Fact File

The Royal College of Pathologists of Australasia

Australian Senior Scientist
Workforce 2018
RCPA Fellows of the Faculty of Science

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AUSTRALIAN SENIOR SCIENTIST WORKFORCE

(RCPA FELLOWS OF THE FACULTY OF SCIENCE)

OVERVIEW

The only recorded information on the total Australian Senior Scientist workforce comes from the 2011 Report undertaken by Urbis for the Commonwealth Department of Health and Ageing *Survey of the Pathology Workforce. Final Report* (called the 2011 Workforce Survey)*. According to the report:

> "Senior Scientist status is awarded to an individual who has shown continued excellence in scientific research and who, through significant original contributions, has gained a respected, and an outstanding reputation. Consideration for promotion to Senior Scientist usually occurs between four and eight years after tenure (p.30)."

For the purposes of the 2011 survey the definition of Senior Scientist used was that to support the accreditation standards of supervision of pathology laboratories as defined by the National Pathology Accreditation Advisory Committee (NPAAC). This requires additional doctoral university qualifications and ten years of experience or a Fellowship qualification. The survey identified that some 12.6% of respondents were Senior Scientists under this definition (n=334, total scientists = 2,655). (p.30). However, employers who were also surveyed identified that there were 240 Senior Scientists employed (p.11). The survey findings were used to estimate workforce size and the result was that there were an estimated 532 Senior Scientists who represented 2.2% of the total pathology workforce (Table 4, p.11).

The RCPA founded the Faculty of Science to train and develop a career path for Senior Scientists working within the field of Pathology. The Faculty has 3 pathways to Fellowship, by examination, by published works (research) and by scientific achievement.

There has been no further collation of statistics on Senior Scientists working in the Australian context. There are also industry awards which include Senior Scientist categories of remuneration, but the level of qualifications and experience may not align with the NPAAC definition required for accreditation.

Therefore, it was decided to undertake the workforce modelling for the Senior Scientists who were Fellows of the College. This was because the RCPA Data Base for 2016 included detailed data on those active Senior Scientists. No adjustments were made to the estimated workforce size to include other categories of Senior Scientists. The 2011 Workforce Survey report indicated that 30.8% of the Senior Scientists responding to the survey were Fellows, 34.7% had a doctorate, 15.6% had a Masters' Degree and 15.0% had an Undergraduate Science Degree as their highest qualification (Table 5, p.13). If this proportion is still current, then there could be an estimated 506 Senior Scientists in the workforce.

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WORKFORCE PROFILE AND TRENDS

There are 156 Senior Scientists who were active Fellows of the College in 2016. Females were 27.6% of this workforce and males were 72.4%; a higher proportion of males than for the total Pathologist workforce (57.2% male).

Table 1: Australian Senior Scientist Workforce (RCPA Fellows), 2016, Age and Sex Profile

Age Group	Headcount			Percentage	Percentage
	Female	Male	Total	by Age	Female by Age
up to 39	4	1	5	3.2%	80.0%
40-44	1	5	6	3.8%	16.7%
45-49	9	8	17	10.9%	52.9%
50-54	8	20	28	17.9%	28.6%
55-59	9	29	38	24.4%	23.7%
60-64	8	30	38	24.4%	21.1%
65-69	2	16	18	11.5%	11.1%
70+	2	4	6	3.8%	33.3%
Total	43	113	156	100%	27.6%
55 years and older	21	79	100		
% 55 years and older	48.8%	69.9%	64.1%		

Source: RCPA data base, 2016

Figure 1: Australian Senior Scientist Workforce (RCPA Fellows), 2016, Age and Sex Profile

Source: RCPA data base, 2016

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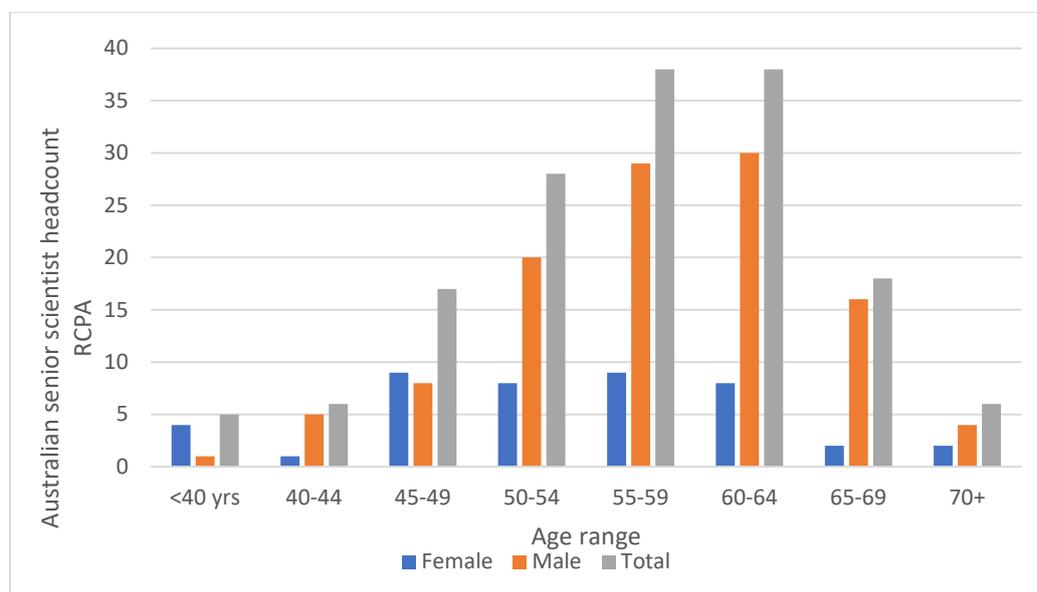
Table 1 and Figure 1 show that the modal age range for the workforce is 55 to 59 years and 60 to 64 years (n=38 each), for the female workforce it is 45 to 49 and 55 to 59 years (n= nine each), and for the male workforce it is 60 to 64 years. This shows the aged profile of the workforce. Females are in the majority up to 39 years and again at 45 to 49 years. Males are in the majority for the 40 to 44 years cohort and for all age cohorts 50 years and over.

Over six in ten of the workforce is 55 years or older (64.1%), with 48.8% of females in this age range, and nearly seventy percent of males (69.9%). This profile has significant implications for the retirement of a very large proportion of the workforce in the next ten years. There are 15.3% of the workforce aged 65 years and older, so that 14 Senior Scientists nationally will retire in a much shorter time frame. This has major implications for the sustainability of leadership of the Senior Scientist workforce and management of laboratories.

TRENDS IN TRAINEE NUMBERS

Table 2: Australian Senior Scientist Trainees by Discipline, 2015 - 2016

	2015	2016
Anatomical	1	1
Chemical	1	1
Genetic	8	8
Haematology	0	1
Immunopathology	2	1
Microbiology	1	1
Total	13	13

Source: RCPA data base, 2015 - 2016

There are thirteen Senior Trainees in both 2015 and 2016 with the large majority studying Genetics (61.5%).

WORKFORCE DEMAND AND SUPPLY

Findings from Consultations

Demand Drivers

Key demand drivers were identified to include the developing areas of genetics and genomics. There is a need for skills for the translation of research into practice. Senior Scientists are involved in complex testing due to their research and academic interests.

Workforce implications

There was a view that the workforce growth would occur at the same rate as pathologists at a discipline level. While it was felt that automation was likely to impact on the mix of technicians and scientists there was a view that there would be less impact on Senior Scientists.

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Supply issues

There was a view that the workforce was ageing, and this is certainly supported by the data presented in the previous section. There was concern that there is a lack of training opportunities, and tightening of funding is impacting on the release of staff for training. The view was expressed that there are high expectations for people taking on a Senior Scientist role and there are other job opportunities in other fields for practitioners who have completed doctorates.

It was felt that there was a need for a workforce development and retention strategy, recognising that most of the laboratory workforce is female (68% according to the 2011 survey – p.11) and therefore flexible options are needed to move into fulltime work. A program of talent identification was suggested with training and progression through roles.

The following comments were made on the Senior Scientist role at discipline level:

Immunopathology

The demand for Senior Scientists is likely to stay the same (not increase) and they will do more tests but using different approaches.

Microbiology

As Microbiology becomes more technical and requires more advanced skills there will be a need for more Senior Scientists and support staff to train staff in scientific techniques.

Specialist skills in genomic biomes were seen as an emergent area, and sequencing and molecular techniques will be an area of increased demand. Technological innovation, when it becomes more reliable and cost saving, will result in services running 24/7 with routine work around the clock including extremely urgent testing. This will result in supervision implications which will impact on the role of Senior Scientists.

It was felt that laboratory staff will need to be upskilled to perform routine and urgent work in most areas, but this also means cost savings resulting from not needing to call in specialists for an urgent test.

The view was expressed that as the Senior Scientist population ages, experienced scientists are not coming through because of the impact of automation.

Genetics

Key drivers for Senior Scientists in this field included increasing complexity of testing, workflow and implementation of new techniques.

General Pathology

In relation to Senior Scientists working in medium to smaller laboratories genetic testing was rated as a high demand driver, and all the others as medium drivers apart from efficiency improvements which was rated as low.

There was a view that there was a need for Senior Scientists specific to the disciplines is increasing.

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Implications for Modelling

It was decided to use two growth drivers for the national Pathologist and Senior Scientist workforce:

- Total MBS billed service items 2011 to 2016 for the MBS Pathology service grouping, adjusted for weighted service volume for Anatomical Pathology using RTUs; and
- Trends in total Senior Scientist workforce size 2011 to 2016.

Table 3: Demand drivers for Australian Senior Scientist workforce

The size of the Australian Senior Scientist workforce was not known for 2011, therefore a five year workforce demand growth rate could not be calculated for the Senior Scientist Workforce. The Australian Pathologist Workforce growth rate was used as a surrogate rate as qualitative data indicated that the senior scientist workforce should grow at the same rate as the Australian Pathologist workforce.

Indicator	2011	2016	ACGR[1]
High Scenario: Total MBS Pathology billed services items including Weighted AP services (Tissue Pathology & Cytology)	121,438,904.6	146,578,412.8	3.8% Australian Pathologist Service Growth
Low Scenario: Workforce Size (Headcount)	157[2]	156	3.4% Australian Pathologist Workforce growth

Source: Retrieved from: http://medicarestatistics.humanservices.gov.au/statistics/mbs_item.jsp

Notes: (1) Annual Compound Growth Rate (ACGR)
   (2) 2015

RESULTS OF PROJECTION MODELLING

Figure 2: Results of Projection Modelling for Australian Senior Scientist Workforce, High Scenario (Service Demand)
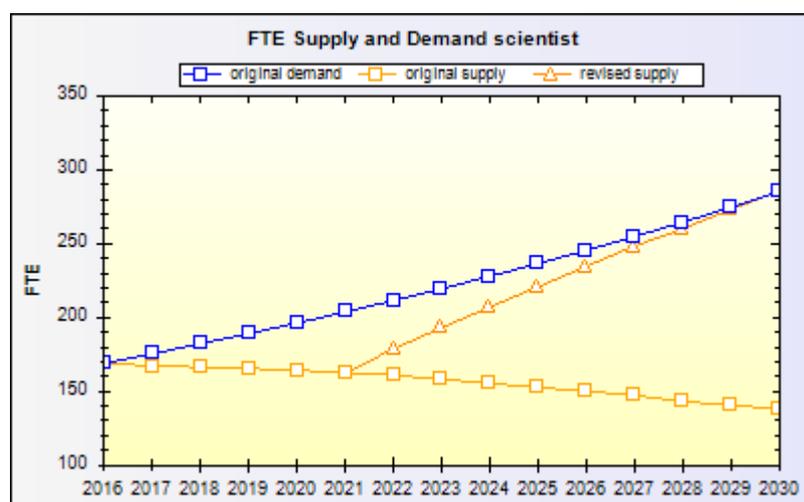
Figure 3: Results of Projection Modelling for Australian Senior Scientist Workforce, Low Scenario (Workforce Demand)
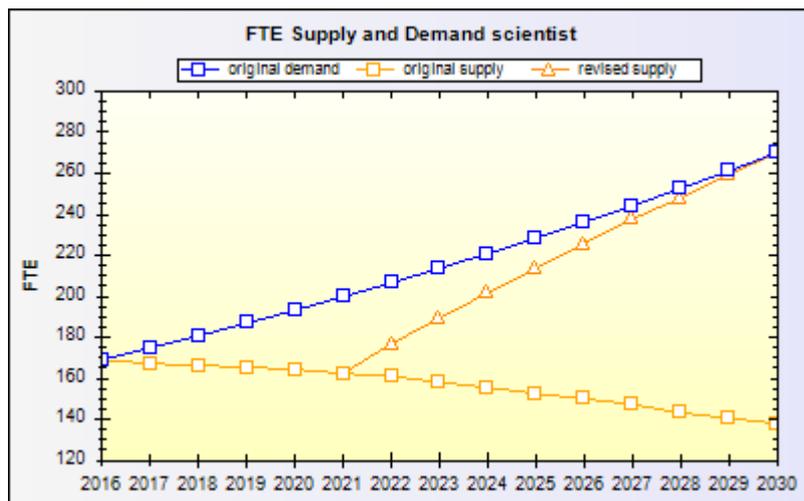

Table 4: Results of Workforce Modelling for Australian Senior Scientist Workforce

Senior Scientists	Base year	Low Scenario	High Scenario	Gap Low Scenario	Gap High Scenario
	2016	2030	2030	2030	2030
Trainees	7	24	26	17	19
New Fellows	6	21	23	15	17

The results of the modelling are that Senior Scientists need a high number of additional trainees, 17 under the Low Scenario and 19 under the High Scenario. Therefore, there clearly needs to be additional trainees funded, particularly to support the development of Senior Scientists in areas of emergent specialisation. Both demand estimates were four percent and higher and therefore the projection modelling resulted in higher additional numbers of trainees.

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