3	147	2,520 (4.1%)
40-44	68	19	6	0	1	5	1	100	1,911 (3.1%)
45-49	59	24	3	3	2	3	1	95	1,584 (2.6%)
50-54	71	22	6	2	0	13	3	117	1,370 (2.2%)
55-59	45	16	3	2	1	4	0	71	1,192 (1.9%)
60-64	51	13	1	1	0	4	0	70	1,088 (1.8%)
65-74	90	13	3	0	1	0	2	109	1,503 (2.4%)
75-84	51	7	1	2	2	7	0	70	867 (1.4%)
85+	22	3	1	0	0	2	0	28	265 (0.4%)
Unknown	5	1	0	0	0	11	2	19	353 (0.6%)
Total	1,766	942	203	86	21	222	43	3,294	61,876

Appendix G

Table 5: The number of skin condition calls and ED outcomes by district in 2022, per capita.

District	Skin condition calls	Calls per capita	ED outcomes	ED outcomes per capita	District size (2022) ²¹	Size rank
Auckland City	1,178	24.5	56	1.16	481,600	4
Bay of Plenty	782	28.5	68	2.48	274,700	8
Canterbury	2,147	36.3	103	1.74	591,500	3
Capital & Coast	1,262	39.2	37	1.15	322,300	7
Counties Manukau	1,491	24.6	89	1.47	605,100	2
Hawke's Bay	404	22.1	33	1.81	182,600	11
Hutt Valley	725	45.3	37	2.31	160,200	13
Lakes	356	30.1	28	2.37	118,200	15
MidCentral	742	39.0	49	2.57	190,300	10
Nelson Marlborough	434	26.3	27	1.64	165,000	12
Northland	735	36.5	57	2.83	201,500	9
South Canterbury	179	28.7	20	3.21	62,300	17
Southern	1,168	33.3	76	2.17	350,500	6
Tairāwhiti	178	34.2	11	2.11	52,100	18
Taranaki	471	36.9	42	3.29	127,500	14
Waikato	1,525	33.7	95	2.10	451,900	5
Wairarapa	254	49.8	28	5.49	51,000	19
Waitematā	1,643	25.9	67	1.06	633,500	1
West Coast	118	36.1	14	4.28	32,700	20
Whanganui	258	37.1	19	2.73	69,500	16
Total	16,050	-	956	-	5,124,000	-

Appendix H

Figure 7: The relationship between skin condition ED outcomes per 10,000 people and district population size. A low ranking (e.g., 1) indicates a higher district population, and a high ranking (e.g., 20) indicates a lower population size. Green data points are shown for North Island districts and yellow for South Island.

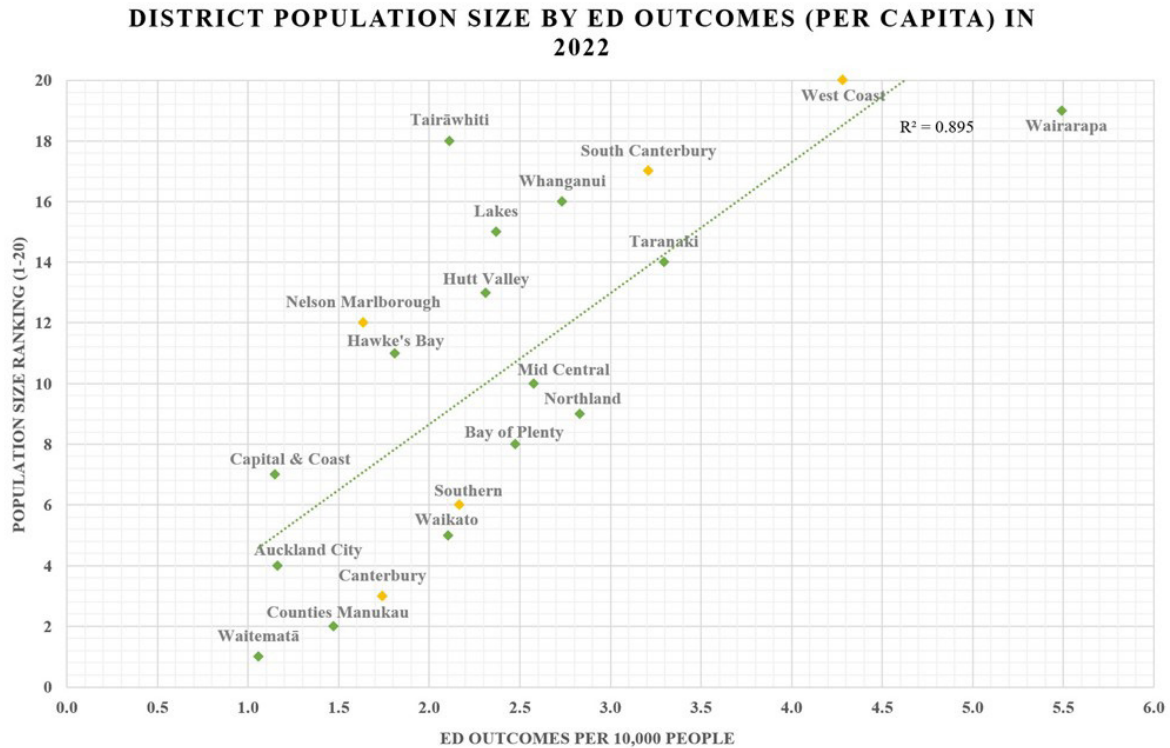


Figure 8: Scatter chart representing skin condition ED outcomes per 10,000 people with education deprivation (%). A high percentage is representative of the most deprived districts of education. Green data points are shown for North Island districts and yellow for South Island. District deprivation provided by The University of Auckland (2018).¹⁸

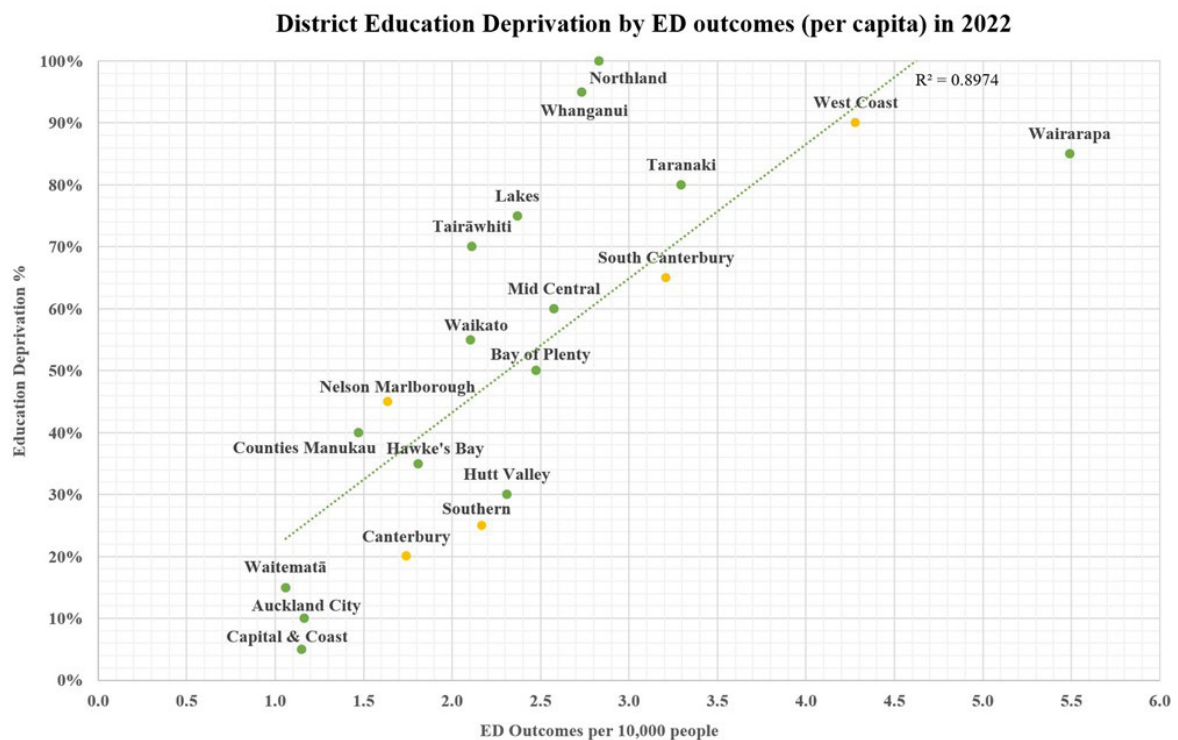
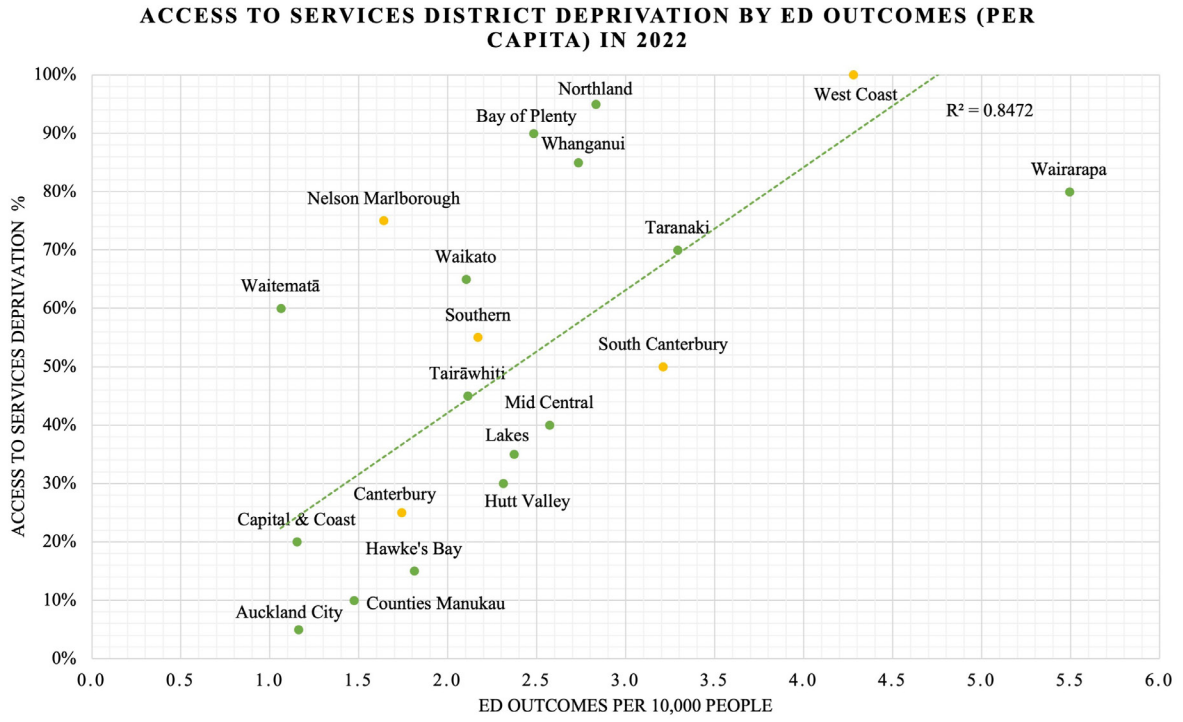


Figure 9: Scatter chart representing skin condition ED outcomes per 10,000 people with access to services deprivation (%). A high percentage is representative of the most deprived districts of access to services. Green data points are shown for North Island districts and yellow for South Island. District deprivation provided by The University of Auckland (2018).¹⁸



Appendix I

Table 6: Skin condition ED outcomes by Aotearoa New Zealand suburb (urban vs rural) compared to the Aotearoa New Zealand demographic.²²

Area type	Number of New Zealand suburbs/ areas	ED outcomes	ED outcome %	New Zealand demographic %
Urban	404	786	20.3%	16.3%
Rural	140	200	79.7%	83.7%
Total	544	986	100%	100%