

# Strategic professional development

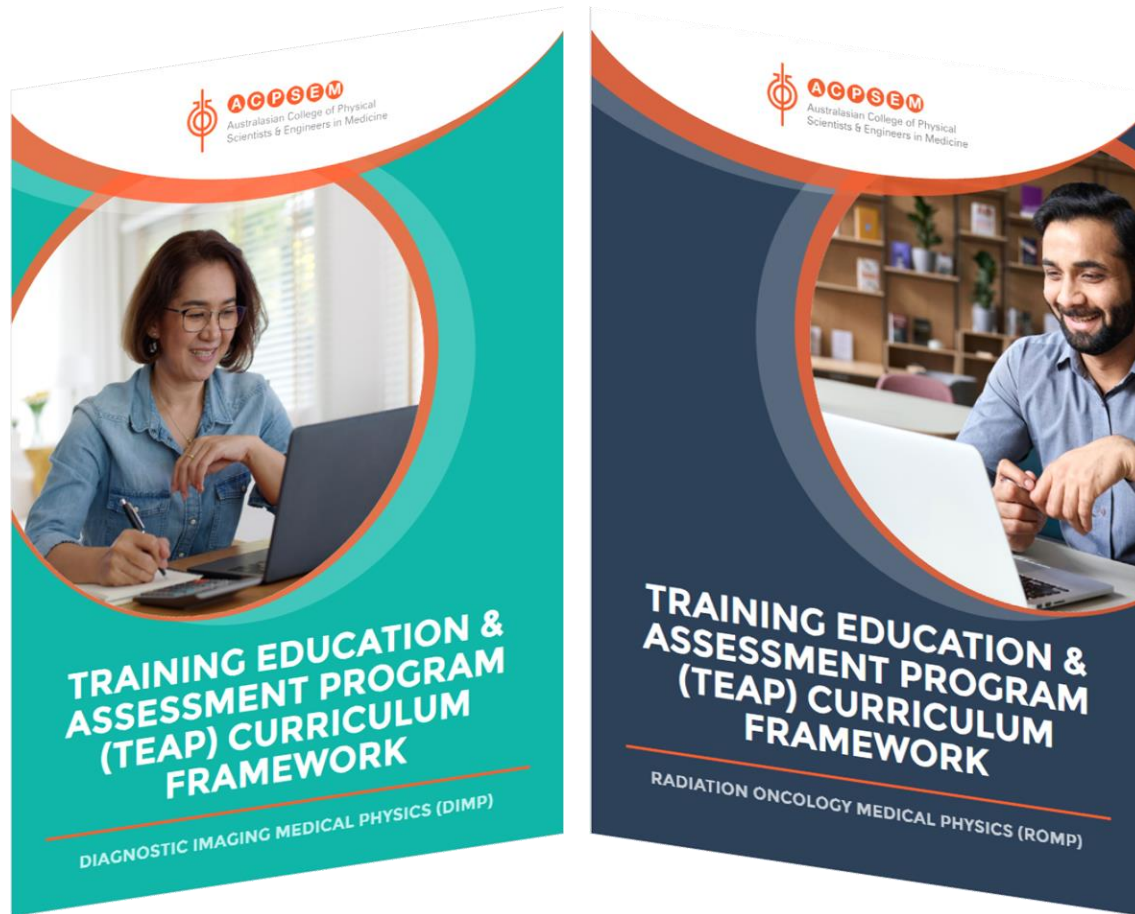
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Health



**Queensland**  
Government

# What am I talking about?



During our academic and clinical training, we develop core knowledge and skills that allow us to safely and independently practice as medical physicists, with defined core responsibilities.

These are the skills developed in the “key areas” within TEAP: e.g., understanding of radiation physics, dosimetry, biology, safety and protection; equipment operation, quality testing and information systems.

However, as students, registrars, and mid- to late-career physicists, we are continually developing our knowledge and skills further.

# Professional development

Professional development is key to maintaining skills and currency of expertise.

Medical physics is reasonably niche, and the development of diverse or more specialised knowledge and skills can facilitate both role enlargement and enhancement, leading to:

- Improved job satisfaction.
- Unique contributions to our teams.
- Higher responsibilities.
- Participation in training and research.
- Career progression, by setting oneself apart.



## Diversification

Developing broader expertise, particularly beyond traditional key areas.



## Specialisation

Developing deeper expertise, potentially in traditional key areas.

# Professional development

The development of specialised or diversified expertise and skills can organically result from workplace experience:

- Being trained by or working with peers that have particular specialisations or passions.
- Being assigned particular responsibilities or projects, and identifying what you enjoy.

For clinical physicists, increasingly specialised knowledge may be developed as part of formal training:

- Higher degree research or clinical fellowship
- Other forms of elective study (e.g. see ESTRO-EFOMP).

**Table 2**

Minimum number of ECTS for the different topics.

Specific MPE physics knowledge, skills and competencies	ECTS
III.1. Fundamentals of human anatomy, images of anatomy and physiology	2
III.2. Fundamentals of oncology and multimodal treatment	2
III.3. Core radiation physics	2
III.4. Radiobiology and radiobiological models	4
III.5. Radiation protection in medicine	5
III.6. Risk management, quality control and safety in the medical environment	5
III.7. Organisation, management and ethical issues in health care	3
III.8. Information and communication technology	4
III.9. Data processing, statistics, modelling and artificial intelligence	8
III.10. Dose determination	
III.10.1 Reference dosimetry	15
III.10.2 Non-reference dosimetry	10
III.11. Imaging for radiotherapy	
III.11.1 Principles of medical imaging and image handling	15
III.11.2 Imaging for treatment simulation	5
III.11.3 In-room imaging for set-up verification and on-line adaptive RT	5
III.12. External beam radiotherapy with photons and electrons	
III.12.1 Clinical use of treatment equipment	6
III.12.2 Treatment techniques for high energy electron and photon beams	10
III.12.3 Treatment planning	15
III.12.4 Techniques for managing geometrical and anatomical uncertainties and variations (margins, IGRT, ART)	6
III.12.5 Patient-specific quality assurance	6
III.13. Brachytherapy	12
III.14. Particle therapy	8
III.15. Principles of unsealed source therapy	2
IV. Research and innovation in radiotherapy	30
Deepen knowledge from this CC and/or additional topics from the CC of Medical Physicists in Nuclear Medicine and/or in Radiology [13,14]*	60
<b>TOTAL</b>	<b>240</b>

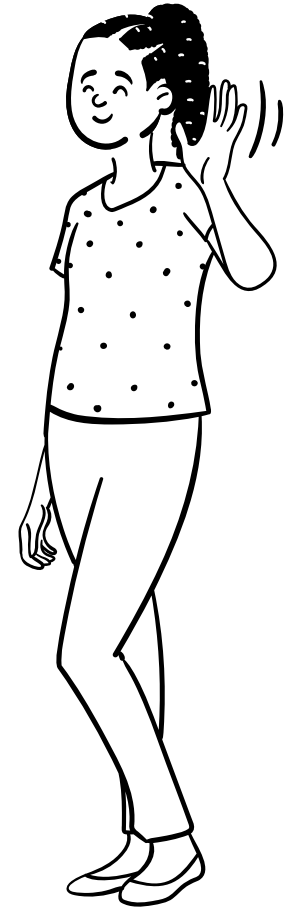
# Professional development strategy

While it may happen naturally, particularly in a good team, if you have specific ambitions, you should spend time to plan out your professional development to achieve your objectives.



# Case Study – Alice

Alice completed clinical training 2 years ago as the only registrar.  
She has been employed for 5 years and hasn't worked elsewhere.  
She works in a group of 10 physicists, within an established department.  
She managed the commissioning of a new planning system last year.  
She is now frequently called on to assist with that planning system.  
She developed working relationship with a few radiation therapists.  
Alice is quiet, and doesn't speak much in meetings unless prompted.  
Alice works alone independently, and often agrees to take on work.  
Alice avoids presenting or sharing work with others.  
Alice attended a conference 3 years ago and co-author on 2 papers.  
She is not engaged with the college or networked with external peers.



# Reflect on what you value

Before identifying what you specifically want in the future, it may be beneficial to step back and consider what you value professionally, or what motivates you, at a higher level.

This doesn't necessarily mean traditional career progression or promotion – additional wages and responsibilities aren't necessarily what everyone wants.

If your professional development plan doesn't align with your values, it isn't going to work.

## Examples

- Workplace responsibilities
- Improving outcomes or workflows
- Intellectual challenges or variation in day-to-day workload
- Teamwork and collaboration
- Sharing knowledge via teaching
- Development of the profession
- Relationships with work colleagues
- External recognition of expertise
- Opportunities to present and travel
- Work-life balance
- Early retirement

# Case Study – Alice

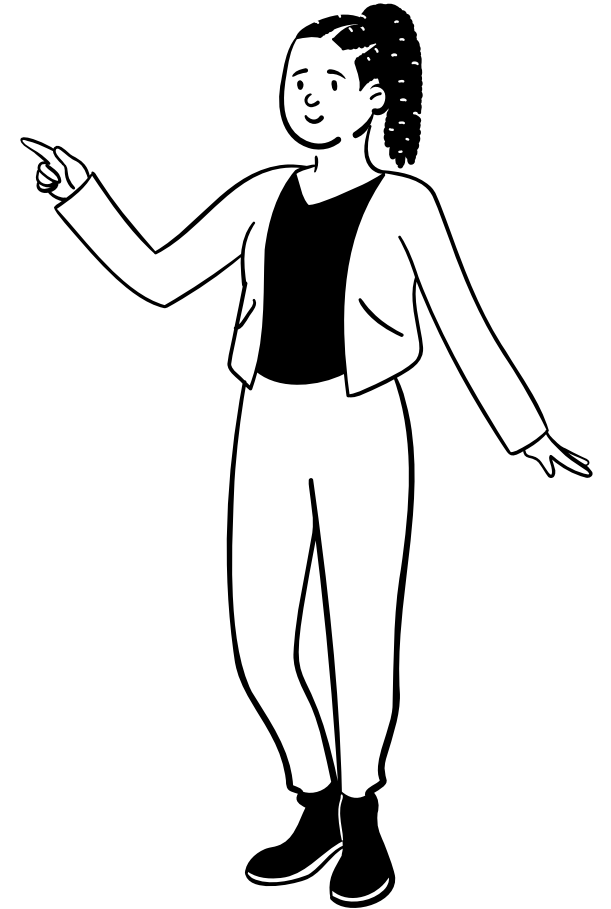
## **What motivates Alice?**

Improving how things are done in the department.

New experiences and learning new things.

Opportunities to problem solve and develop services.

Positive feedback and recognition of her work.





# Identify what you want

After reflecting on what you value, you will hopefully be able to identify specific or measurable outcomes.

Some outcomes might be tied to organisational projects, such as an incoming proton therapy system on your campus.

Some outcomes might be tied to what you perceive as trends in the field, such as AI/ML.

They don't necessarily have to be tied to conventional key areas. You might want to tinker or code, for example.

It can be hard to identify without experience.

## Examples

- Manage a physics department
- Be responsible for a service area
- Obtain a job in a different city
- Transition to industry or another field
- Supervise a TEAP registrar
- Complete a research higher degree
- Get involved in niche area, e.g. AI/ML, data science, software development, 3D-printed devices, clinical trial support, clinical governance, etc.
- Become the ACPSEM President.
- Become a journal editor.

# Unsure of what you want?



Get involved with ACPSEM events and groups, such as the Queensland Branch, the specialty groups, TEAP examination, and mentoring programs. Network with physicists in other disciplines and at other centres, to see what things are like outside of your department.



Keep up with advances in the field, by reading the scientific literature & attending conferences. Consider reproducing techniques or studies in your own department. Many papers and presentations identify gaps in the literature or future work.

# Case Study – Alice

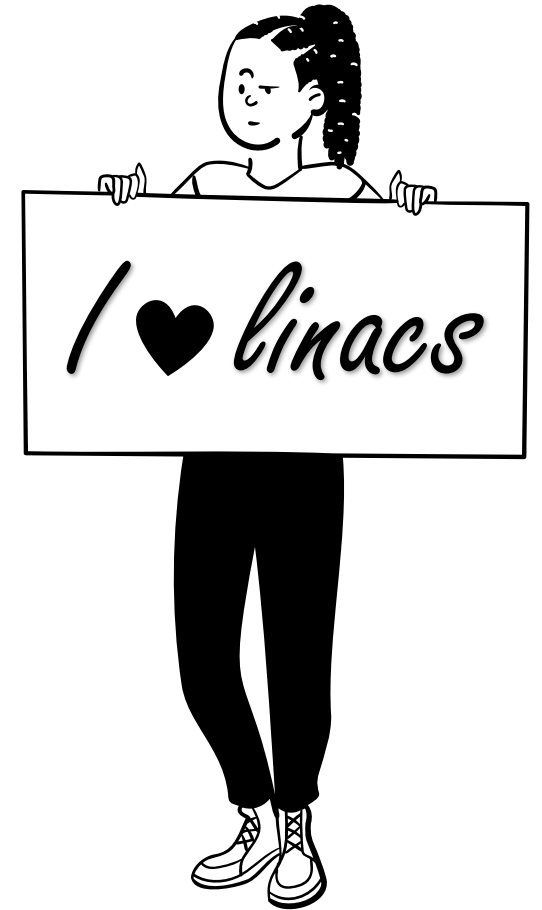
## What does Alice want?

To be more involved in the commissioning of new technologies.

To spend more time on machines and diversify skill set.

To attend more conferences to network and hear about research.

To manage a physics group in a newer department in the future.



# Assess your current situation

Once you know what you want, you need to look at your current circumstances, as they relate to those objectives. E.g., are you adequately prepared to act in a desired role?

It can be helpful to approach this systematically, for example, by doing a SWOT analysis. This could be supported by organisational SWOT analyses, or individual performance appraisal processes within your department.

Lists can be prioritised, e.g. by identifying the three most important weaknesses and giving those short term focus.

You may be able to get exposure to this form of strategic planning by volunteering in appropriate organisational or professional activities.

	Positive	Negative
Internal	Strengths	Weaknesses
External	Opportunities	Threats

# Illustration of SWOT analysis

	Positive	Negative
Internal	<p><b>Strengths</b></p> <ul style="list-style-type: none"><li>• Experience and track record</li><li>• Specific skills and knowledge</li><li>• Formal training or certification</li><li>• Personal networks and good relationships</li><li>• Good habits and personal strengths</li><li>• Enjoyment of particular work</li></ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"><li>• Lack of experience and track record</li><li>• Gaps in skills or knowledge</li><li>• Missing formal training or certification</li><li>• Lack of network or poor relationships</li><li>• Bad habits or personal obstacles</li><li>• Frustration with particular work</li></ul>
External	<p><b>Opportunities</b></p> <ul style="list-style-type: none"><li>• Positive trends in your field (e.g. new technology, change in scope-of-practice)</li><li>• Educational opportunities (e.g. courses)</li><li>• Organisational projects or activities</li><li>• Promotion / job switching opportunities</li></ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"><li>• Negative or non-existent trends in your field</li><li>• Workload and competing responsibilities</li><li>• Lack of educational opportunities</li><li>• Competition (e.g. peers, other professions)</li><li>• Obsolescence or job insecurity</li></ul>

# Case Study – Alice

	Positive	Negative
Internal	<p><b>Strengths</b></p> <ul style="list-style-type: none"><li>• Certified in a large department with exposure to different technologies.</li><li>• Expertise with planning system.</li><li>• Works independently to high standard.</li></ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"><li>• Discomfort with speaking and saying no to additional work.</li><li>• Limited management experience.</li><li>• Limited research &amp; training experience.</li><li>• Unfamiliar with how things are done in other departments.</li></ul>
External	<p><b>Opportunities</b></p> <ul style="list-style-type: none"><li>• Large department has various training and research grant opportunities.</li><li>• Large department more frequently gets new and varied equipment.</li><li>• New proton therapy centre opening on campus in 5 years time.</li></ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"><li>• Limited visibility to others, both in the department and externally.</li><li>• Being pigeonholed in planning role.</li><li>• Risk of friction with role enlargement in the planning area.</li><li>• Department averse to change.</li><li>• Most junior member in large group.</li></ul>



# Identify actions

Your situational assessment informs actions.

You want a strategy that preserves strengths, overcomes your weaknesses, capitalises on opportunities and acts to mitigate threats.

Without developing a plan of action, this form of analysis is an academic exercise.

Ideally actions will have timelines and measurable outcomes, and will be prioritised.




Identifying high priority actions can help you to avoid action paralysis.

## Examples

- Enrol in a training course
- Cultivate better relationships with colleagues
- Follow through on documentation
- Obtain an RSO certificate
- Speak up more in group settings
- Offer to take a lead role on a project
- Reach out to physicists at other sites
- Volunteer for ACPSEM working group
- Submit abstract on completed work to an international conference
- Keep attending ACPSEM branch events 😊

# Start – Stop – Continue

Action does not necessarily mean “start doing”. It can also mean “keep doing” things that are effective (e.g. maintaining skills), or “stop doing” things that are not (e.g. to avoid being pigeon-holed). Identifying what you are already doing right can be valuable motivation, and can help frame your action plan within a “feedback sandwich”.

 Start	 Stop	 Continue
<ul style="list-style-type: none"><li>• What new skills or knowledge would help achieve goals?</li><li>• What existing skills could you leverage further?</li></ul>	<ul style="list-style-type: none"><li>• What isn't serving your goals?</li><li>• What errors do you keep repeating?</li><li>• What requires a lot of work for minimal payoff?</li></ul>	<ul style="list-style-type: none"><li>• What is serving your goals?</li><li>• What do colleagues respect or value in my work?</li></ul>



# Summary



If you have planned correctly, you'll have a list of **SMART** goals: Specific, Measurable, Achievable, Relevant and Time-Bound. Ideally you will track your progress towards those goals.



It can be difficult to assess progression yourself – consider tying your own efforts to your professional development plan with your manager. If you are a registered medical physicist, you can also document your progression within the CPD system.

# Case Study – Alice

## ▶ Start

- Offer more input at physics meetings and volunteer to present at journal clubs, in-services, local research meetings, etc.
- Identify and volunteer for new projects in imaging, treatment and dosimetry areas.
- Identify upcoming conferences and work that could be presented at them. Attend annually.
- Get involved in ACPSEM activity, such as mentoring, to learn about practice in other departments.
- Enrol in management micro-masters course.
- Consider how work relates to proton therapy.
- Speak with manager about addressing pigeonholing in planning role.

## ⊘ Stop

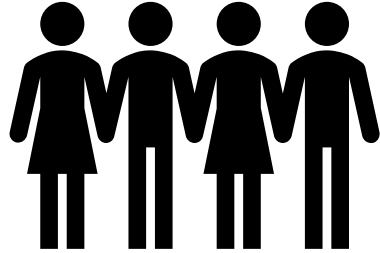
- Agreeing too readily to new projects, without considering the workload increase.

## ▶ Continue

- Maintain planning expertise and think about diversification.
- Maintain working relationship with RTs.



# Colleagues and mentors



Some opportunities and threats are shared with peers, and collective action can be impactful. Consider whether your objectives and actions align with your work group, department, or the ACPSEM – if so, it may be more productive to collaborate to achieve your objectives.



It can be difficult to know what you want and how to get there. If you can, find someone with the career path that you want. Mentorship can provide a safe space to get feedback on your professional development plan.

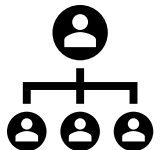
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You need to revisit your plan over time. Changes in your personal and professional life can lead to shifting values and priorities, and strengths, weaknesses, opportunities and threats will continue to change.



Later in your career, even if you aren't in a management role, I strongly recommend taking on mentoring, supervision or governance responsibilities, and assisting others.

# My own story

Initially, I hadn't thought about my career progression very strategically. There was a natural progression from BSc > Hons > PhD > Post-doc > Clinical position > TEAP.

It was volunteering to be on the ACPSEM Board of Directors and the Chair of the Professional Standards Board that changed this. Seeing how ACPSEM CEOs, Presidents, Committee Leaders and consultants approached their work. Hearing about how things worked (or didn't) in other departments.

# Conclusion



You don't need to use the particular systems mentioned here – SWOT, SKS, SMART. But I would recommend at least being mindful of how you are spending your professional development time.

The ACPSEM ROMP workforce survey indicated a median of 3% of physics time was spent on CPD, with some reporting 5%. That is 50+ hours! In Queensland Health, you get 3 PDL days a year.

**What are you achieving in that time? How is that contributing to the job you want?**