A Glimpse at the Australian Health Information Workforce: Findings from the First Australian Census

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Abstract

The Australian Health Information Workforce is a critical discipline in the health sector as the investment in digital technologies increases. Yet historically there was no standardized reporting about the workforce and its six professional areas: clinical coding, costing analysts, data analysts, health informaticians, health information managers and health librarians. This paper presents the findings from the inaugural Australian Health Information Workforce Census. Analysis of 1,596 responses indicates this is an aging (56.1% ≥45 years) workforce with a large (78.1%) female population. Working in permanent (82%), public hospital (72%) roles, in professional or managerial roles (84%). The majority (93.2%) of respondents hold a tertiary qualification in health information, one-quarter of these at masters or doctoral level. Fewer than 30% of respondents hold a health information credential from a professional or industry association. The data from the ongoing national census will inform workforce planning and enable forecasting of the future workforce needs.

Keywords:

Censuses, Informatics, Health Manpower.

Introduction

The health information workforce is a specialized discipline responsible for the development, maintenance and governance of the systems for the management of health data, health information, and health knowledge [1]. A 2013 examination of the workforce established it is poorly defined with a lack of accurate data about the professions that constitute the workforce [2]. The Health Workforce Australia report [2] made six recommendations: 1). delineate the workforce, 2). improve data collection, 3). support strategic partnerships between stakeholders, 4). consider the future configuration of workforce, 5). address known health information workforce shortfalls, and 6). promote health information training and careers. Subsequently the 2016 National Health Information Workforce Summit [3] agreed to the following alliance strategy "Strategy A: We need a census of the health information workforce and regular collection of data". The Health Information Workforce Census Project ("Census Project") was developed to address these recommendations and strategy, with the project aim to provide timely evidence about the nature and scope of the Australian health information workforce through a national census.

The Australia Health Information Workforce Alliance [4] states the workforce consists of the following professional areas: (1) Clinical coding; (2) Clinical costing analysts; (3) Health data analysts; (4) Health informaticians; (5) Health information managers; and (6) Health librarians. Yet, there is no empirical research to support this delineation. Existing empirical research has only focused on part of the workforce. Half of the workforce do not have an Australian and New Zealand Standard Classification of Occupations (ANZSCO) classification, so they are not captured by the national household census [5]. And where information is captured, past research suggests it may not be an accurate representation [4]. There have been a small number of Australian profession specific surveys [4, 6-8] that only survey professional members of peak bodies and/or one or two professional areas of the workforce. Never before has the entire workforce been examined with a scientifically developed and validated instrument.

There is also a lack of workforce data internationally. The most scientifically rigorous health information workforce research to date was undertaken in Canada [9], which included the health informatics, health information management, and clinical coding professional areas. This study estimated the hiring requirements for these professionals in 2008 and 2013 and identified roles for which there is a risk of skills shortages in Canada. Yet, the study used data from existing data collections systems and not from the individual, and did not examine the educational background of the population, the day to day operations of the role, the professional development requirements of individuals, peak body membership, credentials, or the future intentions of the workforce.

The increase in both digitization and adoption of technological approaches has created a growing demand for workforce specialists.[10], and the converging interests of the global health information workforce is now being recognized [11]. But without a clear picture of who the workforce is, the health system is unable to forecast future workforce needs.

A 2015 focus group suggested that Health Workforce Australia recommendation 1 and 2 could only be addressed by an integrated, scientific data collection system, such as a routine census [12]. Such a system would enable the collection of data to inform the other Health Workforce Australia recommendations. This paper describes the partnership between the authors and Australian peak bodies, the Australasian College of Health Informatics (ACHI), Australian Library and Information Association (ALIA) Health Libraries Australia (HLA), Health Informatics Society of Australia (HISA), Health information Management Association of Australia (HIMAA), and key government organizations, the Australian Digital Health Agency (ADHA) and the Victorian Department of Health and Human Services Workforce Branch, to develop a national census. The aim of the census itself is to quantify and qualify the Australian Health Information Workforce, specifically to delineate and count the workforce,

consider the future configuration of the workforce, identify health information workforce shortfalls, and identify current health information training and career pathways to meet future workforce demands. The results from the first Australian census shall be presented below.

Methods

The census instrument was developed through a large national study involving Australian and New Zealand stakeholders [13]. A Delphi approach was adopted to enable the staged development of the instrument through seven rounds: data elements (rounds 1-3), question and response format (rounds 4-6), and lastly the pilot testing of the instrument (round 7). Representatives from the six partner organizations, and the Clinical Coding Society of Australia and Health Informatics New Zealand were invited to join an Expert Panel, who were closely consulted through both face to face focus groups and online surveys at each stage during the project. A larger Consultation Group was formed with more representatives from these organizations, and other identified stakeholder organizations in Australia. This group was engaged through online surveys at all stages throughout the project once the Expert Panel had finalized their input. The sixth round of the project included a consultation with the Executive from each of the partner organizations to obtain their feedback on the instrument, and the seventh round was the overall pilot testing of the instrument by anyone who had been involved in the previous rounds. This testing included both testing of the questions within the instrument and the user experience of the online census.

The census is housed within the REDCap (Research Electronic Data Capture) system hosted at the University of Tasmania. This is a secure online research data capture system, that includes a survey capability. This system was selected as it will allow the ongoing capture of repeated census data collection. REDCap configures surveys to be displayed on any type of device and is compatible with all browser types. The census was also available in paper format on request.

Throughout the development of the census instrument, and in the lead up to the census month, there was extensive communication with stakeholders and individuals who registered through the census website. Recipients were encouraged to distribute the information throughout their networks in an attempt to reach as much of the workforce as possible. Figure 1 outlines the eligibility criteria for participation.

To complete the Australian Health Information Workforce Census, a participant must:

1.   Work (including volunteer or actively seeking) in a role where the primary function is related to developing, maintaining, or governing the systems for the management of health data, health information, or health knowledge. AND

2.   Work (including volunteer or actively seeking) for/with an organisation that operates in Australia, where the role relates to the Australian operations, and relates to the health sector.

Figure 1– Participation eligibility statement

The census was deployed in May 2018, with ongoing communication throughout the month to the stakeholder list.

There was large national engagement and international interest, with the census website receiving nearly 5,000 visits during May. Once the census closed on the 31 May 2018, the data was cleaned and analyzed.

Results

There were 1,597 participant responses included in the analysis. This response rate is estimated to be approximately 20% of the actual workforce, based on comparisons to previous reports about subsections of this workforce [4, 6-8].

There was representation across the six professional areas identified by the Health information Workforce Alliance [4]. A summary of the distribution is provided in Figure 2.
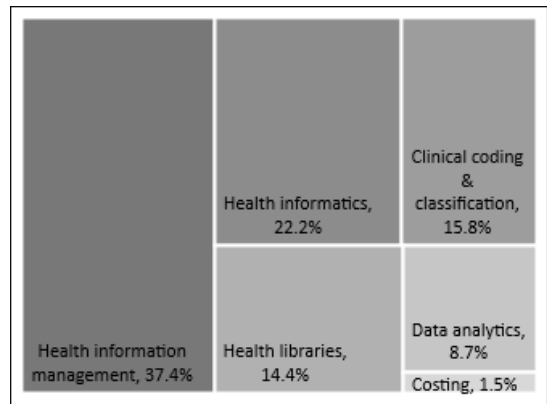

Figure 2–Distribution of professional areas

The census results indicate three quarters of the Australian workforce were born in Australia, with 98.3% either an Australian citizen or permanent resident. The majority of respondents live in Victoria (38.1) and New South Wales (24.1%). 0.8% of respondents indicated they reside outside of Australia.

The gender distribution amongst respondents was strongly skewed towards one gender, with 78.1% of respondents identifying as female, 21.6% as male and 0.3% as other. 56.1% of respondents are aged 45 years or older (Figure 3). Only 1.9% of respondents identified they are an Aboriginal Australian and/or Torres Strait Islander person. 3.4% of respondents specified they had a disability of health condition that limits their participation in activities.
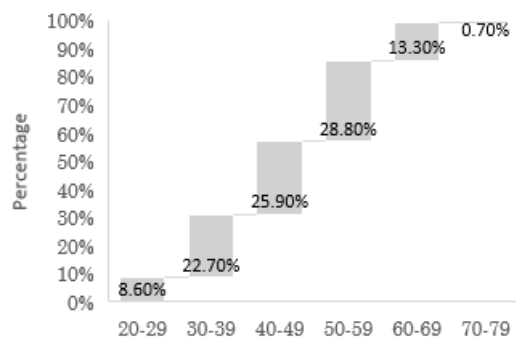

Figure 3 – Age distribution of participants

The majority of respondents work in permanent roles (82%) in the public hospital sector (72%). 15.1% of respondents are actively seeking employment in a health information role, half of which already work in a heath information role. Only 1.4% of respondents identified as self-employed. Respondents indicated they have been in their current role for 7.2 years, with nearly half (47.9%) of respondents reporting they have held their current position for more than 5 years. The majority (84.8%) of respondents indicated they are working in a managerial or professional role, with 13.5% identifying they work in a clerical role. The average weekly remuneration (before taxation) was in the $1,500-$1,999 bracket, with 51.1% of respondents reporting earning between $1,000-$1,999 per week (before taxation). The average number of hours worked per week was 32.6 hours. Respondents indicated they plan to remain working in the Australian health information workforce for an average 14.6 years.

The majority (93.2%) of respondents hold a tertiary qualification in health information. Table 1 summarizes the distribution of highest health information qualifications. Over a quarter (26.0%) of the workforce hold a Masters or Doctoral qualification in health information.

Table 1 – Distribution of educational level

Educational level	Percentage
Certificate I-IV	8.3
Diploma	5.5
Associate degree	1.4
Bachelor degree	40.3
Bachelor honours	3.2
Graduate certificate or diploma	15.3
Master degree	21.7
Doctorate	4.3

11.5% of respondents did not undertake any professional development in the last 12 months. Work base learning (40.3%) and professional activities (24.1%) were the most popular professional development activities (Figure 4). Nearly three quarters (71.8%) of respondents do not hold a health information credential (Figure 5), but 12.3% maintain their health practitioner registration under the National Registration and Accreditation Scheme. Over half (55.5%) of respondent maintain a professional or industry association membership (Figure 6).
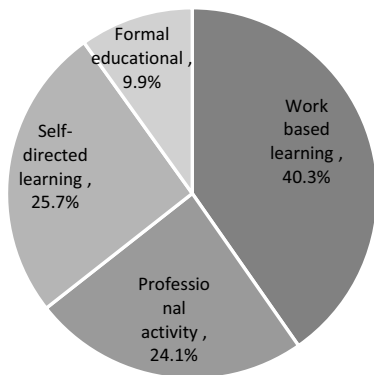

Figure 4 –Distribution of professional development

Discussion

It must first be acknowledged that the sample size for this first census cannot be determined because we simple do not know the size of the workforce in Australia. As the census shall be repeated in 2020 and every three years thereafter, it is anticipated participation will increase. However, an estimate indicates the 2018 result represent approximately 20% of the workforce and the results did provide many insights into the Australian workforce.

This is the first study to establish there is an international health information workforce servicing Australia's health sector needs, Whilst only 1% of the workforce is located outside of Australia, this number is likely to be significantly larger. It will be difficult to reach that workforce to complete the census, but it is important they are included to measure their impact on the Australian workforce.

The results indicate this is an aging workforce. The Australian Intergenerational Report [14] suggests by 2055 there will be a decline in the traditional workforce population (15-65 years old), with an increase in average life expectancy for those aged over 65 years. With an already aging workforce ($\geq$45 years [15]), the Australia health information workforce is at risk of not meeting the productivity demands of the health sector. Investment in a younger workforce is required now to meet these future needs. This is compounded by a largely permanent workforce who remain in a position for several years. Without constant movement across the workforce, opportunities for advancement is reduced, resulting in further loss from the workforce as younger professionals seek opportunities elsewhere.

Diversity is lacking in this workforce across several areas. The census reported a very large female population. Further analysis of the gender data is required to identify if there is a gender pay disparity, and the percentage of women in senior health information positions in health. Further investment is also required to increase participation in this workforce by Aboriginal Australians and Torres Strait Islander people. The results from this census indicate this population is currently under-represented in the workforce compared to their representation in the Australian population.

In terms of how the workforce views itself as a professional workforce, the results showed there is still a critical technical and clerical element. Yet, the majority of respondents have a tertiary qualification. The ongoing census will be necessary to monitor if the discipline evolves from operational roles to information strategist professional roles as digital transformations and automation changes the landscape [16]. Further research is required to examine the level of education and career opportunities.

Opportunities exist for peak bodies and educational providers to provide professional development opportunities. This may increase individual's enthusiasm to obtain professional credentials and join their professional or industry membership organizations.
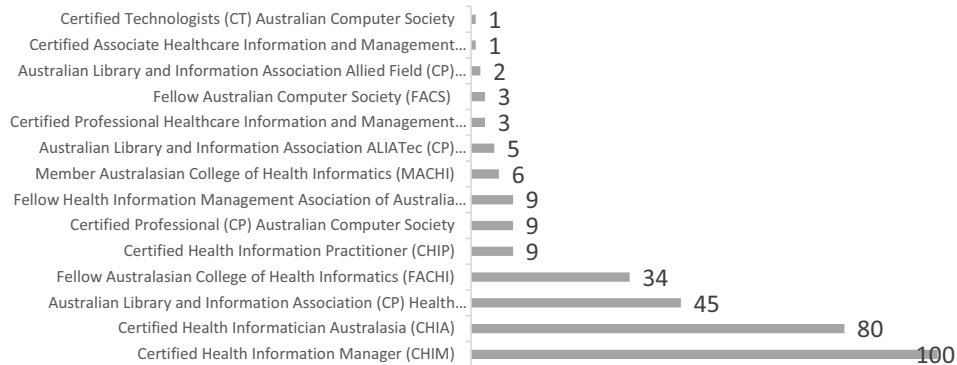
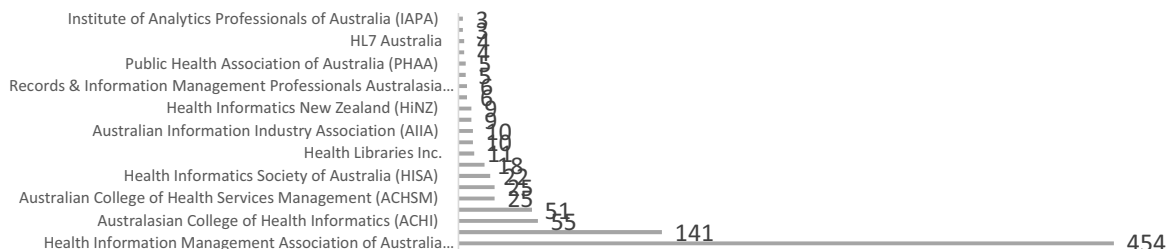*Figure 5 –Distribution of professional credentials*

Figure 6 –Distribution of professional and industry membership

Conclusions

In a data driven, technological world, the health information workforce has emerged to be a critical area in the health sector. Prior to the Australian Health information Workforce Census there was no standardized and valid means of measuring the workforce. This results from the Australian Health information Workforce Census will enable workforce planning and enable forecasting of the future workforce needs.

Acknowledgements

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