Developing a Research Strategy for your Local Imaging or Radiotherapy Department

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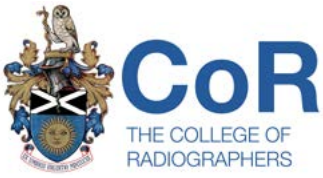

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Contents

Introduction

In June 2021, the College of Radiographers (CoR) published its new research strategy,[1] underpinning its aspirations to support radiographers to deliver research-based practice over the next five years. The main aims of the strategy are:

1. To embed research at all levels of radiography practice and education
2. To raise the impact and profile of radiography through high-quality research focused on improving patient care and service delivery
3. To expand UK radiography research capacity through the development of skilled and motivated research-active professionals

The benefits of individuals and healthcare organisations participating in research are multidimensional and far reaching. The focus of research remains the generation and translation of evidence into practice to ensure high-quality care and improve patient outcomes; there are also professional, workforce, status, and economic advantages. As part of a wider group of Allied Health Professionals (AHPs), radiographers can drive sustainable change through research activities that impact processes, pathways, technology, and people. This requires promoting a culture of enquiry and critical thinking that embraces change whilst encouraging, supporting, and developing research-based activities within clinical departments. The CoR research strategy has already set out strategic aims to develop and help guide these changes.

Why develop a departmental research strategy?

A departmental research strategy sets out a shared vision for research and determines how, by working together as a team, you can achieve your research goals. Part of that is setting out clear ambitions and intentions with collective, measurable objectives that provide direction over the period indicated by the strategy. A departmental research strategy will help to build and sustain a strong research culture by providing achievable short-, medium-, and long-term goals. For cohesion, a departmental research strategy should align with other relevant local, regional, and national research strategies such as those published by your organisation, the Council for Allied Health Professions Research (CAHPR), the College of Radiographers,[1] and Health Education England[2] (or equivalent body).

What to include in a research strategy?

In a general approach to developing a departmental research strategy, the document should typically set out vision and mission statements related to specific objectives. Dividing wide strategic aims into manageable objectives allows consideration of staffing requirements and planning of time and resources, resulting in both short-term and long-term progress. It is recommended that aims and objectives are considered carefully to ensure that they are measurable through evaluation and that quality and impact can be demonstrated once the aims and objectives are achieved. For this reason, you may decide to set interim indicators of progress.

In a more individual and strategic approach, the research strategy may focus on what differentiates you as an organisation or team. Therefore, research aims and objectives may be selected to reflect your strengths and expertise, skill set, and/or local patient community needs.

Who should be involved?

It is suggested that the development of any research strategy should be collaborative and include all stakeholders both within and external to the imaging (radiography, mammography, nuclear medicine, sonography) or radiotherapy department. The key is to engage a diverse group of people with different perspectives, including those whose influence may be required to achieve the strategic aims. This may include corporate and management teams as well as those who are committed to improving quality, such as patients, public, research-active practitioners, and clinicians (including chief and principal investigators). Development of a research strategy might be strengthened through collaboration with local Higher Education Institutions (HEIs); this may facilitate research training and skills development, and research partnerships will be based on wider expertise and experience helping you to achieve set goals.

Consideration should always be given to involving patient groups or other professions sitting outside the immediate skill area that have a vested interest in developing a departmental research strategy, as suggested in the CoR publication *Patient Public and Practitioner Partnerships within Imaging and Radiotherapy: Guiding Principles* (section 4).[3] This engagement beyond radiography will allow an overall picture to be developed and ensure that the research answers important and relevant questions within your local area. Once developed there needs to be a dissemination plan to ensure that all stakeholders and staff are aware of the strategy and engaged in its delivery. This should include internal meetings, such as audit, clinical governance, management, and medical consultant forums, as well as external dissemination via the research and development department and other local partners.

How to approach the process of research strategy development

There is no strict formula to developing a research strategy; numerous approaches can be taken depending on your local expertise and resources. It is therefore important to consider your local context and contemplate the social, technological, and environmental factors involved. Setting milestones and priorities is also important as they represent a suitable way to establish that projects and plans are moving forward and ensure teams and stakeholders remain motivated. You may find it beneficial to set some definitive objectives, for example the number of journal clubs you will hold within the time period, the number of staff that will attend or present at conferences, or the number of skills development training sessions to be delivered. It is important to supplement these with aspirational goals, such as the number of journal papers you wish to publish within the time period, the number of staff to be supported through postgraduate, Master's, or Doctoral study, and the number or nature of funding grants to be submitted. Several funding opportunities are offered through the College of Radiographers, such as the CoR Industry Partnership Scheme (CoRIPS) Research Grant, CoR Doctoral Fellowship Grant, and funds for attendance at international conferences. Information can be accessed via the CoR Research grants and funding web pages.

Successful delivery of goals and key performance indicators set out in the research strategy may be informed by completion of a training needs analysis. When completed at an organisational, team, or individual level, this exercise can identify any skills gaps (where you are and where you want to be), can target and focus training strategies (to meet knowledge requirements or specific research objectives), and prioritise training (including budget considerations). There are several ways to conduct a training needs analysis with many examples available online. Your approach might be dictated by the setting of initial, short-term (reviewed annually), or long-term (spanning three- to five-years) learning strategies. Regardless, most methods start with an assessment of the organisation's mission and values; followed by appraisal of local capacity, subject-matter expertise, roles, and competencies; and, finally, planning personalised and effective learning for all.

Novel approaches

Several innovative approaches have been documented in the literature which could be used to empower individuals and support the development of research cultures and strategies within departments. One such example is 'teaming'[4] which facilitates open communication and planning for how people will act and work together. We all participate in teams within our everyday work roles. A 'teaming strategy' approach allows all team members to appreciate, believe in, and work together effectively towards a common purpose.[4] It promotes honesty and trust between all those involved in knowledge generation, sharing, and translation through research within the department.

During departmental research strategy development, teaming formally allows members to communicate their values, goals, and expectations, including how they intend to collaboratively achieve success. A key advantage of this deferential approach is that diverse members can work to their own strengths, raise concerns or issues, and work towards collective action with a feeling of ownership. It could also ensure team members grow in their ability to contribute to research and advance their own careers within this field. Crowdsourcing and co-production underpinned by qualitative inquiry may also be suited to collective solution seeking, such as the creation of a joint stakeholder research strategy or addressing the infrastructure required to embed a research culture within an organisation. These collaborative tools have been used previously in radiography curriculum design[5] and policy implementation[6] to elicit multiple perspectives and inform theoretical and practical understanding.

Research approaches

Imaging and radiotherapy colleagues who have undertaken the process of local research strategy development and research priority setting have shared their adopted approaches. Two key examples are participatory action research and collaborative decision-making techniques, such as the Nominal Group Technique (NGT) or Delphi survey.

Action research

Action research is an approach that traditionally supports changes in people's perspectives with a focus on developing a common understanding of problems. Fundamental to this approach is working together to co-create a priority list of what the needs to be addressed and then working together to tackle the solutions. This can be a useful way of trying to get collective participation in developing research cultures within teams. The originator of the research should bring together several people who share a common problem or concern. This could be the development of radiography-led research within a department or developing the level of engagement that the overall team has with research. It will be necessary for a group of individuals to work together to devise a gold standard or ideal situation that the team can then work towards and assess progress against. Action research derives from critical social theory and, as such, there should be attempts to ensure there is common understanding between the participants.

Many forms of action research follow a cycle to support the process, however, in most cases there is a need to repeat and reorder the steps to support the participants as the research progresses. The following is an example co-operative inquiry proposed by Heron in 1971.[7] The inquiry process uses four stages:

1. The first planning and reflection phase determines topics and methods of inquiry. This should be done with a group of people who have come together to define common problems with the intention of working together to address them. You should use exercises aimed at getting the group to communicate and share ideas to establish a shared vision or ideal. The group will then need to devise group and individual actions to achieve the shared vision
2. The first action phase; this is usually undertaken within the group and aims to dry run or test the agreed actions from stage one. The group agree to record any outcomes of this phase and observe if the actions conform to the plans set out at the onset of inquiry. It may be necessary to amend the original plan based on this
3. A second action phase or re-action step; this is usually undertaken by individuals in their everyday work outside the group, where the experiences and consequences of the actions generate new feelings and awareness. In this step experiences may lead to new actions and insights that depart from original ideas
4. The second reflection phase; this occurs when the group comes together again to discuss their experiences, progress, and the information/data collected in previous stages. These can re-frame the original ideas and it may be necessary to amend the inquiry. Participants decide collectively if further repeat cycles would be beneficial

A review of the action research approach in a radiography context has been conducted previously.[8] Informative examples of this research technique include work in magnetic resonance imaging,[9] operating theatre practice,[10] x-ray service change,[11] and radiography education.[12,13]

Collaborative decision-making techniques

Collaborative decision-making techniques, or consensus-building methods, are a way of aggregating people's judgements to generate ideas, understand problems, or to settle complex issues.[14] The Nominal Group Technique (NGT) brings together participants in a structured group approach to identify elements of a problem situation, isolate elements of the problem solution, and establish priorities, thus, achieving a significant amount of work in a short time.[15] In comparison, the Delphi method arrives at a group opinion (or decision) by surveying a panel of people on a specific issue using several rounds of structured questionnaires. After each round, anonymised responses are combined and shared with the group. Panellists are then able to indicate their agreement or disagreement with group opinion.[16] The process is stopped after a pre-defined criterion (e.g. number of rounds, achievement of consensus level, stability of results), and frequency measures, mean, or median scores of the final rounds are used to determine results.[14] Appraisal of the Delphi technique in radiography by St. John-Matthews and collegues[17] may support application of this method for use in setting research priorities for the profession.[18] Further research examples are offered in *Radiography*.[19-21]

Examples

This section provides three examples of research strategy formats. Examples I and II are blank templates which can be used as a guide and offer a baseline for development of your own approach (those outlined above or a bespoke method). These may be appropriate for those early in the development of a research culture. Example III is a working example from radiography practice and may be more aligned with those building on previous strategies, or those who have established research radiographer posts. These frameworks are not exhaustive and you might find that a combination of approaches works for you.

Example I: Conventional research strategy

Research Strategy YYYY–YYYY
Strategic research vision This strategy sets out the key goals for research within the department and key performance indicators to identify whether we are meeting these goals. This strategy will be reviewed annually/ every X years (delete as appropriate) and amended where appropriate to maintain coherence with current Trust/organisational and College of Radiographers (CoR) research strategies.
Goals As a minimum, set three to five goals that describe what the team would like to achieve over the period of the research strategy (examples might relate to: encouraging all radiographers to use research evidence, increasing research activity, or disseminating research findings). Prioritise goals depending on availability of staff and resources and identify the goals to be progressed in the first year. **1.** **2.** **3.** **4.** **5.**

Example I continued

Key Performance Indicators

Identify two or three measurable values for each goal that demonstrate how the team have effectively achieved or progressed towards their objectives (examples might include: review of protocols against the evidence base, development of research resources or CPD opportunities for staff, or KPIs for funding or publications).

These outcomes could be presented back to your organisation in an annual report.

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

Example II: Plan on a page research strategy

RESEARCH PLAN ON A PAGE YYYY–YYYY

MISSION STATEMENT

E.g. To provide excellent research opportunities

STRATEGIC PRIORITIES

HOW WE WILL ACHIEVE THIS

SUCCESS LOOKS LIKE

Example III: A working example of a research strategy for both imaging and radiotherapy

A Radiography* Research Strategy 2022–2026

Authors

Insert name and job title: e.g. Lead Research Radiographer

Insert name and job title: e.g. Research Radiographer

Insert name and job title: e.g. Departmental Manager/Head of Service

The principle aim of this strategy is to facilitate and embed research activity and innovation into the radiography department of *insert organisation name*, by strengthening its research infrastructure to provide a high-quality, evidence-based service for patients. This document sets out ambitious aims and objectives for the next four years governed and informed by the principles of prudent healthcare, the College and Society of Radiographers research strategy, and our local organisation's strategy for research and innovation.

Summary

The term evidence-based practice is repeatedly used within healthcare without much clarification to what this means. Staff are continuously under pressure to apply best available evidence to practice without any direction or support in achieving this goal. This document has been developed to provide guidance and support to the radiography department of *insert organisation name* to ensure research and best evidence underpins the service delivered to our patients consistently and transparently. It also aims to encourage and motivate staff who may perhaps lack confidence and need support in pursuing new opportunities within this environment. As radiography staff, it is our duty to ensure the profession continues to grow with the best current evidence that will consequently optimise and provide high-quality patient care.

*The term radiography will be used within this strategy to allow its application to both imaging and radiotherapy departments.

Example III: continued

This document supports radiographer-led, multi-professional, and multi-departmental research. It has been aligned with national and departmental radiography drivers as well as wider Allied Health Professional (AHP) research strategies, with the aim of being inclusive for all radiography practice levels as well as students and public and patient partnerships. This, in turn, will create a stronger culture that values research and innovation and critically evaluates current practice within radiography. It is our mission to develop an ethos where research and innovation is part of the 'DNA' of the service and is an integral component of everyday duties. For this to be achieved, this strategy needs to be incorporated into the student curriculum to develop independent, confident practitioners who are willing to push boundaries and critically evaluate current practice from the start of their learning. Research needs to be embodied into students and staff from any early stage where more experienced staff are committed to welcoming and nurturing the most talented individuals within the profession.

The main objectives to achieve the above are:

1. To motivate and develop research-active staff who engage, apply, and disseminate evidence into practice within radiography at *insert organisation details*
2. To showcase more high-quality radiography projects at local, national, and international levels
3. To link with other departments to ensure multi-disciplinary research and innovation activities
4. To strengthen collaboration between internal and external partners within university/education institutions
5. To ensure staff are involved in the setup, governance, and assessment of any research and/or innovation activity involving the radiography department within *insert organisation details*
6. To continue to contribute towards clinical effectiveness and improvement initiatives
7. To facilitate meaningful public involvement and engagement which will allow patients, professionals, and the public to work together as equal partners to co-produce imaging services
8. To increase awareness of this strategy through co-ownership and co-production — increasing the likelihood of engagement

Example III: continued

Objective 1

To motivate and develop research-active staff who engage, apply, and disseminate evidence into practice within a radiography department

Recommendations to achieve this		Responsibility for implementation	Timescale
1.	Develop a journal club using relevant articles that will inform/update policies and procedures whilst also offering alternative methods of delivery, e.g. virtual space.	Service managers Research radiographers Practice educators Audit leads Research-active professionals	Commencement before DD/MM/YYYY and done quarterly
2.	Embed research activities into local HEI undergraduate courses to develop and nurture more early career research-orientated radiographers.	*Insert HEI details* in collaboration with academics and research radiographers	Commence research lecture(s) yearly starting DD/MM/YYYY
3.	Circulate upcoming research and innovation opportunities, e.g. awards and showcasing events within the organisation, and nationally, to encourage participation whilst offering guidance.	R&D department Service managers Research radiographers Research-active professionals	As required
4.	Support staff undertaking postgraduate studies, e.g. a Master's degree, whereby a research project is required.	Research radiographers Research-active professionals Research leaders Public and patient involvement	As required
5.	Encourage novice researchers to undertake quality improvement projects.	Head of quality and governance Service managers Research radiographers Audit leads Research-active professionals	X members of staff enrolled onto training yearly

Example III: continued

Objective 2

To showcase more high-quality projects at local, national, and international level

Recommendations to achieve this		Responsibility for implementation	Timescale
1.	Develop a database of all presentations delivered by radiography department staff at various conferences and events.	Research radiographers Research-active professionals	Develop by MM/YYYY and maintain records
2.	Share ideas with colleagues to strengthen and develop research projects (use each other's strengths). The above point 1 will help with this recommendation (knowing who is doing what).	Research radiographers Service managers Academics Research-active professionals Public and patient involvement	As required
3.	Seek advice on poster presentation or abstract development for showcasing projects.	Research radiographers Research-active professionals	As required Also incorporate an annual teaching session for this
4.	Encourage and support staff undertaking postgraduate studies to disseminate project findings and convert them into posters, presentations for conferences, or publishable articles.	Service managers Research radiographers Research-active professionals	As required
5.	Develop a yearly research competition within the department between teams. This could be within modalities or even larger groups (e.g. two teams from each site = six projects). The best quality improvement project wins!	Research radiographers Head of quality and governance Service managers Audit leads Research-active professionals Public and patient involvement	Set this up by DD/MM/YYYY

Example III: continued

Objective 3

To link with other departments to ensure multi-disciplinary research activities

Recommendations to achieve this		Responsibility for implementation	Timescale
1.	Provide opportunities to attend R&D networking events.	Service managers Practice educators Research radiographers Research-active professionals	As required
2.	Establish and maintain links with local hubs for research and innovation activity.	Research leaders Research radiographers Academics Lead clinicians Research-active professionals Research champions	As required
3.	Provide support for clinical trials.	Research radiographers Consultant practitioners Research-active professionals	As required
4.	Facilitate and support projects from other specialities that require radiography support.	Research leaders Service managers Research radiographers Consultant practitioners Research-active professionals	As required

Example III: continued

Objective 4

To strengthen collaboration between internal and external partners within university/education institutions

Recommendations to achieve this		Responsibility for implementation	Timescale
1.	Establish and maintain links with lead national and international institutions, e.g. *insert details of HEIs, details of academies, and other partners*	Service managers Heads of HEIs Research radiographers Industry partners Research-active professionals	As required
2.	Support students with the dissertation process (ideas, data collection, approvals) – see objective 6, point 3.	Research radiographers Practice educators Research-active professionals	As required Set up an ideas forum (commence YYYY intake)
3.	Yearly research/audit seminars with partner HEIs *(insert details).*	Service managers Heads of HEIs Research radiographers Students Research-active professionals	Commence YYYY (next student intake)
4.	Support and link in with Practice Educators and lecturing staff on research activity and applying evidence-based practice.	Research radiographers Service managers Heads of HEIs *(insert details)* Clinical tutors Research-active professionals	As required

Example III: continued

Objective 5

To ensure that the department is involved in the setup, governance, and assessment of research involving radiography within the organisation

Recommendations to achieve this		Responsibility for implementation	Timescale
1.	Attend local research meetings.	Service managers Research radiographers Research leaders Research-active professionals Research champions Patient an public involvement	As required
2.	Keep systematic records of all research involving the radiography department using local systems.	Research managers Research radiographers Audit leads Research-active professionals	As required
3.	Provide support for clinical trial outcomes.	Service managers Research radiographers Research-active professionals Patient and public involvement	As required

Example III: continued

Objective 6

To continue to contribute towards clinical effectiveness and improvement initiatives

Recommendations to achieve this		Responsibility for implementation	Timescale
1.	Participate and contribute to local service optimisation groups.	Head of quality and governance Service managers Speciality leads Consultant practitioners Research radiographers Audit leads All professionals Public and patient involvement	Group(s) established by DD/MM/YYYY
2.	Learning points from DATIX incidents translated into quality improvement projects with other departments.	Head of quality and governance Service managers Heads of department Consultant practitioners Research radiographers Audit leads All professionals	One project per site each year
3.	Establish a collaborative, live database for research, improvement, innovation, and audit projects (ideas and priorities) for both staff and students	Head of quality and governance Service managers Research radiographers Audit leads Clinical educators Research-active professionals	Database established by DD/MM/YYYY

Example III: continued

Objective 7

To facilitate meaningful public involvement and engagement which will allow patients, professionals, and the public to work together as equal partners to co-produce radiography services

Recommendations to achieve this		Responsibility for implementation	Timescale
1.	Encourage public and patient involvement in various meetings, e.g. staff meetings; quality, safety, and experience (QSE) committees; and audit sessions.	Service managers Heads of department Service leads Research champions Research radiographers Research-active professionals Public and patient involvement	As required
2.	Collaborate with local public and patient involvement group(s) when setting up a quality improvement or research project.	Research radiographers Research champions Public and patient involvement Research-active professionals	As required
3.	Use patient surveys frequently to gain feedback on service.	Service managers Heads of department Service leads Audit leads Research-active professionals Public and patient involvement Head of quality and governance	Yearly or twice per year
4.	Use patient stories and user experiences, in collaboration with the patient experience department and their protocols, to inform the research strategy.	Heads of department Service leads Consultant practitioners Research champions Head of quality and governance Research-active professionals Public and patient involvement	As required

Summary

To develop, embed, and sustain a research active workforce, imaging and radiotherapy departments need to have clear and achievable objectives/goals in place. One means of achieving this is to develop a local research strategy setting out the direction and ambition for short-, medium-, and long-term research goals. Such a strategy needs careful consideration in terms of development and implementation, with its success dependent upon dissemination and engagement. This document sets out to help those who wish to develop a strategy within their local departments to build a stronger research culture.

Useful resources

- *The College of Radiographers' Research Strategy 2021–2026.* CoR Research Strategy 2021 - 26 | CoR (collegeofradiographers.ac.uk)
- *Getting into Research: A Guide for Members of the Society of Radiographers.* Getting into Research: A Guide for Members of the Society of Radiographers | SoR
- *Council for Allied Health Professions Research.* Council for Allied Health Professions Research | Council for Allied Health Professions Research (csp.org.uk)

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