

Public health job advertisements in Australia and New Zealand: a changing landscape

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Many workforces can benefit from planning. Clear delineation of the workforce, such as through accreditation or well circumscribed duties, facilitates such planning. Workforces that are less clearly defined may be more difficult to plan for and the public health workforce is one such example.¹

The public health workforce can be defined as “people whose primary function is the protection [promotion and/or restoration] of the collective health of whole or specific populations (as distinct from activities directed to the care of individuals)”.¹ This definition is broad and identifying the supply of, and demand for, this workforce is difficult: for non-clinical roles in Australia there are many pathways to enter such roles, no mandatory certifications or registrations and many functions that the workforce perform. This impedes and complicates workforce planning activities.

One way to assess demand for the workforce is through assessment of job advertisements and these have proved a versatile data source in public health, providing information about what employers are seeking,² how many positions are advertised over time,³ and what duties the workforce can be expected to perform.^{4,5} In Australia, Rotem et al.⁴ characterised 404 public health advertisements collected in June–July 2003. They found advertisements for a heterogeneous workforce, consisting of officers, managers, clinicians and others, who would work mainly in government positions. Rotem et al. strongly recommended that their study be repeated so that variations in recruitment (such as position, sector and

Abstract

Objective: To describe available public health jobs in Australia and New Zealand by comparing recent job advertisements.

Methods: We screened vacancies from 14 online job boards for public health jobs in late 2018. Data collected included information on job titles, sector, contract tenure, location and salary. We compared our findings with those of a job advertisements study from 2005.

Results: We found 333 public health job advertisements in Australia and New Zealand. Common roles included project officers, researchers and managers. Nearly 40% of jobs asked for a ‘tertiary’ degree, with an additional 20% requiring a PhD degree. A qualification in public health was considered essential in 13% of job advertisements. Median annual salary range was \$95,000–\$111,365.

Conclusions: There is not one specific public health job. Instead, such jobs are diverse in role, sector, qualification level required and the salary they confer.

Implications for public health: There is a demand for skilled workers to perform increasingly complex public health functions, but this may eventually be outpaced by graduate supply. Furthermore, while salaries are considerable, long-term positions are not, and this has implications for the sustainability of the public health workforce.

Key words: workforce, human resources, public health

salary) could be identified; however, no further studies have done so. Our study builds on the solid base provided by Rotem et al. adding breadth in terms of job boards used and depth in terms of the level of associations made (e.g. qualifications by job sector). We also wished to provide research for the New Zealand public health workforce, which could be strengthened by observations in the future.

The aim of this research was to describe and compare recently advertised public health jobs in Australia and New Zealand. In particular, we wished to answer the following research questions:

1. What jobs are in demand, in which locations and advertised by whom?

2. What is required of applicants to get these jobs?

3. How much are people paid to do these jobs?

Methods

Definition of a public health job

We aimed to capture job advertisements that were public health jobs, rather than job opportunities for graduates of public health. Similar to Rotem et al. we defined public health practitioners as people who were “engaged in activities related to the protection (promotion and/or restoring) of the collective health of whole or specific populations (as distinct from activities

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directed to the care of individuals).⁴ We also wished for this set of jobs to be unlikely to be double-counted by researchers of other workforces if they had access to the same data. Therefore, jobs that had clinical duties, or roles that were not traditionally 'public health' were only included if the reviewer felt the role, duty and program area were 'more public health than not', which was guided by a published taxonomy of the public health workforce.⁶ Job advertisements were excluded if they were volunteer positions, internships, cadetships or generic listings for a recruitment pool.

Job advertisement boards

We searched for job advertisements using fourteen online advertisement boards from Australia and New Zealand. These consisted of commercial job boards (e.g. SEEK), federal and state government boards, and job boards of professional bodies (e.g. the Australian Dental Association). Our search strategies are available in Supplementary File 1. Although each website was idiosyncratic in terms of design, we had two approaches for searches. Where it was practical to do so, all jobs were searched, regardless of category. Where it was not practical to do so (e.g. SEEK.com.au has 150,000+ current advertisements) we conducted three searches: a search using relevant keywords (e.g. "public health", "epidemiology", etc.); a random sample of 100 jobs in 'all listings'; and a random sample of 100 jobs in a 'healthcare' category. Random samples were taken to find relevant jobs that had not been captured by our original search strategy, and to modify keywords accordingly to enhance the search strategy. If jobs entries were found to be overlapping, they were reduced to one entry.

Data extraction, cleaning and analysis

Included advertisements had the following data extracted: date advertised, advertiser, location, annual salary, job title, job type (e.g. full-time, part-time), contract term (e.g. ongoing, fixed-term), contract length in months, position(s) reporting to, direct report(s). Essential qualifications were defined as any tertiary or professional accreditation listed by advertisers as necessary in order to apply for the position. Variables were saved in a database and a copy of the job advertisement (either an .html, or a .pdf/.doc when available) was saved. When available, full job descriptions (job advertisements

are often abridged and accompanied by a full description) were also used. Job titles were trimmed and saved as three variables: hierarchical classifiers (e.g. junior, senior, associate), title (e.g. officer, manager) and original text.

Data cleaning and analysis was performed using the programming language Python version 3.7.3, which was adapted for numerical analyses using open-source packages. Counts, rates, means and medians were estimated for the variables of interest. The code used is available in Supplementary File 2.

Modelling total annual job advertisements

We developed a simple model to estimate the yearly job advertisements in Australia for 2018 and 2003 (the year Rotem et al.⁴ collected their data). This involved calculating the average monthly volume of advertisements and extrapolating this to their respective calendar year. For 2018, only one-third of job advertisements included dates for when the job was posted and 78% of these were posted in October. We assumed that advertisements without dates were similar to this subset and therefore 78% of all collected jobs were assumed to be posted in October. For 2003, we used the collected amount of advertisements (n=404) as the estimate for June and July of 2003 (the months that jobs were collected in). To estimate other calendar months, we adjusted these estimates by the rate of change of job advertisements using monthly figures for Australian job advertisement volumes.⁷ We also conducted a sensitivity analysis, based on the assumption that we did not capture all jobs posted in early October 2018 (advertisements are commonly advertised for a month but some jobs would have been taken down before we searched them). We tested this assumption by only using the job advertisements for the last full week in October and multiplying this by the number of weeks in October.

Additional data sources and classifications

For additional comparisons, we used the following resources. New Zealand annual salaries were converted to AUD 2018 using the spot exchange rate from XE.com in October 2018, at a rate of AUD \$0.92.⁸ We used population statistics from the Australian Bureau of Statistics (ABS) – Demographic

Statistics, March 2018,⁹ and the 2018 Subnational Population Estimates for New Zealand.¹⁰ Remoteness categories were obtained for Australia from ABS – Remoteness Structures 2016,¹¹ and from the Stats New Zealand Geographic Data Service 2018 – Urban Rural Classification.¹² For classifying job sectors, we labelled all university positions as 'tertiary', and labelled other advertisers using information provided by the Australian Business Register,¹³ New Zealand Business Number Registry,¹⁴ Australia Charities and Not-for-profits Commission Register¹⁵ and advertiser websites. If a job advertisement was posted by a recruitment agency they were classified as 'recruiter'.

Results

What jobs are advertised, where and by whom?

We collected 333 public health job advertisements from 14 job boards with advertisements collected in October and November 2018, the majority of which were found on SEEK Australia and SEEK New Zealand (n=235). Public health jobs gathered from SEEK Australia and SEEK New Zealand represented 1.38% and 1.58% of 'Healthcare & Medical' jobs on these websites, respectively (0.12% and 0.09% of all jobs on these websites).

Table 1 lists the common characteristics of public health jobs, and data by location can be found in Supplementary Table 1. There were more job advertisements in Australia compared with New Zealand (n=290 and n=43, respectively) and per capita (11.60 and 8.97 per million persons, respectively). In Australia, the most job advertisements were in New South Wales (n=91), followed by Victoria (n=72). When considered per capita, Northern Territory and the Australian Capital Territory had the most job advertisements (n=72.96 and n=45.32 per million persons, respectively). In New Zealand, Wellington and Auckland regions had the most job advertisements (n=10 and n=8, respectively), whereas Nelson and Northland had the most jobs per capita (57.80 and 33.50 per million persons, respectively). Public health jobs tended to be centralised, with 74% of Australian job advertisements in major cities, and 56% of New Zealand job advertisements in major urban areas.

Of advertised job titles, officers (e.g. project officer, policy officer) were the most common

(n=71, 21%). These were most common for areas such as alcohol and other drugs, chronic diseases, health promotion and Indigenous health. Jobs for researchers (e.g. research fellow and postdoctoral fellow) were also common (n=55, 17%) and tended to work in cancer, maternal and child health, chronic disease, and alcohol and other drugs. Other relatively common job positions were for managers (n=26, 8%), nurses (n=24, 7%), environmental health officers (n=20, 6%) and lecturers (n=20, 6%). Advertised positions commonly reported to managers (n=50, 52%) and directors (n=10, 10%), many of which were also identifiable public health positions (n=26, 27%) or potentially public health positions (n=27, 28%). Very few advertised positions had direct reports listed (n=7), and the amount of direct reports ranged from one to seven. Advertised positions that had direct reports listed a qualification as essential in four of seven. Of these, two required a professional registration and two required a 'tertiary' degree (not further specified).

Jobs were most commonly advertised for state or regional government (n=114, 34%), followed by the tertiary sector (n=74, 22%). There were few jobs posted for the private sector (n=18, 5%). The majority of all jobs were full-time (81%), and 62% of positions were on fixed-term contracts, with the median and modal contract length lasting 12 months. The not-for-profit sector had the highest proportion of fixed-term contracts (92%), followed by local government (88%) whereas state/regional government and private sectors offered the highest proportion of permanent positions (62% and 75% permanent, respectively).

What is required of applicants to get these jobs?

There were several levels of qualification that were mentioned in job advertisements as essential criteria: vocational certification (e.g. TAFE certificate IV), a tertiary degree (not further specified by the advertisers), undergraduate/bachelor's, postgraduate (not further specified), master's, PhD and a professional registration (e.g. a health practitioner registration). An unspecified 'tertiary qualification' was the most common essential level (n=98), followed by a PhD (n=55) and a professional registration (n=51). Few advertisements explicitly asked for master's or 'postgraduate' degrees (n=10 and 14, respectively).

There was a total of 154 unique fields listed as essential, with advertisers listing up to 10 fields per job advertisement. The most common fields required were in public health (n=42), nursing (n=35), epidemiology (n=30) and statistics (including subfields, e.g. biostatistics and medical statistics, n=29).

There were also common associations between level of degree, job sector and position advertised, which are presented in Figure 1.

For advertisements listing public health as an essential criterion, no job advertisement listed public health as the only essential field, but rather listed it alongside related fields such as health promotion or epidemiology. More than half of these advertisements required a non-specific 'tertiary' degree, while both non-specific 'postgraduate', MPH and PhD degrees were required in seven advertisements each. Only two job advertisements specified an undergraduate public health degree. Officers, researchers and coordinators were the most commonly advertised jobs for public health degrees, with representation across most sectors, especially in the not-for-profit and tertiary sectors. Supplementary Figure 1 illustrates the relationship between qualification and role for these advertisements.

We also compared our main findings regarding qualifications with the findings of Rotem et al.⁴ and these are displayed in Supplementary Table 2 along with other comparisons. Over time, PhD degrees have become more frequently required, whereas all other degrees have decreased and professional registrations have remained unchanged. We found fewer job advertisements requiring fields in management, social work and health, a similar amount of jobs requiring degrees in nursing and education, and more jobs requiring health economics, pharmacy/pharmacology, epidemiology, statistics, allied health, sciences, health promotion and public health.

How much are people paid to do these jobs?

Annual salaries were advertised in ranges. The median lower and upper ranges that were quoted in advertisements for full-time positions were \$95,000 and \$111,365, respectively (AUD 2018). Table 2 and the following results refer to median lower range salaries, as we believe many candidates,

Table 1: Descriptive characteristics of public health job advertisements identified (n=333).

Characteristics	Count	%
Country		
Australia	290	87%
New Zealand	43	13%
Job Title		
Officer	71	21%
Researcher	55	17%
Manager	26	8%
Nurse	24	7%
Environmental Health Officer	20	6%
Lecturer	20	6%
Other	117	35%
Job Type		
Full-time	271	81%
Part-time	56	17%
Casual	7	2%
Contract Type		
Fixed-Term	142	61%
Ongoing	87	39%
Job Sector		
Government - State	114	34%
Tertiary	74	22%
Not-for-profit	66	20%
Government - Local	22	7%
Private	18	5%
Government - Federal	14	4%
Recruiter Advertised	14	4%
Proportion of Fixed Term Contracts by Job Sector		
Not-for-profit	–	92%
Government - Local	–	88%
Tertiary	–	70%
Government - Federal	–	50%
Government - State	–	39%
Private	–	25%
Degree Level Considered Essential		
Tertiary	98	39%
PhD	54	22%
Professional registration	51	20%
Postgraduate	14	6%
Vocational certificate	14	6%
Undergraduate/Bachelor's	10	4%
Master's	10	4%
Common Fields Considered Essential		
Public Health	42	13%
Nursing	35	11%
Epidemiology	30	9%
Statistics	29	9%
Medicine	29	9%
Health Economics / Economics	28	8%
Science	25	8%
Allied Health	25	8%
Health Promotion	24	7%
A degree considered 'relevant'	67	20%

especially those being promoted or entering the sector, would start at the lower range. New Zealand public health jobs advertised a slightly higher median salary than Australian jobs (\$97,385 and \$95,000, respectively). Advertised median salary was highest in the Federal Government (\$100,502) followed by the tertiary sector (\$95,461). The lowest advertised salaries were local government (\$74,076) and private sector (\$70,000), although we note the very limited sample size for the private sector where salary information was available (n=3). Higher degrees were associated with higher salaries, with jobs requiring a vocational certificate (e.g. TAFE) advertising a median salary of \$59,494 compared with jobs requiring a PhD advertising a median salary of \$98,099. However, this was not the case for advertisements that specified for undergraduate or master's positions (\$111,790 for undergraduate, \$77,551 for master's), but we note the small sample size here too (n=1 and n=3 for undergraduate and master's, respectively). Many fields were associated with high advertised salaries, such as business, health services, nursing, economics and statistics (median

salaries above \$98,000). Health promotion, environmental health and Aboriginal primary health care requirements advertised the lowest salaries (median salaries below \$70,000), while public health qualifications were relatively well-remunerated, with a median annual salary listing of \$92,465.

Modelled total annual job advertisements

In 2018, we found 82 advertisements in October from a total of 104 advertisements that posted dates in October or later (78.85%). Therefore, assuming that advertisements without dates were similar, there would be 229 advertisements posted in October in Australia and 2,751 jobs in 2018 when applying the changing rate of job volume per month. In 2003, the total estimated job volume was 2,419, an increase in 14% over this time. Sensitivity analysis provided a much larger estimate for 2018 job advertisements. Assuming all weeks in October had the same volume of jobs as the final full week in October, there would have been 321 jobs advertised in October and 3,863 in 2018, an increase of 60%.

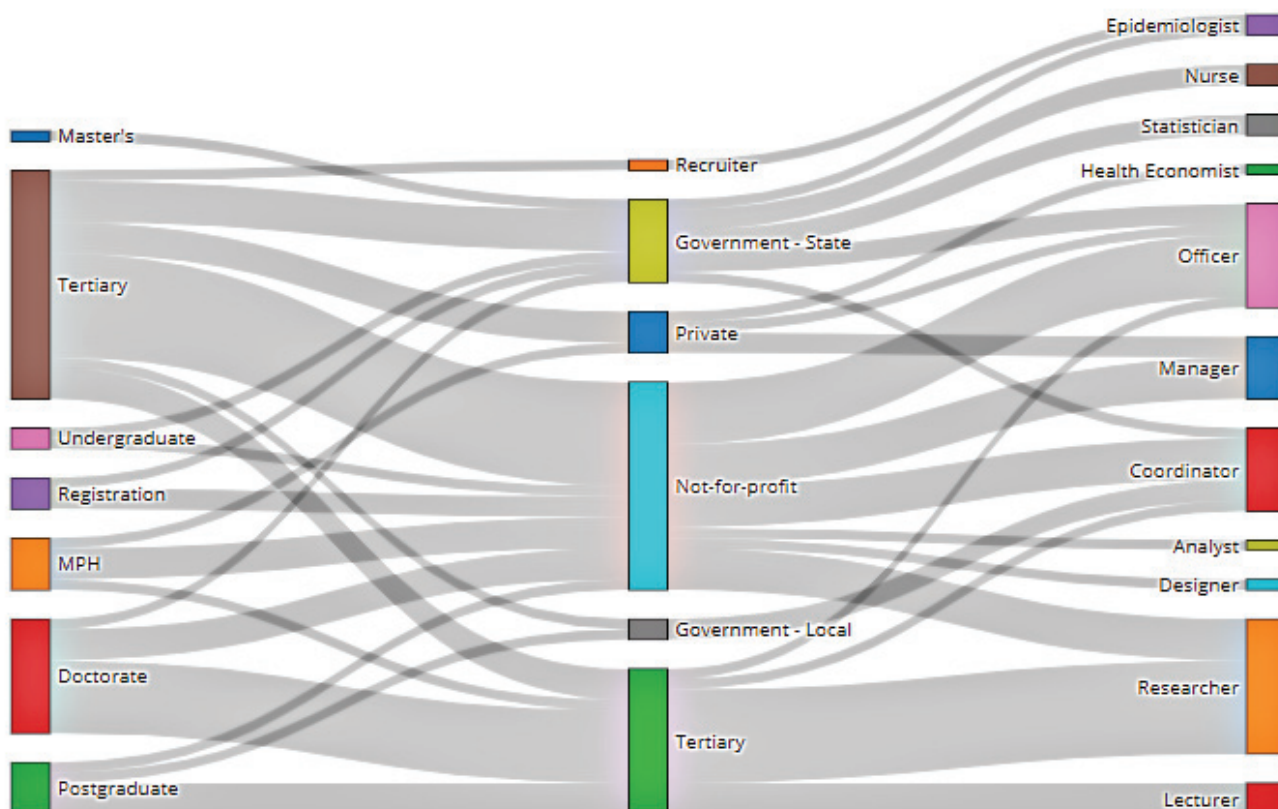
Implications for public health

What jobs are advertised, where and by whom?

We collected 333 advertisements for public health jobs, which were mostly advertised in October 2018. Despite several differences in methods (Rotem et al. looked mainly in newspapers, for a longer time period, and only in Australia), some conclusions are similar to Rotem et al.⁴: the landscape of the workforce is heterogeneous, requiring various roles and qualifications, which is what we would expect from a public health workforce.

We should expect the public health workforce to be responsive to priority areas, national or local, and this appears to be true to some extent. For example, we found numerous officer and researcher positions focused on alcohol and other drugs (11 and 18% of these jobs, respectively), which was an increase from findings in Rotem et al. (6%). This increase may be due to prioritisation in this area including the establishment of the Australian National Advisory Council on Alcohol and Other Drugs (ANACAD) in 2014,¹⁶ the Drug and Alcohol program, National Drug Initiatives (e.g. Ice) and

Figure 1: Sankey diagram illustrating the relationship between advertised jobs' degree level (left bands), sector (centre bands) and role (right bands). Width of bands represents job volume.



the National Drug Policy in New Zealand (2007–2012 and 2015–2020).¹⁷ Priority areas may influence job advertisements through grants, calls for research, or by influencing advertising of specific positions, e.g. research officers in a disease area. Indeed, some of the advertised positions were from Commonwealth Government established research centres, which address particular priority areas. Beyond these observations, it is difficult to assess whether public health job advertisements are responsive to priority areas for two reasons. Firstly, job advertisements in 2018 were more dispersed than in 2003, with greater representation of jobs outside government. Secondly, there is no comprehensive and current listing of public health priority areas in Australia. In New Zealand, two National health targets relate to public health (“increased immunisation” and “better help for smokers to quit”),¹⁸ but both countries could benefit from an explicit national priorities list to influence demand.

It is also important to consider whether the amount of jobs we found and modelled is appropriate. We found an increase of between 14% and 60% in the amount of public health jobs between 2003 and 2018. In the same period, however, job advertisements in general increased by 100%,⁷ all student enrolments increased by 60–70% and students enrolled in health degrees increased by 150% (these are similar for both undergraduate and postgraduate degrees).¹⁹ If we assume that public health graduates had a similar increase (we note public health graduates in the US have increased by 300% since 1992),²⁰ then it would appear that in the future not all graduates will be able to find a public health job if they wish to do so.

What is required of applicants to get these jobs?

Qualifications and fields sought have changed substantially since 2003. Firstly, it appears that it is more common for advertisers to explicitly acknowledge ‘public health’ as an essential qualification in 2018 than it was 15 years earlier (a 2.3-fold increase), which gives some evidence to coordination between public health education and job markets. However, this amount is only 13%, implying that demand for public health jobs is placed on other qualifications. To this end, the importance of public health education (or on-the-job training) in other fields should

be emphasised, as graduates from these fields may take up many public health jobs. This sentiment is echoed in prominent Australian²¹ and US²² reviews, emphasising an understanding of the ecological model of health. Another observation is the change in level of public health degree demanded. Nearly half of all advertisers requested a non-specific tertiary public health degree, with only two advertisers specifying an undergraduate public health degree. This may reflect an uncertainty on the part of employers about differences between the skills obtained in undergraduate and postgraduate public health degrees, which may in turn reflect a lack of clear distinction between what is taught in, and what is

expected of, students of undergraduate- and master’s-level public health degrees.

It is also worth noting the increased requirement for PhD degrees (a 10-fold increase since 2003), which can be partly, but not fully, explained by the increase in jobs advertised in the tertiary sector (three- to four-fold since 2003). This increase may reflect the changes in complexity of work being done, where the PhD is a signal of technical competency (indeed, many job descriptions refer to handling of large datasets, and complex analyses). If such a shift is occurring, there may be scope for non PhD-level degrees to increase focus on these skills and associated knowledge, enhancing graduates’ abilities to meet employer demands.

Table 2 - Median advertised full-time annual salary and range.

Parameter	N	Median Salary (\$)	Range (Min – Max)
Country			
Australia	154	95,000	52,874–175,070
New Zealand	9	97,385	69,920–122,930
Job sector			
Government - Federal	11	100,502	65,563–106,029
Tertiary	58	95,461	65,021–175,070
Government - State	62	95,426	52,874–146,469
Not-for-profit	17	84,150	58,002–100,000
Government - Local	10	74,076	57,662–99,624
Private	3	70,000	69,920–108,044
Degree level			
Vocational certificate	9	59,494	52,898–108,044
Tertiary (raw response)	38	73,412	58,002–124,277
Undergraduate	1	111,790	111,790–111,790
Master’s	3	77,551	65,021–95,426
Postgraduate	6	88,713	65,021–103,000
PhD	39	98,099	66,283–175,070
Professional registration	16	94,055.5	69,920–136,151
Degree field			
Business/Management	1	108,044	108,044–108,044
Health services	4	105,796	68,616–175,070
Nursing	11	99,390	69,920–124,277
Health economics / Economics	15	98,775	73,824–110,961
Statistics	19	98,775	66,283–110,962
Health informatics	5	95,434	95,434–110,962
Health	8	95,426	60,942–110,961
Medicine	13	95,000	70,000–136,151
Epidemiology	17	93,985	65,021–110,962
Public health	18	92,465	58,002–136,946
Allied health	15	82,050	58,002–124,277
Science	11	73,824	69,155–108,044
Social/Behavioural/Political science	11	73,824	60,942–105,000
Pharmacy/Pharmacology	6	73,000	70,000–73,000
Health Promotion	7	68,616	57,662–95,426
Environmental health	7	65,894	60,942–104,227
Aboriginal primary care	7	59,494	52,898–68,683

Notes:

Advertised salaries are presented in ranges (SX – SY), and the column ‘Median Salary’ presents the median estimate of the lower bound (i.e. median of SX) in AUD2018. The ‘Range’ column presents minimum and maximum lower bounds (i.e. min {SX} and max {SX}). Number of advertised salary ranges is presented in column ‘N’.

How much are people paid to do these jobs?

We found that median salary (when only considering Australian advertisements for comparison) has increased substantially. Rotem et al. found a median annual salary of \$56,600,⁴ whereas we found a median salary that ranged between \$95,000 and \$111,365. If we take the lower estimate, there is a nominal increase of almost \$40,000, which implies a real increase of approximately \$20,000 since 2003. While Australian and New Zealand salaries were similar (their median salaries differing by \$2,000), obtaining a larger sample would enable us to make more granular comparisons.

While this increase is substantial, we must also consider this as a trade-off with a high rate of fixed-term contracts, which has inverted since 2003 (62% permanent/not-stated in 2003 compared with 62% fixed-term in 2018). Australia has the third highest rate of non-standard employment in OECD countries (more than 40% of total employment being non-standard), more than half of which relates to temporary contracts.²³ Public health job advertisements are substantially higher than this rate, which may be due to the shift away from government positions to not-for-profit and tertiary sectors, both of which have very high rates of fixed-term contracts (92% and 70%, respectively). This may also show that funding is primarily obtained for projects with a fixed timeframe, deliverables and staffing requirements. These observations have implications for the sustainability of the public health workforce; both high salaries and non-standard employment affect job satisfaction, but in opposite directions. In the US, nearly half the governmental public health workforce is considering leaving in the next five years, more than half of which are leaving for reasons other than retirement,²⁴ and further research in Australia and New Zealand may help establish whether this is also the case in these countries.

Limitations

There are two key limitations to our work: the definition we have used to capture 'public health jobs' and the timeframe we used. Definitional issues regarding the public health workforce and their lack of professional identity are common and unavoidable given the breadth of roles and work performed in this area.²⁵ However, we used the same definition as Rotem et al. and implemented checks and balances (e.g. random sampling

strategy on websites, a broad set of job boards) to minimise missing searches. Our timeframe was short and this may have led to omissions in temporal patterns in job advertisements. Difficulty arises in continual collection of online job advertisements, due to the high volume, rate of false positives (a search of "public health manager" yielded thousands of results, some for "refrigerator mechanic" or "personal trainer" and many more that were irrelevant) and the lack of archiving. One way to circumvent this would be to train a supervised machine learning algorithm to automatically flag advertisements with a high likelihood of being in public health. This may prove fruitful for both future researchers and graduates looking for public health jobs. In the future, it may also be useful to search jobs by degree (e.g. "Master of Public Health"), although we note the limited ways this can be used (e.g. searching "MPH" also brings up non-public health acronyms too).

It is also worth mentioning our observations with advertisements from New Zealand. Firstly, the brevity of the timeframe used led to a much smaller number of advertisements (n=43) when compared to Australia. We suggest that a longer period be adopted in future research to capture a greater number of job listings. To our knowledge, this is the first study to characterise public health jobs in New Zealand and one of very few job advertisement studies more broadly.²⁶ Compared with Australia, data collection has more potential difficulties as jobs are advertised for each district health board, which are numerous and unique. We simplified this by the use of an aggregator website (kiwihealthjobs.net). Although we validated the presence of public health job advertisements on this website with two district health boards, there may have been jobs missing from others. For future research, we would encourage a longer collection period for jobs, using several job boards such as SEEK and district health boards.

Finally, job advertisements are not clear windows into workforce activities, or the persons performing them. Job advertisements are spaces where employers compete to attract the best applicants and accuracy may be substituted with hyperbole or buzzwords.²⁷ It was for this reason that we avoided analysing information about competencies and job duties. Simply put, the content was too heterogeneous and vague to be informative. This is not

common practice, however: Rotem et al. found commonalities in competencies expressed, such as "communication skills" and "interpersonal activity capabilities".⁴ Similarly, a content analysis of public health management positions found a high listing of competencies relating to communication, leadership, management and coordination.²⁸ We did not think that our current study would have been enriched by such an analysis. However, we do believe there would be value in observing trends in competencies listed for individual employers (e.g. a state health department or a private firm) over time, as these changes may reflect true shifts in preferences at the level of the individual firm.

Conclusions

A job advertisement is not a job. There are likely to be substantial differences between what is listed, what is performed and who performs it. As there is little information on demand for the public health workforce in Australia or New Zealand, observing job advertisements seems to be a pragmatic way of observing demand and these observations are strengthened through regular review.

Given our observations, there are some conclusions regarding workforce supply and demand that seem reasonable. There appears to be a mismatch between the rate of supply of public health jobs and graduates, which may lead to an oversupply of graduates to fill jobs in public health. However, this does not appear to be the case yet, owing to the marked increase in advertised salaries for public health jobs. This increase may not be due to undersupply of workers and so we must explain it in other terms, such as the increasing complexity of work demanded, increased educational demand on workers and increased risk from temporary employment.

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Supporting Information

Additional supporting information may be found in the online version of this article:

Supplementary File 1: Search strategy.

Supplementary File 2: Data analysis notebook.

Supplementary Table 1: Advertisement counts by location.

Supplementary Table 2: Comparisons of Australian advertisements with Rotem et al. (2005).

Supplementary Figure 1: Relationship between public health level of degree required and advertised role. Width of bands represent number of advertised roles.