Journal of Medical Radiation Sciences

Open Access

ORIGINAL ARTICLE

How do Medical Radiation Science educators keep up with the [clinical] Joneses?

Eileen Giles, MHSc (MRS), BApSc (RT), FIR

School of Health Sciences, University of South Australia, Adelaide, South Australia, Australia

Keywords
Continuing professional development, medical radiation science educators

Correspondence
Eileen Giles, School of Health Sciences, University of South Australia (City East), Frome Rd, Adelaide, South Australia, Australia 5001. Tel: +61 8 8302 1733; E-mail: eileen.giles@unisa.edu.au

Received: 9 January 2014; Revised: 8 April 2014; Accepted: 9 April 2014

Journal of Medical Radiation Sciences **61** (2014) 102–111

doi: 10.1002/jmrs.53

Abstract

Introduction: Medical radiation science (MRS) disciplines include medical imaging, radiation therapy and nuclear medicine. These allied health fields are technology driven and evolving rapidly with regard to imaging and treatment techniques within the clinical environment. This research aims to identify the activities academics are currently participating in to maintain clinical currency and offer strategies to support academics to connect with an ever-changing clinical environment. **Methods:** A cross-sectional designed survey was sampled across the nine Australian universities where MRS programmes are offered. The survey targeted academic teaching staff that were working in MRS programmes at the time of distribution ($n \approx 90$). Enablers and barriers to maintaining clinical currency as well as support to participate in continuing professional development were rated by the respondents. Descriptive statistics were used to analyse quantitative data, and free-text comment responses were collated and themed. **Results:** There were 38 responses to the survey (42%) and all three disciplines were represented. Responses highlighted activities valued by academics as contributing to their knowledge of current practice and as resources to inform their teaching. Positive elements included participating in clinical work and research, attending clinical sites and training days and attending scientific meetings. Common barriers identified by academics in this area were time constraints, workload allocation and employer/financial support. **Conclusion:** This research has identified that Australian MRS academics participate in a broad range of activities to inform their teaching and maintain knowledge of contemporary clinical practice. A connection with the clinical world is valued highly by academics, however, access and support to maintain that link is often a difficulty and as a result for MRS teaching staff keeping up with the clinical [MRS] Joneses is often a challenge.

Introduction

Context

This article presents the results of a national survey of Australian medical radiation science (MRS) educators that examined the topic of continuing professional development (CPD) with regard to keeping up to date in their MRS discipline.

MRS disciplines include medical imaging (MI), radiation therapy (RT) and nuclear medicine (NM). These allied health fields employ the use or delivery of ionising radiation for patient diagnosis and treatment, and are increasingly dependent on high-end technology in an ever-changing clinical environment. Rapid changes in health care systems require health practitioners, including those in the MRS professions, to adopt changes continually in the provision of quality health care.

In July 2012, national registration of the MRS professions was implemented under the health practitioner regulation national law act, to regulate standards of practice in maintaining safe delivery of quality health care. Practitioners must undertake CPD activities as a condition of registration.[1] This standard applies to all medical radiation practitioners including those employed in education. Prior to national

registration CPD was mandatory for clinicians to maintain a validated statement of accreditation and linked to licensing in some states.

Academics that teach MRS programmes at Australian Universities may no longer be employed in the clinical environment. There is a need and expectation to embed contemporary practice into the curriculum of entry level university programmes and facilitate the application of theory in training for a practice-based professional career.

Literature

Similar studies of MRS academics' participation in CPD to maintain currency and inform teaching were not found in the literature. One Australian article sourced exploring concerns for MRS university programmes, did include a section on MRS academic staff, citing potential barriers to recruitment.[2] Articles that explore CPD or lifelong learning (including preceptorship) in MRS, are primarily focussed on clinicians.[3–7] Even if one works as a clinician, it is difficult to maintain clinical currency in all areas of a particular MRS discipline and so CPD is essential to routinely achieve currency by both clinical and academic staff.[3] The international and local literature sampled in summary highlighted the need for and place of CPD in maintaining clinical competency and advancing the MRS professions; offered flexible avenues through online engagement and also focussed on the support and training of clinical teachers. MRS academics were not included specifically. There were, however, related studies of nursing and medical academics and the barriers to maintaining clinical competence found in the international literature.[8–12] Parallels may be drawn with these articles when considering the enablers and barriers for local MRS educators in keeping up to date in their discipline. Specifically nursing academics have been the subject of inquiry into clinical competence and role definition. Maintaining clinical currency while achieving teaching and research outcomes is a common topic explored,[8,10,12] as well as the potential dis-connect between universities and clinical sites when considering the differences in the nature of academic and clinical workloads.[9,11] Collaborative strategies to engage clinical sites and academic staff were also highlighted.[8,10,13]

Purpose

The primary aims of this research were to do the following:

(1) Identify the CPD activities Australian academics are currently participating in to maintain clinical currency in their disciplines.
(2) Offer strategies to support academics to connect with an ever-changing clinical environment.

Subsidiary aims of this study were to also identify the following:

- What the enablers for and barriers to maintaining clinical currency for MRS academics are.
- What strategies can be offered for MRS academics to keep up to date with clinical and professional practices.

The results of the survey are presented and discussed in this article.

Methods

Survey design

MRS academic responses were collected via an online self-administered survey utilising SurveyMonkey™ (Palo Alto, CA) from the 9 September to 14 October 2011. This method enabled anonymous responses to be provided easily by staff located in universities around Australia. A cross-sectional design was employed as this model is ideal for collecting data that cannot be directly observed, but instead are self-reported, such as opinions, attitudes, values and beliefs.[14] Questions about enablers and barriers to maintaining clinical currency as well as support to participate in CPD in their discipline were rated by the respondents. Response types included both forced-choice closed-ended responses and open-ended responses. Descriptive statistics were used to analyse quantitative data, and free-text comment responses were collated and themed. A group of anticipated wide themes were initially used to group responses superficially and allow familiarisation with the data. This was then followed by grouping and summarising similar responses to identify the most appropriate themes for analysis.

Target population and recruitment

The survey was purposively sampled across the nine universities where MRS programmes were offered at the time of the survey, to provide a representative sample of the population of MRS academics.[15] The survey targeted academic staff that were working in teaching positions in the MRS disciplines of MI, RT or NM, and had a past or current clinical background in that discipline ($n \approx 90$). The link to the survey was distributed through the heads of discipline in each institution via email. Two reminder emails were sent over the period that the survey was open.

Ethics

Ethics approval was granted from the Human Research Ethics Committee of the University of South Australia. Consent was implied by virtue of the participant reading the explanatory statement and completing the survey.

Results

Demographics

There were 40 responses to the survey, 38 completing all questions (constituting an overall response rate of 42%) and all three disciplines were represented. The gender balance of respondents was even overall but MI, RT and NM were disproportionate male to female M:F = (MI 15:9) (RT 2:9) (NM 3:2).

With respect to academic experience, 60% of respondents had worked over 5 years in academia. Figure 1 illustrates the range of academic experience across the three disciplines.

Approach to CPD

Respondents were offered options to select from that describe their approach to CPD as shown in Figure 2. The results show 74% of those academics followed a structured approach or reported their CPD while 26% adopted self-directed CPD that is not reported or did not undertake CPD at all.

Given the majority of academics surveyed were participating in CPD, it is surprising that there were only 50% who felt supported to participate in CPD activities by their employers. Of those that did feel supported, 75% selected both allowing paid leave to attend activities off campus, and receiving financial support to attend activities off campus as the main areas of employer support for CPD. Only six respondents were supported by employers allowing a proportion of workload for CPD (apart from teaching and research).

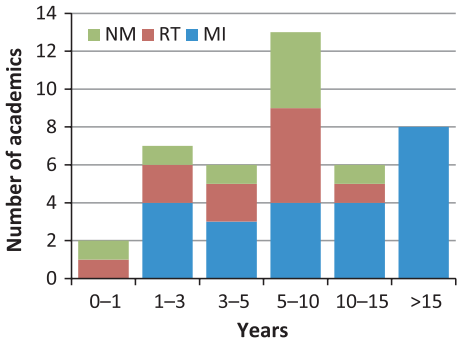

Figure 1. Years working in academia.

CPD activities

In consideration of the activities deemed important for keeping up to date with contemporary clinical practice, academics rated the following the most valuable 10 activities (Fig. 3).

The Likert scale, converted to a range of 0–5 on the *x* axis, denotes a median rating of responses from no value (0) to extremely valuable (5). These activities rated as the most valuable activities over the sample.

Given the same list of activities, respondents were asked to nominate how regularly they had participated in CPD activities. The Likert scale this time denoted a median rating of responses as follows: never (0), once (1), sometimes (2), irregularly (3), regularly (4) and always (5) (See Fig. 4).

The top five most *regularly participated in* activities (Fig. 4) largely correspond with the most *valued* activities (Fig. 3) with the exception of clinical work. When analysing individual responses correlation was not strong between the top five responses comparing most valued activities to those most regularly participated in, however, a comparison of the frequency of responses to each descriptor are as follows (Table 1).

Clearly, academics value clinical work but not surprisingly do not regularly participate in this activity. The level of participation is self-rated and not measured specifically in time; however, it can be assumed that most valued activities on average show irregular participation, with the exception of self-directed reading of current literature and scientific/clinical research which rated with the highest participation levels.

In terms of how much these activities inform the teaching of new technologies or contemporary clinical practices in a specific discipline, respondents rated the top five as: (1) self-directed reading of current literature, (2) subscription to scientific journals, (3) scientific/clinical research participation, (4) Scientific meeting attendance (discipline national conference), and (5) other discipline-related conferences. Asked how the information gained from any of these activities was used in teaching, the responses showed a variety of strategies as illustrated in Figure 5. All 38 respondents selected directly embedding information into their teaching material through lectures, tutorials and practicals but there was a varied approach to using information in other teaching activities. Respondents selected multiple options in answering this question.

Academics also identified key activities that they wanted to undertake but were not able to and why. These included not attending conferences or short courses/workshops promoted to clinicians due to the lack of financial support, and not being able to partake in clinical work or journal

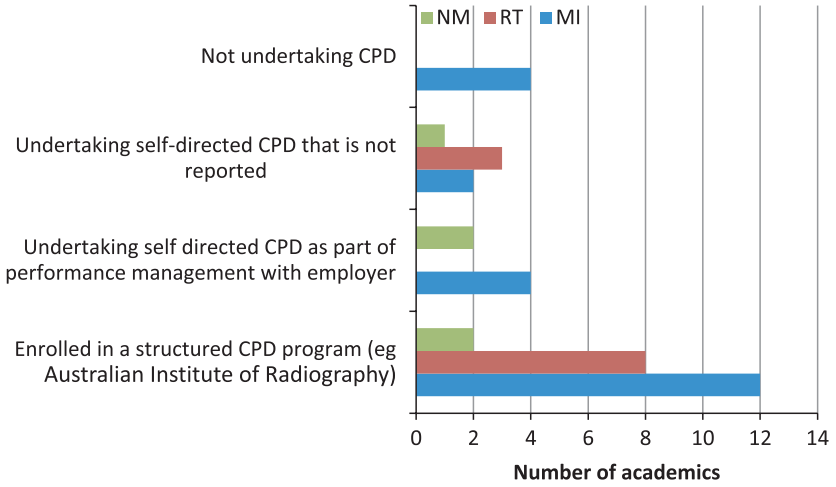

Figure 2. Approach to continuing professional development.

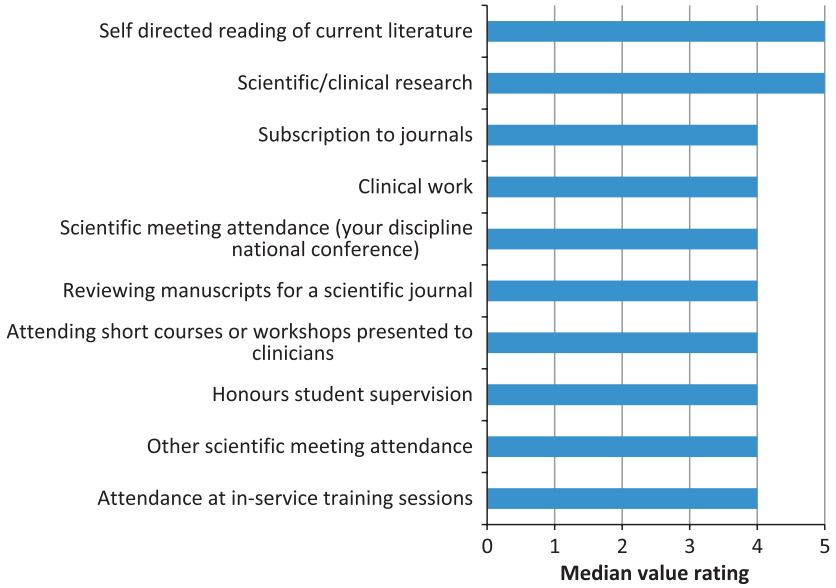

Figure 3. Activities most valued by academics for keeping up to date with contemporary clinical practice rated from no value (0) to extremely valuable (5).

clubs due to time constraints. Free-text responses highlighted some confounding factors: for example, conferences being scheduled in university teaching or clinical time that restricts the amount of time that can be allocated to attending. Another difficulty is recognition for clinical work being just as productive as time spent on campus and the idea that working clinically or keeping current is not encouraged or valued by universities.

Barriers to CPD

Asked what, in their opinion, were the barriers to maintaining clinical currency in their discipline, respondents weighted suggested barriers from the following list in Figure 6.

The Likert scale, converted to a range of 0–4 on the x axis, denotes a median rating of responses from not a barrier (0) to the highest barrier (4). There was little difference in the weighting of barriers and so all these are factors that make keeping up to date challenging. It was not surprising for the highest being *no time in the workload* but an almost considerable barrier was *lack of invitation to partake in clinical activities*. At the lower end was recency of practice concerns. Free-text responses included university requirements such as attending all discipline-related meetings, short turnaround times

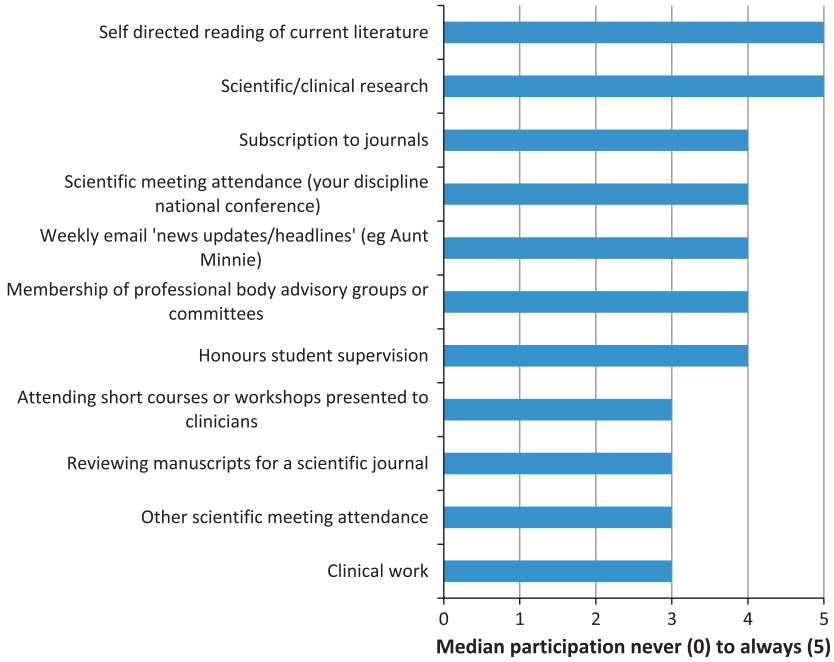

Figure 4. CPD activities most regularly participated in to keep up to date with clinical practice. Median response from never (0) to always (5).

Table 1. Comparison of most common responses for value and participation of activities.

	Value					Participation				
Activity	No value	Minimal value	Somewhat valuable	Valuable	Extremely valuable	Never	Once	Sometimes/ Irregularly	Regularly	Always
Self-directed reading of literature	0	0	1	18	20	0	0	3	13	23
Scientific/clinical research	1	1	3	11	22	2	3	6	10	18
Subscriptions to journals	0	2	4	20	12	4	0	3	24	8
Clinical work	1	2	8	11	16	10	4	15	4	4
Scientific meeting attendance	1	3	4	21	10	0	2	15	17	5

expected by the university for marking of assessment items, subject teaching and quality assurance requirements.

Finally, respondents were asked whether the requirements for CPD for academics should be the same as for clinicians. The majority (57%) selected the option that it should be similar with more activities defined for academics while 34% selected a specific programme for academics. Strategies offered (in free-text responses), that could be put in place to allow MRS academics to undertake CPD activities, are summarised as follows:

- Include academics when vendors come in to do training. This could include user group meetings and staff in-service programmes
- Workload formula allocation that includes provision for activities that keep academics up to date in their discipline
- Institution recognition of importance
- Make clinical component part of role
- Increased financial support/scholarship funds to attend conferences
- Specific CPD activities for academics

Discussion

This study has provided an insight into the enablers and barriers experienced by Australian MRS academics in maintaining currency and informing teaching in their discipline. Themes that have emerged from the

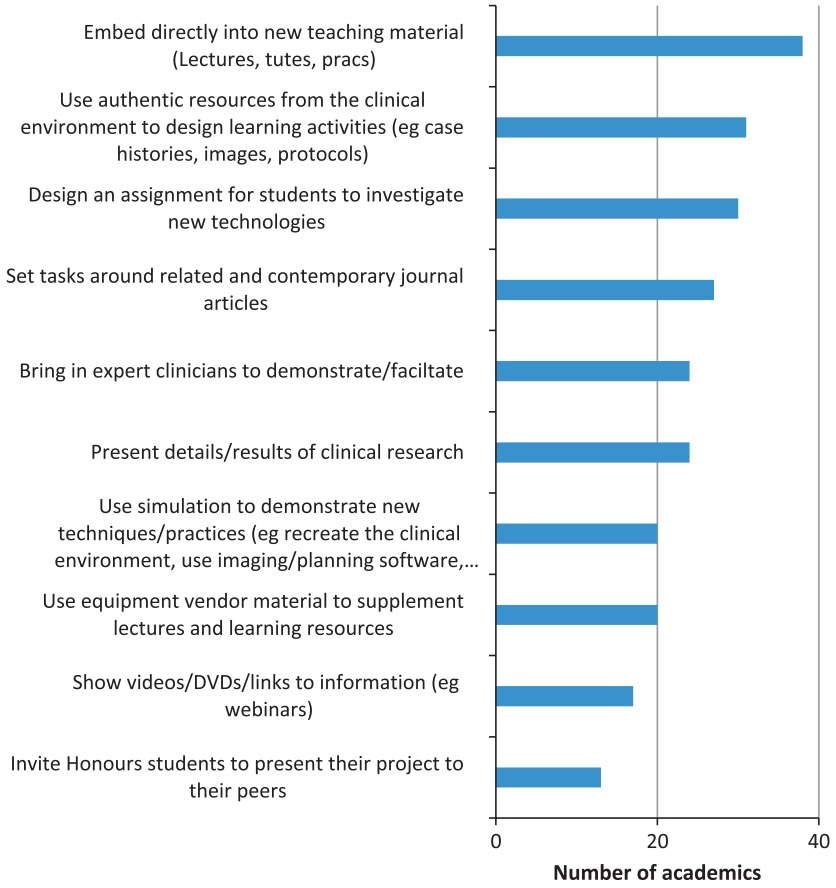

Figure 5. How information gained through CPD activities is used in teaching.

data include: competing work priorities/pressure, low value of clinical work by employers, CPD requirements specific for academics and the need for support strategies aimed at both employers and clinical sites.

Competing work priorities/pressure

Halcomb et al. discuss the high expectations of nurse educators in the United States that include participating in clinical practice, producing scholarly works, teaching, providing clinical instruction, advising and participating in professional organisations.[8] Pressures identified by academic participants in this Australian study are worthy of comparison:

> *. . .there are always time conflicts as there is a need to keep up to date with clinical advances, research advances and teaching and learning advances. . .limited CPD time needs to be divided between these activities.* (Participant 10)

Respondents also highlighted the added difficulty in participating in clinical work.

> *I have not undertaken 'clinical' work for a long time. . .although I try to maintain currency and believe I am an effective teacher in the discipline.* (Participant 2)

Interestingly, in the United Kingdom, lecturers in nursing must spend 20% of their time maintaining their clinical credibility and competence.[9] No such requirement existed through the Medical Radiation Practice Board of Australia (MRPBA) at the time this study was conducted but some respondents suggested this should be a requirement for academia and a strategy to allow MRS academics to undertake CPD to keep up to date in their discipline:

> *Make clinical currency a part of being an academic! It is very important and vastly under-rated in its value.* (Participant 12)

> *A national academic/discipline specific understanding that the MRS profession is based on clinical competence. Therefore when position descriptions are advertised, it shouldn't be up to the 'soon to be' MRS academic to negotiate with their employer as to how they offset some of their clinical/CPD*

Figure 6. Median response of barriers to maintaining clinical currency weighted from not a barrier (0) to the highest barrier (4).

from their core academic commitments. As it stands, much of the clinically based CPD is undertaken in our own time on weekends and evenings... (Participant 14)

Low value of clinical work by employers

In conflict with this suggested strategy is the perceived contrast in value attributed to clinical work from academic institutions. Academics reported that maintaining clinical currency was not supported in comparison to other academic activities.

Working clinically or keeping current in this area is not encouraged. Almost seen as beneath the role of an academic. (Participant 1)

...1-2 days spent working in the clinical environment still accumulates the same number of missed calls and emails making it hard to catch up on academic work such as lesson preparation and marking. (Participant 4)

Murphy suggests the integration of nurse education into higher education in the United Kingdom, was the significant point when clinical practice for nursing lecturers declined. This was due to the requirements of academia to pursue doctorates, develop research skills and to produce publications. Clinical practice was, therefore, not regarded as an activity of value since it could not be considered for performance measurement or promotion.[11] This is driven by higher education institutions being assessed on the quality of research and outputs, not so much on the quality of teaching.[10] The conditions in Australian universities are indeed comparable and so the responses from this study are not surprising. In providing balance to this discussion, the possession of academic skills must not appear undervalued. It is not the intention of the author to suggest that the development or enhancement of academic skills should be reduced by or replaced with clinical work. Indeed there are accepted standards of educational structure and qualification requirements for education providers built into the Australian qualifications framework[16] and also for the purposes of registration in the MRS professions.[17] The pitfalls of offering educational programmes utilising clinical staff with little academic input should be acknowledged.

CPD requirements specific for academics

Structured CPD programmes such as that offered by the Australian Institute of Radiography (AIR) have undergone recent revision with the implementation of national registration. Historically obtaining a minimum level of CPD was a requirement for maintaining a validated statement of accreditation with the AIR. It is now a required standard for registration with the MRPBA

to practice. It was not within the scope of this study to gauge how many academics would seek or require registration, however, the MRPBA does define MRS practitioners as those also working in education. There are several categories under which the AIR programme CPD activities are logged, and a minimum number of categories required to demonstrate breadth of experience.[18] Arguably many categories of activities could be deemed as normal expected academic work, for example: formal education, research and publications, conference attendance, conference presentations and writing.

> *I think the bar is far too low for academics to meet .. CPD criteria. Most of the items are things we do on a daily basis – it does not stretch our horizons.* (Participant 3)

> *. . .nothing in the CPD activities is related to clinical skills, everything is academically based ie, improving currency so why should I be considered clinically unacceptable!* (Participant 1)

The two AIR CPD categories that are not typical academic activities are: 1. Skill development/Workplace learning and 2. Audit and QA. Conceivably these categories could be prescribed for academics to target specifically.

> *All MRS academics should be able to demonstrate a minimum level of clinical CPD activities every 12 mths. . .. If we're not careful, we will be left with MRS academic staff who can publish research on MRS education but have lost their basic, practical skills. . .* (Participant 8)

The need for support strategies aimed at both employers and clinical sites

In order for academics to undertake CPD activities deemed valuable but difficult to attain, strategies were identified that could be put in place to assist. Of course with any marked change, consultation and collaborative planning are advisable for success. It is not the author's intention to suggest that any identified strategies are straightforward remedies. Respondents highlighted the need for recognition of CPD in workload by employers and also the importance of financial support to attend discipline scientific meetings. Funding deficits were a common response as was the concern that wanting to stay up to date in one's discipline required a personal financial commitment to do so. It must be said also that some academics enjoy good support to attend off campus activities but there is often pressure to present in return for financial and workload support.

> *Link CPD to academic performance (ie make it compulsory and supported by the academic institution) Allow these things to be recognised in workload allocation and support staff in undertaking them.* (Participant 6)

A United Kingdom study reported a strategy to develop the clinical role of the nurse lecturer through collaborating with practitioners in teaching and research in the clinical environment.[11] The outcomes proved to benefit both parties. MRS academics are not always aware of opportunities to connect with the clinical world:

> *Feel that I am always 'shopping' for opportunities. Often academics are forgotten by clinical colleagues (eg when vendors come in to do training) or that value of assisting academics with CPD is not considered.* (Participant 3)

Similarly in Australia, there have been funded positions for clinical academic fellowships, one in particular aimed at MRS. These fellowships were designed to increase collaboration between government health care facilities and universities by jointly creating a new position for a clinical academic. The MRS fellowship was described as focussing on ensuring that patients are receiving radiation treatments safely, resulting in better patient outcomes and cost savings. The position was to provide a clinical role, undertake research and to provide education and mentoring to MRS and sonography staff and students.[13] This perhaps suggests the value of academic skills in the clinical setting.

Respondents clearly value clinical work and a connection with the clinical environment, even if only through observation or limited work experience in teaching breaks. Support to enable this is the barrier which requires a collaborative approach from both employers and clinical providers to remove. The results of this study have recommended a range of strategies including: inviting academics when vendors visit clinical sites to do training, (for example, user group meetings and staff in-service programmes), allocating workload formula that includes provision for activities that keep academics up to date in their discipline, institutional recognition of importance of clinical involvement including making a clinical component part of the academic role, increasing financial support/scholarship funds to attend conferences and defining specific CPD activities for academics. Perhaps the way forwards is considering a more defined partnership in education where clinical sites regularly advertise opportunities to academic groups for discipline-specific CPD and similarly universities support their staff to participate. The possession of academics skills also holds value when there are opportunities for academic staff to support research projects and work collaboratively with clinical sites.

Conclusion

This study has identified that MRS academics participate in a broad range of activities to keep up to date in their profession. Most valued for informing teaching and keeping up to date are: consulting current literature, research participation, attending scientific meetings and clinical work.

Most MRS academics in the sample participate in structured CPD programmes but are not always supported by their employers to do so in kind or financially. The activities available for recording as CPD are not specifically aimed at academics but rather often deemed part of expected academic work. Access and support to maintain the link with the clinical world is often difficult for academics due mainly to the barriers of time/workload, finances and recognition of importance.

Strategies to support academics to connect with an ever-changing clinical environment are:

Institutional recognition with workload allocation and funding for keeping up to date clinically, support from clinical sites to include academics where appropriate and defining specific CPD activities for academics to target. How to action these strategies, remains the challenge but perhaps the first step rests with defining academic professional requirements.

MRS academics are essentially professionals in two fields simultaneously – MRS and education. Acknowledging the enablers and barriers to fulfilling CPD in their discipline is only one component of a complex professional role but an important consideration in securing a sound educational future for the MRS professions.

Acknowledgement

The author acknowledges the contribution and support of Mr C. Hornby in proposing this topic as an area to investigate, in providing feedback while designing the survey and in editing the presentation of the initial results that was delivered at the Australian Scientific Meeting of Medical Imaging and Radiation Therapy, Sydney in April 2012.

Conflict of Interest

The author declares no conflict of interest.

References

1. AHPRA. Medical Radiation Practice Continuing Professional Development Registration Standard. 2011. (accessed 16 January 2014). Available from: http://www.medicalradiationpracticeboard.gov.au/Registration-Standards.aspx.
2. Lombardo P. Concerns for medical radiation programs in Australian universities. *Radiography* 2005; **12**: 332–8.
3. Bolderston A. Maintaining competence: A holistic view of continuous professional development. *J Radiother Pract* 2007; **6**: 133.
4. Kane GM, Rothman A, Catton P. Staying up-to-date through distance education: The radiation therapy perspective. *J Cancer Educ* 2001; **16**: 205–8.
5. Sim J, Radloff A, Zadnik MG. Lifelong learning in medical radiation science: Stakeholders' views. *Radiographer* 2002; **49**: 13–7.
6. Sim J, Radloff A. Profession and professionalisation in medical radiation science as an emergent profession. *Radiography* 2008; **15**: 203–8.
7. Bolderston A, Palmer C, Feuz C, Tan K. Supporting clinical teachers: developing radiation therapists' preceptorship skills. *J Med Imaging Radiat Sci* 2010; **41**: 201–6.
8. Halcomb KA, Gregg AL, Roberts B. Implementing supportive strategies to retain nurse educators. *Teach Learn Nurs* 2007; **2**: 133–7.
9. Maslin-Prothero SE. Commentary on "Nurse teachers in higher education – Without clinical competence, do they have a future?" by I. Cave [Nurse Education Today 14 (5), 1994, pp. 394–399]. *Nurse Educ Today* 2005; **25**: 652–4.
10. Rattray J. In the firing line: The nurse academic in practice. *Nurs Crit Care* 2004; **9**: 95–7.
11. Murphy FA. Collaborating with practitioners in teaching and research: A model for developing the role of the nurse lecturer in practice areas. *J Adv Nurs* 2000; **31**: 704–14.
12. Christmas C, Durso SC, Kravet SJ, Wright SM. Advantages and challenges of working as a clinician in an academic department of medicine: Academic clinicians' perspectives. *J Grad Med Educ* 2010; **2**: 478–84.
13. Queensland Health. Clinical Academic Fellowships 2012. (accessed 5 March 2014). Available from: http://www.health.qld.gov.au/ohmr/html/rpu/clin_academ_fel.asp.
14. Lui C. Cross-Sectional Data. Encyclopedia of Survey Research Methods. Sage Publications, Inc., Thousand Oaks, CA: Sage Publications, Inc.; nd. (accessed 3 October 2013). Available from: http://srmo.sagepub.com/view/encyclopedia-of-survey-research-methods/n120.xml
15. Battaglia M. Purposive Sample. Encyclopedia of Survey Research Methods. Sage Publications, Inc., Thousand Oaks, CA: Sage Publications, Inc.; nd. (accessed 3 October 2013), Available from: http://srmo.sagepub.com/view/encyclopedia-of-survey-research-methods/n419.xml.
16. Australian Qualification Framework. About the AQF 2013. (accessed 5 March 2014). Available from: http://www.aqf.edu.au/aqf/about/what-is-the-aqf/.

17. Medical Radiation Practice Board of Australia Australia. Accreditation 2013. (accessed 16 January 2014). Available from: http://www.medicalradiationpracticeboard.gov.au/Accreditation.aspx.

18. Australian Institute of Radiography. Guide to AIR Continuing Professional Development triennial program. 2013. (accessed 3 October 2013). Available from: http://www.air.asn.au/cpdguide.php.