

Minerva Access is the Institutional Repository of The University of Melbourne

**Author/s:**

Sahhar, M;Hodgson, J;Wake, S

**Title:**

Educating genetic counselors in Australia - Developing a masters program

**Date:**

2013-12-01

**Citation:**

Sahhar, M., Hodgson, J. & Wake, S. (2013). Educating genetic counselors in Australia - Developing a masters program. Journal of Genetic Counseling, 22 (6), pp.897-901.  
<https://doi.org/10.1007/s10897-013-9575-5>.

**Persistent Link:**

<https://hdl.handle.net/11343/220450>

# Educating Genetic Counselors in Australia-developing a Masters program

Margaret Sahhar<sup>1,2,3</sup> Jan Hodgson<sup>1,3</sup> Samantha Wake<sup>1,2,3</sup>

1 M.Sahhar, J. Hodgson, S.Wake  
Murdoch Childrens Research Institute  
Royal Children's Hospital  
Parkville, Australia 3052

2 M.Sahhar, S.Wake  
Victorian Clinical Genetics Services  
Royal Children's Hospital  
Parkville, Australia 3052

3 M.Sahhar, J.Hodgson, S.Wake  
Department of Paediatrics  
University of Melbourne  
Royal Children's Hospital  
Parkville, Australia 3052

## **Corresponding author:**

Margaret Sahhar  
Victorian Clinical Genetics Services  
4th floor, Royal Children's Hospital  
Parkville, Australia 3052  
Email: [margaret.sahhar@vcgs.org.au](mailto:margaret.sahhar@vcgs.org.au)

# **Educating Genetic Counselors in Australia-developing a Masters program**

**Margaret Sahhar, Jan Hodgson, Samantha Wake**

## **Abstract**

In 2005 a publication about genetic counseling training in Australia recommended that a two year Masters program be established to better equip Australian genetic counselors with increased clinical skills and genetic knowledge (Sahhar et al., 2005). A two year Masters program, it was argued, would increase the possibility of international reciprocity, thus increasing the employment opportunities for Australian trained genetic counselors overseas. In 2008 the first two year professional Masters program in Australia began at the University of Melbourne. The model for how this was achieved is discussed, along with the impact of the competencies developed by the Human Genetics Society of Australasia (Australian and New Zealand), on program evolution, teaching styles and clinical supervision. The principal challenges in developing the Masters program are explored and initiatives specific to SE Asia are discussed.

**Keywords** genetic counseling training, Australian professional Masters program, reflective practice, distance education, clinical placements, international students, professional guidelines

## **Introduction and background**

Australia is a large continent and genetics services in Australia vary between states and territories. Across Australia, genetic services are provided through a network of metropolitan and regional clinics by specialist health professionals based in, or affiliated with, tertiary level health services (see <https://www.hgsa.org.au/website/wp-content/uploads/2009/12/1999GL02-Structure-of-Clinical-Genetics-Units-in-Australasia1.pdf>). Genetic counselors are based in metropolitan and/or regional genetic services, where they may provide genetic counseling in areas such as cancer, prenatal,

pediatric, adult and specialty genetics (see Australasian Society of Genetic Counsellors website for more information, [www.asgc.org.au](http://www.asgc.org.au)).

A one year postgraduate genetic counseling training program was first established in Australia in 1995. The University of Melbourne Graduate Diploma in Genetic Counselling was established in 1996 followed by two other one-year programs, one being a distance education program.

This training process was different from that in the United States and the United Kingdom, where established training programs were two year Masters level programs. In the development of the first Australian program differences related to population size and distribution, professional entry specific programs and teaching resources (Sahhar, et al., 2005). The one year Graduate Diploma of Genetic Counselling offered through the University of Melbourne taught genetics, counseling, communication skills and theories, and then integrated theory into practice with a four week clinical placement at the end of the academic year. Genetic information was taught following the principles of modified problem based learning. The program was equally divided into genetic and counseling curricula, which could be studied consecutively on a part time basis. A maximum of twelve students were selected each year and teaching emphasised interactive small group learning. Faculty were principally genetic counselors, clinical geneticists and scientists from the clinical genetics service where all tutorials were held off campus. Students were allocated a genetic counselor mentor. Students participated in active feedback and evaluations, to effect changes to the curriculum content and methods of assessment over the years.

From 2004-2005, the genetic counseling profession in Australasia initiated discussion about whether to review their requirements for genetic counseling training and certification. The rationale and process is discussed separately in an article in this issue (McEwen et al 2012). The coordinators of the University of Melbourne Graduate Diploma program were supportive of change and enthusiastic to establish a two year Masters to teach the expanding necessary skills and to conform to genetic counseling teaching internationally (Sahhar, et al.,

2005). This coincided with a decision by the University of Melbourne to establish the 'Melbourne Model', effective from 2008. In this model, similar to the university model in the United States of America, students enrol in generalist undergraduate degrees followed by specialist postgraduate degrees.

### **The experience of developing a two year Masters program**

In developing the two year Melbourne Master of Genetic Counselling program, (MMGC), there were a number of challenges to be overcome. The experience of teaching the one year Graduate Diploma in Genetic Counselling informed the processes of curriculum development, teaching methods and candidate selection. Whilst there was universal recognition that the skills to be taught required a two year program, with the addition of research and expanded clinical placements, the additional required workload in both teaching and supervision caused some concern amongst local clinical genetics professionals. Much effort has been placed on working collaboratively with our local and international colleagues to ensure a smooth transition to the two year Masters program.

### **Preparation**

An academic link between the Manchester MSc and the MMGC had been established initially with the one year Graduate Diploma in 1997. The United Kingdom and Australia share similarities in their respective health care systems, and there are similar models for funding and employment of genetic counselors.

This relationship has been beneficial in developing the MMGC , to discuss curriculum, consider clinical placements and research and to inform perceptions of the workload, clinical placements, research, aims and outcomes.

### **Stakeholder involvement**

Stakeholders were identified to include- current faculty, the Medical Directors of several clinical genetics services where students would be supervised, representatives of the professional organisation, the Australasian Society of Genetic Counsellors (ASGC) and the certification board Human Genetics Society of Australasia (HGSA) Board of Censors for Genetic Counselling and the Department of Paediatrics at the University of Melbourne, located within the Royal Children's Hospital where the MMGC is conducted

Other professional groups who had recently developed two year programs at the University of Melbourne, including the Master of Social Work, were involved to discuss their resolution of similar issues and their outcomes.

Discussions with stakeholders culminated in a facilitated workshop to develop the MMGC. This process proved to be crucial in retaining existing goodwill and facilitating the ongoing commitment of supervisors to an increased role in clinical placements and research.

### **Overall curriculum plan**

The MMGC is a 200 credit point program, completed over 2 years (100 credit points per year). In the first year, students complete three genetics subjects, one counselling skills and two health communication skills subjects, and one research design and methodology subject. In addition to this, students are observers in various genetic clinics and complete a community placement as part of the subject Genetic Counselling in the Community. In their second year students complete a minor thesis on a supervised research topic, undertake clinical placements and attend a weekly genetic counselling practice tutorial. The course outline may be found at <https://handbook.unimelb.edu.au/view/2012/MC-GENCOUN>.

### **Teaching styles**

The course uses a self-directed learning approach based on situations that a genetic counselor in a clinical genetics service may encounter. In genetics tutorials students discuss cases with a view to learning the basic genetics. Students are expected to collaborate with

each other in a non-competitive manner, making use of the group's skills, knowledge and previous experience, thereby integrating existing knowledge and skills with active group learning. This modified problem based learning approach models the work of genetic counselors, who need to be able to identify, access and discuss relevant information with both genetics and related multi-disciplinary teams.

Teaching emphasises an open critical reflection of the impact of information on each student. Facts are taught and the impact of this information is considered individually and by the group. This is achieved in the following ways:

- Role plays with guided discussion by a tutor to encourage discussion and consideration of the personal impact on the student as well as the information and counseling strategy
- Assessments to encourage self reflection on the impact of theories and practice
- The use of process records to document genetic counseling interviews, which the student has observed in the clinical setting, and to consider counseling theory and strategies. Student reactions to clients, through observation of verbal and non verbal behaviour and discussion of the impact are included
- Use of the group process - the student group as a whole are encouraged to reflect upon their peers' observations and comments and to voice similar and different observations and feelings. Students are encouraged to discuss their own relevant experiences, supported by the tutor.

## **Reflective Practice**

Reflective practice is enshrined in the professional guidelines of genetic counselors throughout the world (for example [www.nsgc.org](http://www.nsgc.org), [www.gcrb.org.uk](http://www.gcrb.org.uk).) (Evans, 2006; Fraser, 1974; Resta et al., 2006; Veach et al., 2003). This is the model for teaching in the MMGC:

- Weekly tutorials provide an opportunity for students to reflect upon and further develop their key competencies by use of journal club presentations, role plays, case presentations and facilitated discussions by experienced counselors.

Twice during the year all students take part in a videotaped simulated patient session that was specifically adapted for genetic counseling students from an existing program at the Royal Children's Hospital (Barrett & Hodgson, 2011). The Simulated Patient program uses experienced actor/tutors who are trained in simulation and teaching methods, offering students a near authentic genetic counseling experience that provide them with several important opportunities for self reflection. Students receive immediate feedback from the actor/tutor after which they view their videotape alone, then with a supervisor and then with their peer group. A graded written assignment each semester involves verbatim transcription of their session, an analysis of the content and interactions and a reflection on the process. Student feedback and evaluations have been overwhelmingly positive.

## **Clinical placements**

Clinical placements during second year provide an opportunity to integrate theory into practice. Students complete three placements in settings which may include cancer, prenatal, pediatric and adult genetic services, and complete a logbook of 50 cases over the course of the year, to fulfil the requirements outlined in the curriculum and accreditation of Masters Programs in Genetic Counselling (See <https://www.hgsa.org.au/website/wp-content/uploads/2009/06/2010GL01-Masters-Programs.pdf>)

Supervisors play an important role in the process of continuing to develop self awareness in students (Cleak & Wilson, 2007). ). Students are encouraged to consider their individual learning styles, to maximise the integration of their practice into theory.

The supervisor's report, completed at the end of the placement, encourages reflection of student and supervisor in assessing the competencies to be attained on a 5 point scale, whilst reflecting the competencies required by the HGSA Board of Censors for Genetic

Counselling for the certification process of graduate genetic counselors

(<https://www.hgsa.org.au/website/wp-content/uploads/2009/06/Guidelines-for-TC-in-genetic-counseling-version-31-July-2011.pdf>)

### **The International Experience**

The international experience encompasses student placement opportunities and the inclusion of international students in the student cohort.

Aside from a wide range of opportunities within Melbourne, a well developed network of international placements has been developed and students can choose to undertake a clinical placement overseas. International placements provide students with a valuable opportunity to increase self awareness and understanding of the impact of culture on genetic counseling practice, counseling skills, communication and decision making. The MMGC is an active member of the Transnational Alliance of Genetic Counselors (TAGC), which has facilitated this process ([www.tagc.org](http://www.tagc.org)).

Every year the student group includes several international students. Their inclusion in the small group facilitates thoughtful consideration, challenge and discussion of the impact of culture on language, communication and decision making in genetic counseling.

### **Research process**

In second year students are required to undertake an original, relevant research project and submit a minor thesis. A research coordinator has been appointed to oversee and guide the research process.

A range of projects are suggested by professionals across several clinical genetics services and other organisations (eg support groups, university departments), and students are encouraged as a group to self-assign projects according to interest. Each student will have an advisory committee of supervisors to support their research process. Over the last few years this has evolved into an active, iterative student-led process.

Students are encouraged to publish their findings, and to present at scientific meetings. Feedback from researchers and clinicians has been uniformly very positive with an increasing number of project ideas made available for students to develop.

### **Peer and professional support**

Students are encouraged to engage with a number of peer and professional supports throughout the course. This is an 'opt-in' process in which most students choose to participate. Mentors are practising genetic counselors who are role models for the students, able to support them and encourage consideration of all aspects of their student role. They do not have managerial or administrative responsibility for the student nor are they the student's clinical supervisor. Buddies are second year students and research buddies are frequently past graduates who are pursuing further research.

### **Future Directions**

Australia is situated within the S E Asian geographic area. There is no genetic counseling program established in either Malaysia or Singapore, (close neighbours), although both countries offer clinical genetics services and have employed Australian trained genetic counselors. Applicants from these and other Asian countries are increasingly applying to be trained within the MMGC. The high fee structure for international students, as well as relocation and housing costs, may be a deterrent for many applicants from these countries. There is currently discussion with the University of Melbourne about providing some distance learning. The market for this distance education program would be individuals who are interested in learning more about the ongoing developments in our understanding of genetics and the role of genetics in determining human health. The proposed subjects to be taught are primarily genetics content based, as a decision has been made that counseling subjects require group and individual face to face interaction. Two subjects will be developed from existing subjects offered by the MMGC, and will focus on genetic health care principles

for clinicians from a range of professional backgrounds, such as nursing, general medical practitioners, and allied health, working in Australia or other countries in the Asia Pacific region. The learning objectives for these subjects will be focused on upskilling health practitioners about genetic principles and emerging genetic technologies, and their application to clinical health care. It is envisaged that students will enrol either in single subjects or undertake a Graduate Certificate program, which is currently under development. Individuals who complete the Graduate Certificate may take some classes with students enrolled in the Master of Genetic Counselling program, and it is envisaged that this will enhance the learning for all students due to the exposure to a more diverse range of skills and experience. In the future individuals who complete these subjects or the Graduate Certificate may proceed into a Master of Genetic Counselling program. Distance education for some subjects will decrease the costs involved for international and interstate students.

## **Conclusions**

The MMGC grew out of a one year Graduate Diploma program established in 1996 which reflected the preferred University model for postgraduate teaching at that time. Since it was first offered in 2008 the MMGC program has undergone several changes, including the addition of two new subjects, one each in the genetics and research curriculums. These changes have come about in response to feedback from faculty and students, and from the proactive stance the curriculum committee takes to advancing the quality and calibre of the program.

As the MMGC moves into the phase of developing subjects to be delivered via distance education we hope to provide health professionals working both locally and internationally with the opportunity to upskill in the principles of genetics and the application of genetics to modern day health care.

In Australia employment opportunities for genetic counselors remain highly competitive. The majority of genetic counseling positions are in the public healthcare sector reliant on

Government funding to create new positions. However the skills taught in the MMGC have, very appropriately, facilitated employment opportunities in other sectors. These include IVF counseling, (traditionally social work positions), coordination of large community genetic screening programs (Tay Sachs carrier screening, Haemochromatosis screening, cystic fibrosis carrier screening), project management of large research projects and employment in organ transplant coordination and forensic medicine. Since 2006 a number of genetic counselors in Australasia have completed a doctorate (PhD) in genetic counseling and an increasing number of graduates are enrolling in a PhD, which are separate to the clinical Masters programs. Those who graduate with a PhD may go onto undertake clinical work, become educators or continue as researchers, although having a doctorate is not currently a prerequisite for attaining employment in any of these areas.

Genetic counselors around the world play an integral role in the delivery of health care and support services to individuals with a personal or family history of a genetic condition.

Following the 2010 changes to the HGSA genetic counseling certification requirements, Australia is now on the cusp of having the first two year Masters graduates achieve full professional certification in genetic counseling. We envisage that this will contribute to the further development of the profession's profile in the healthcare sector and strengthen the standing of the Australasian genetic counseling profession both nationally and internationally.

## **Acknowledgements**

The authors acknowledge the support of the Victorian Government's Operational Infrastructure Support Program in writing this paper.

Discussions with Professor Heather Skirton, from Plymouth University in the United Kingdom, have been of great assistance in informing the development of a distance learning program.

## References

- Barrett, J., & Hodgson, J. (2011). Hospital simulated patient programme: a guide. [Article]. *Clinical Teacher*, 8(4), 217-221.
- Cleak, H. M., & Wilson, J. (2007). *Making the most of field placement / Helen Cleak & Jill Wilson* (2nd ed.): South Melbourne : Thomson Learning Australia.
- Evans, C. (2006). *Genetic counselling. A psychological approach*. Cambridge: Cambridge University Press.
- Fraser, F. C. (1974). Genetic counseling. *American Journal of Human Genetics*, 26(5), 636-661.
- Kennedy, A. L. (2000). Supervision for practicing genetic counselors: an overview of models. *Journal of Genetic Counseling*, 9(5), 379-390.
- LeRoy, B. S., Veach, P. M., & Bartels, D. M. (2010). *Genetic counseling practice: advanced concepts and skills*. Hoboken, New Jersey: Wiley-Blackwell.
- McEwen, A.R., Young, MA. & Wake, S. Training and Certification in Genetic Counseling: The Australian and New Zealand Experience (submitted to *Journal of Genetic Counseling* 2012)
- Resta, R., Biesecker, B. B., Bennett, R. L., Blum, S., Estabrooks Hahn, S., Strecker, M. N., et al. (2006). A new definition of genetic counseling: national society of genetic counselors' task force report. *Journal of Genetic Counseling*, 15(2), 77-83.
- Sahhar, M. A., Young, M.-A., Sheffield, L. J., & Aitken, M. (2005). Educating genetic counselors in Australia: Developing an international perspective. *Journal of Genetic Counseling*, 14(4), 283-294.
- Veach, P. M., LeRoy, B. S., & Bartels, D. M. (2003). *Facilitating the genetic counseling process: a practice manual*. New York: Springer - Verlag.