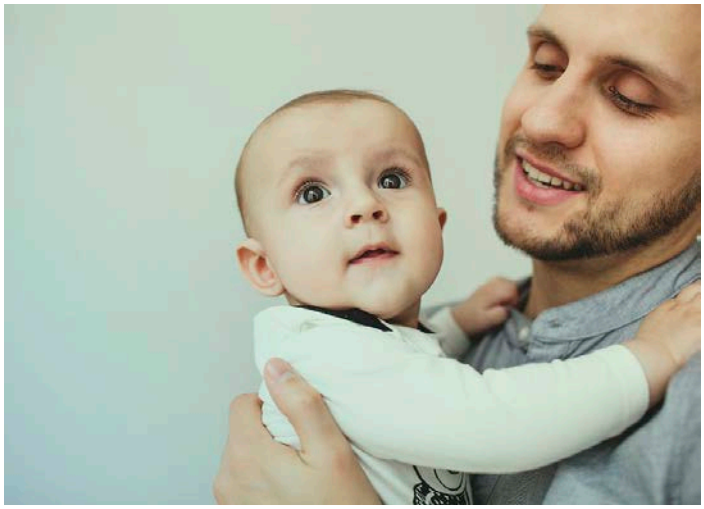
Evidence Summary

Australian Genomics Health Alliance

APRIL 2020 australiangenomics.org.au

Mapping genomic education for the Australian healthcare workforce

Australian Genomics' Workforce & Education Program identified 59 genomic education activities and resources produced in Australia in 2016/17. Systematic reviews of information from professional organisations and medical colleges, and desktop research revealed a diverse range of educational materials produced for varied audiences.



Background

Building a skilled and genomic-literate healthcare workforce has been named a key strategic priority under the Australian Government's National Health Genomics Policy Framework[1]. The Workforce & Education Program is addressing this priority, firstly mapping the landscape of current and planned genomic education activities in Australia (**Figure 1**).

Project Aims

This project provides a systematic and comprehensive overview of the educational materials produced in Australia and available to the healthcare workforce in 2016/17.

This included postgraduate university subjects, substantive ongoing programs suitable for continuing professional development (CPD), and Massive Open Online Courses (MOOCs).

Study Design

The audit of genomic education activities produced in Australia began with targeted searches of key health provider education and accreditation body websites, including:

- Royal College of Pathologists of Australasia (RCPA)
- Royal Australasian College of Physicians (RACP)
- Royal Australian College of General Practitioners (RACGP)
- Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG)
- Human Genetics Society of Australasia (HGSA)

This search was **supplemented by 17 Google keyword searches** and **key informant interviews** with Australian Genomics Workforce & Education Program members involved in education delivery to identify additional activities.

Data were verified and complemented where possible via **interviews with the educational program convenors**.

Key findings

Fifty-nine education activities or resources were identified (**Table 1**), with 81 per cent being national or based in New South Wales or Victoria. Programs were aimed at health professionals, genetic professionals, medical scientists and/or clinical bioinformaticians (details shown in **Table 2**).

Interviews were conducted with 32 education program convenors. **Of these, few held a tertiary education qualification; most were clinicians or scientists.**

Education category	Description	n
Postgraduate course/subject	Postgraduate university course (Master, Graduate Diploma, Graduate Certificate level) or individual subject units (which may be 3rd year level)	20
Substantive programs and resources	Substantive ongoing program (workshop, podcast, case study) or resource suitable for CPD	37
MOOC	Massive Open Online Course	2
TOTAL		**59**

Table 1. Number of education activities and resources identified during the 2016/17 audit and key informant interviews.

Health professionals A total of 17 substantive genomics education programs and one MOOC were identified for medical specialists, pathologists (excluding genetic), general practitioners, nurses, midwives and allied health professionals.	***Medical scientists*** A total of nine postgraduate university subjects or courses were identified for medical scientists. Seven substantive programs were also identified for medical scientists in training.
Genetic professionals – clinical There were seven genomic education programs identified targeted to genetic counsellors, clinical geneticists and medical specialists with training in genetics.	***Clinical bioinformaticians*** There is no formally recognised discipline of clinical bioinformatics; currently professionals with bioinformatics or computer science qualifications apply bioinformatics methods and analyses to clinical genomic testing. Eleven education activities were identified that either included genomic bioinformatics in the curricula, or where program convenors noted their program would be suitable for clinical bioinformaticians.
Genetic professionals – laboratory This category includes genetic pathologists and medical scientists with advanced training in genetics and genomics. A total of five genomic education programs were identified, all offered by the RCPA and all contributing to CPD.	

Table 2. Summary of the genomic education activities identified for different healthcare and scientific professions.

Conclusions

- **Genomic education programs were developed in response to the introduction of new technology**, rather than there being an overarching approach to genetic or genomic education that is able to incorporate new technologies as they emerge.

- To help address this, the Australian Genomics Workforce & Education Program research (**Figure 1**) is developing a **program logic model** and **evaluation framework for genomic education** to help **establish metrics and an evidence base.**

References

1. Australian Government Department of Health. (2017). **National Health Genomics Policy Framework 2018-2021**. Retrieved from Canberra, ACT: http://www1.health.gov.au/internet/main/publishing.nsf/%20Content/national-health-genomics-policy-framework-2018-2021

This evidence summary is derived from two study reports:

a. McClaren B, Nisselle A, Prichard Z, Dunlop K, Terrill B, Gaff C & S Metcalfe for the Australian Genomics Workforce & Education Working Group. (2018) **Mapping Existing Education and Training for the Australian Clinical Genomic Workforce**. Australian Genomics, Melbourne. Available at australiangenomics.org.au

b. Janinski M, McClaren B, Nisselle A, Dunlop K, Prichard Z, Terrill T & S Metcalfe for the Australian Workforce & Education Working Group. (2018) **Perspectives of Education Providers on Education & Training Needs of Non-Genomic Health Professionals.** Australian Genomics, Melbourne. Available at australiangenomics.org.au

Acknowledgements

Thank you to the Australian Genomics Workforce & Education Program Working Group, and to all interviewees. See more on the working group at australiangenomics.org.au/our-research/workforce-and-education and contact them on education@australiangenomics.org.au

Published April 2020. Australian Genomics Health Alliance is funded by NHMRC grant 1113531 and the Medical Research Future Fund.

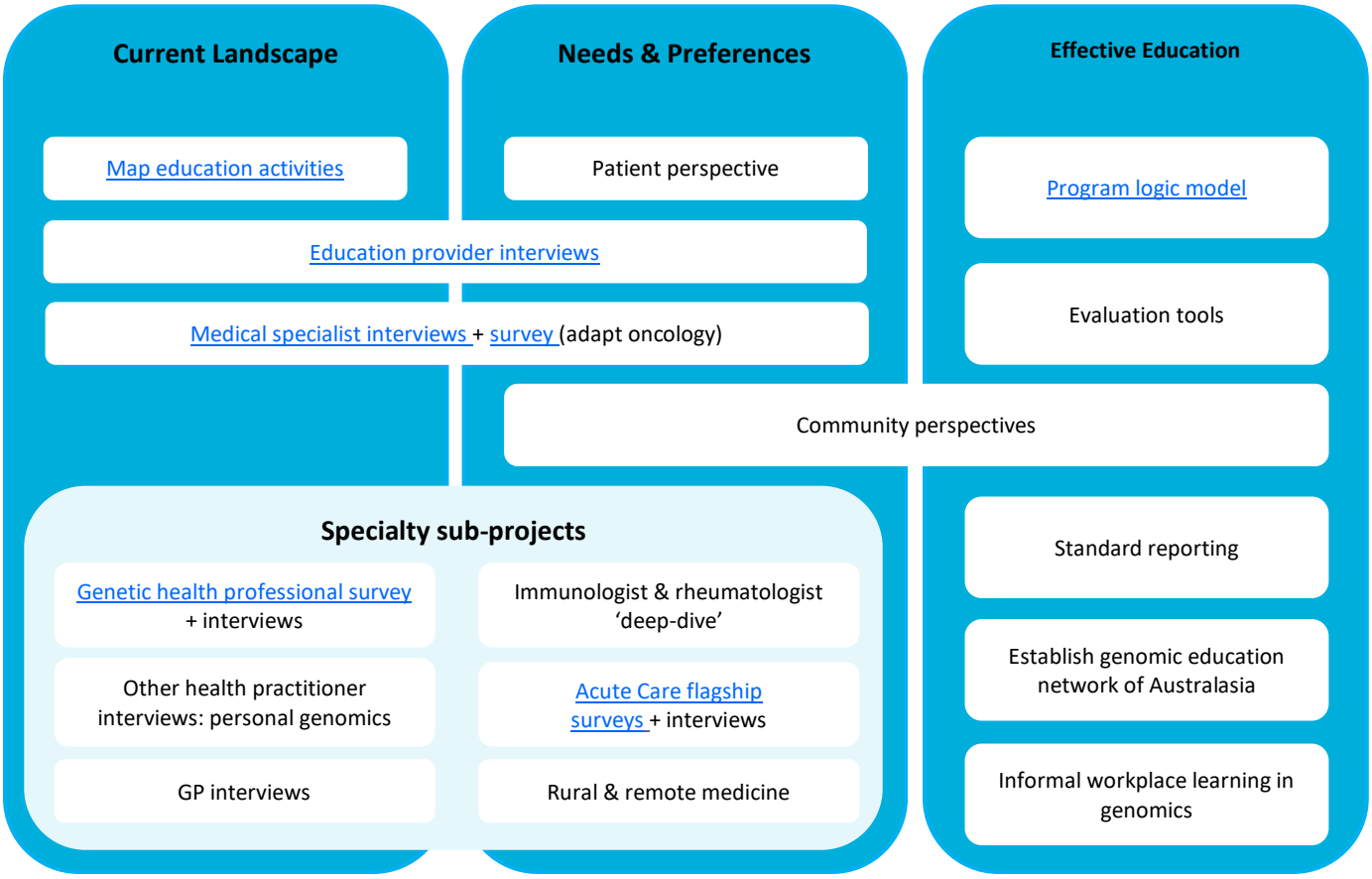


Figure 1. Australian Genomics Workforce & Education research Program.