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National Institute for Health Specialties

United Arab Emirates

The NIHS guidelines on scholarly activities for residency education

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Glossary of term

Faculty: The group of individuals (both physician and non-physician) assigned to teach and supervise residents/fellows in context of an NIHS accredited program

Fellow: An individual registered in an NIHS accredited residency program following eligible postgraduate training leading to certification or attestation in a sub-specialty

Research methodology training: A structured education activity aimed at developing competence in appraising and conducting research

Research Proposal: A structured content related to conceptualizing, planning, and conducting a research project/work

Resident: An individual registered in an NIHS accredited residency program following eligible undergraduate training leading to certification or attestation in a general specialty

Residency education: The period of structured training following undergraduate education and leading into certification or attestation in a general specialty or sub-specialty

Scholarly activity: A process in which research or creative work is conducted, peer reviewed, and publicly disseminated

Scholarly project: A supervised research or quality improvement topic/work conducted by a resident/fellow as part of a structured training program and leading into a product e.g., a publication



BACKGROUND

The National Institute for Health Specialties (NIHS) produces this document as part of its role in accrediting residency/fellowship training.

Accreditation standards for residency education commonly verify a broad range of specialty specific and generic competencies including those pertaining to research and scholarship. Increasingly, research and scholarly activities are recognized as an important component of residency education and active participation by residents/fellows and faculty is mandatory in many programs globally¹.

There are several benefits to the implementation of scholarly activities in residency education programs. An increasing body of evidence demonstrates a correlation between the scholarly attainment by residents and desired dimensions such as improved clinical practice, application of new evidence, and a tendency for lifelong learning².

The purpose of this guideline document is to elaborate more on the details of the scholarly activities in residency education to support appropriate implementation of accreditation standards in this respect. The document presents a framework and a roadmap to evaluate the scholarly activities attainment in context of residency education. This is deemed important as the experiences of leading accreditation agencies such as ACGME reflect that, citations around scholarly activities are a common finding³.

¹ Laupland et al (2021) Determinants of research productivity during postgraduate medical education: a structured review. BMC Medical Education, 21: 567. Available from:

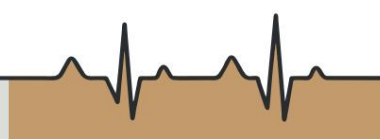
<https://bmcmmededuc.biomedcentral.com/articles/10.1186/s12909-021-03010-1>

² Tamim et al (2019) Structure and evaluation of a residency research program in a university hospital. BMC Medical Education, 19:406. Available from:

<https://bmcmmededuc.biomedcentral.com/articles/10.1186/s12909-019-1858-6>

³ Grady et al (2012) Defining scholarly activity in graduate medical education. Journal of Graduate Medical Education, December: 558-561. Available from:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3546601/pdf/i1949-8357-4-4-558.pdf>



DEFINITION OF SCHOLARLY ACTIVITIES

Scholarly activities are described to encompass research and quality improvement in the context of residency education and healthcare practice. There is, however, variation in how scholarly activity is conceptualized and practiced across residency education programs. It is therefore imperative to reach a useful and accessible definition with a roadmap to enable more objective evaluation of this important dimension of residency education. The Boyer's definition of scholarship as encompassing discovery, integration, application, and teaching is widely recognized⁴.

It is envisaged in this model that scholarly activities should go beyond research and knowledge advancement (discovery) to involve the dimensions of synthesizing knowledge and making sense of it (integration), applying the resultant evidence to improve practice (application), and disseminating the existing knowledge (teaching). This broad definition entails that scholarship goes beyond knowing the theoretical basis of research and inquiry to engaging in doing research, applying its findings, and disseminating best practices.

The NIHS adopts this broad conceptualization of scholarly activities and emphasizes the following:

- Scholarly activities represent an integral component of residency education.
- Scholarly activities include both research and quality improvement initiatives.
- Scholarly activities are required for both residents/fellows and faculty.
- Residents/fellows should be exposed to each of the 4 components of scholarship during the training period.
- All 4 components of scholarship should be present when looking at the sum of work of the program core faculty.
- Scholarly activities attainment should be supported by evidence.

⁴ Boyer EL. (1990) *Scholarship Reconsidered: Priorities of the Professoriate*. Princeton, NJ: Carnegie Foundation for the Advancement of Teaching.



- Scholarly activities require institutions and programs to invest in providing resources and creating the enabling environment.

THE NIHS REQUIREMENTS FOR SCHOLARLY ACTIVITIES

The NIHS accreditation standards and requirements devote a focus on scholarly activities for residents/fellows and faculty. Specialty programs, supported by their sponsoring institutions, are required to comply with the following NIHS requirements:

- The program must demonstrate evidence of scholarly activities consistent with its mission and aims.
- The program, in partnership with its Sponsoring Institution, must allocate adequate resources to facilitate resident and faculty involvement in scholarly activities.
- The program must advance residents' knowledge and practice of the scholarly approach to evidence-based patient care.

The NIHS standards require residents and faculty to engage in a range of scholarly activities including research, conferences, and educational and quality improvement initiatives. It is required that residents/fellows comply with the following:

- Completing at least one scholarly project during the period of training to be conducted under the supervision of a faculty member.
- The scholarly project must lead to a scientific product in the form of either a research report approved by the program, a conference presentation, or a published manuscript in one of the relevant peer-reviewed journals.
- The proof of scholarly activity must form part of the resident/fellow portfolio.
- Fulfillment of scholarly requirements by the resident/fellow is one pre-requisite for awarding the NIHS specialty certificate.

How to use this document

This document is intended to serve various audiences and purposes in the context of residency education as follows:



- Supporting training centers and programs in optimizing the dimension of scholarly activity for residents/fellows and faculty as part of assuring quality and complying with the NIHS accreditation standards.
- Informing residents/fellows and faculty on the framework and key interventions for mastering the competencies pertaining to scholarly attainment.
- Guiding accreditation surveyors in verifying performance on scholarly activities during application review and site visits.
- Supporting the decision-making on accreditation within the NIHS and informing further development of accreditation standards.
- Promoting research and evidence-based culture in residency education and enhancing continuous improvement and innovation at institutional, program, and individual levels.

COMMON MEASURES OF SCHOLARLY ACTIVITIES

The NIHS requirements for scholarly activities essentially address three levels:

- The level of the program and its sponsoring institution
- The level of the trainee (resident/fellow)
- The level of the faculty

At each level, there are certain parameters to verify in order to ensure compliance with the accreditation standards. The resident/fellow is at the heart of the process for ensuring competence in scholarship. However, it is vital that certain arrangements at the level of the program/institution are in place to create the enabling environment for engagement in scholarly activities. Also, the faculty involved in resident/fellow supervision should comply with certain scholarly requirements to be able to better guide the scholarly growth of residents/fellows undergoing specialty training.

Research has demonstrated that barriers for effective scholarly activities relate to programmatic, logistical, and mentorship aspects. These barriers include the absence of a curriculum on scholarly activities, constraints on time allocated for research,



inadequate training on research methods, and lack of a research culture⁵. On the other hand, some factors are found to be associated with positive influence on scholarly activities. These factors include formal recognition for scholarship, dedicated time for research, faculty involvement, and program director and institutional commitment⁶. Overall, a structured approach to organizing scholarly activities is found to be associated with higher production of resident scholarly achievement and the development of a culture of scholarship in a program⁷.

Characteristics of program success with scholarly activities include:

- Committed institutional and program leadership.
- Systematic approach to capacity building for residents/fellows, faculty, and those concerned.
- Established research culture nurtured by an enabling environment.
- A training curriculum integrating scholarly activities.
- Vibrant faculty showing commitment to and interest in research and scholarly activity.

PRINCIPLES OF VERIFYING SCHOLARLY ACTIVITIES

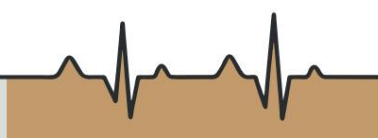
The NIHS adopts the following principles in verifying and assessing compliance with the requirements for scholarly activities:

- Holistic approach based on the broad definition of scholarly activities (Boyer's definition).
- Comprehensive assessment covering the program, resident/fellow, and faculty.

⁵ Nair et al (2019) Addressing research barriers and facilitators in medical residency. *J Family Med Prim Care*; 8: 1145-50. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6482775/pdf/JFMPC-8-1145.pdf>

⁶ Ravi et al (2021) Outcomes of a scholarly activity curriculum for family medicine residents. *Family Medicine* (53) 4. Available from: <https://journals.stfm.org/media/3801/ravi-2020-0442.pdf>

⁷ Waheed et al (2020) Development of a culture of scholarship: the impact of a structured roadmap for scholarly activity in family medicine residency program. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7053682/pdf/cureus-0012-0000007153.pdf>



- Requiring compliance with a minimum set of standards leaving the programs to attain higher levels based on the nature of the specialty and the context.
- Flexibility allowing for continuous renewal and innovation in practices of enhancing scholarly activities.

ASSESSMENT OF SCHOLARLY ACTIVITIES

The assessment of scholarly activities as part of program accreditation involves verifying measures taken at the three levels of the program/institution, resident/fellow, and faculty. The following is a further elaboration on the scholarly requirements:

1. Program/institutional level

- 1.1. Leadership commitment to scholarly activities as demonstrated by strategies, statements, and dedicated funding.
- 1.2. Formal recognition of scholarly activities as substantiated by a dedicated curriculum integral to the overall program curriculum.
- 1.3. A structure for governing scholarly activities as exemplified by committees, hierarchy, and division of roles.
- 1.4. Dedicated time for scholarly activities as shown by the program syllabus and timetable e.g., research day.
- 1.5. Formal research methods training as demonstrated by the existence of block or longitudinal courses.
- 1.6. Resource availability to support research and other scholarly activities including expertise in statistics, access to databases, and electronic setup and resources.
- 1.7. Evidence of innovations and initiatives aimed at promoting scholarly activities such as funding conference participation, research awards, and recognition for scholarly achievement.

2. Resident/fellow level



- 2.1. Resident/fellow awareness about the scholarly activity curriculum/syllabus and their level of motivation for engagement.
- 2.2. Resident/fellow participation in structured research methods training as relevant.
- 2.3. Resident/fellow access to support and guidance in topic selection and proposal writing and submission.
- 2.4. Resident/fellow access to adequate supervision and mentoring for the research or quality improvement project.
- 2.5. Resident/fellow actual engagement in the conduct of a research or quality improvement project on a relevant topic.
- 2.6. Resident/fellow access to facilities and resources related to scholarly activities.
- 2.7. Mechanisms for resident/fellow involvement in planning and organization of scholarly activities and incorporation of their feedback.
- 2.8. Evidence of scholarly output as exemplified by a published manuscript, a conference paper, or a research report written up to acceptable standards.
- 2.9. Resident/fellow engagement in teaching junior colleagues and other learners in context of the program/institution.
- 2.10. Resident/fellow engagement in the application of resultant evidence to improve practice, patient care, and program performance.



3. Faculty level

- 3.1. Faculty engagement in planning and delivery of scholarly activities including curriculum development.
- 3.2. Faculty engagement in supervision and mentoring of residents/fellows in the context of research or quality improvement projects.
- 3.3. Faculty participation in formal training or educational events relating to enhancing scholarly activities competence.
- 3.4. Provision of adequate time space and resources for the faculty to effectively supervise and mentor residents/fellows' projects.
- 3.5. Faculty engagement in committees and mechanisms relating to governance and organization of scholarly activities i.e., IRBs, institutional committees on research, etc.
- 3.6. Faculty contribution to the development of clinical guidelines, quality improvement, and patient safety initiatives.
- 3.7. Faculty engagement in teaching for residents/fellows and other learners in the context of the program/institution.
- 3.8. Faculty engagement in conference presentations and manuscripts publication including relevant records of published work.
- 3.9. Faculty contribution to professional societies and wider scholarly work such as reviewing for journals and scientific publications.



Annexes

Annex 1

Roadmap for designing and conducting a research project

The following is an overall roadmap and guiding steps to design and conduct a research/scholarly project as part of the NIHS requirements in the context of residency education. Accredited programs can use this roadmap as guidance, and they can further delineate the details and decide time plans based on their curricula and internal regulations.

The roadmap (the 10 steps)^{8,9,10}

1. **Brainstorming ideas:** this can be through an introductory lecture or seminar for induction into research projects to stimulate residents/fellows to think about their own research areas and potential topics
2. **Guidance on research topics:** programs can indicate any existing institutional/program research or quality improvement agenda/priority areas to provide a menu for residents/fellows to choose their topics, or provide guidance on appraisal and selection of relevant topics
3. **Writing a research proposal:** residents/fellows to develop their concept notes or research proposals based on the topic selection. The program should also provide support in this respect e.g., supervision and review

⁸ The program is expected to provide each resident/fellow with the services of a supervisor/mentor from among the faculty (can be assisted if needed by a co-supervisor from within or outside the program)

⁹ The overall duration of the research project is to be decided by the program in line with the approved curriculum. The NIHS requires a minimum of two years duration for the completion of the research project

¹⁰ The program is required to provide for a synchronized formal training in research methods for residents/fellows to be organized within the program or by external relevant entities and to be in a block or longitudinal format.



4. **Submission for review and approval:** residents/fellows are to submit their proposals for institutional review (IRB) for ethical and technical clearance and approval
5. **Data collection:** residents/fellows are to embark on data collection in accordance with the stipulated methodology
6. **Data analysis:** residents/fellows embark on managing and analyzing the collected data with the program/institution providing the required support e.g., statistical assistance, software.
7. **Report writing:** residents/fellows to embark on writing the research report based on the scientific writing principles and in accordance with the program requirements
8. **Developing a conference presentation:** residents/fellows to extract a summary of their research in a format suitable for a conference abstract and presentation
9. **Developing a journal manuscript:** residents/fellows to extract from their research a manuscript written according to the guidelines of a suitable peer-reviewed journal in the field to be submitted for publication
10. **Sharing and dissemination:** residents/fellows to bring up their research reports, conference papers, or published manuscripts to the attention of those concerned through different means; and the program/institution to preferably highlight the residents/fellows' research products through suitable means



Annex 2

An exemplary content of a research proposal

The following guidance indicates a typical structure and content of a resident/fellow's research proposal. Programs and residents/fellows are encouraged to take it as a guiding frame to be considered when embarking on proposal writing or assessment.

Background

- Importance of the topic and its relevance to the discipline
- Link to previous work and the general literature
- The need for the research and the gap to be addressed
- The conceptual approach and its relevance to the topic

Research question and objectives

- The main research question and hypothesis informing the study
- The aim of the research
- The specific objectives of the research

Research methodology

- The research approach: quantitative, qualitative, or mixed
- The study type e.g., cross-sectional, retrospective, prospective, case study
- Study design (location, population, sampling, methods, tools)
- Fieldwork e.g., preparations, piloting, data collection
- Data management and analysis
- Special methodological considerations e.g., validity and reliability, ethics, language/translation, limitations, and constraints

Research timeline



- The overall duration of the research in line with the program requirements
- The timeline for each stage of the research
- Contingency measures to ensure timely completion of the research project

Financial implications

- The estimated budget for the research
- Sources of funding
- Possible financial assistance for conferences and journal publication



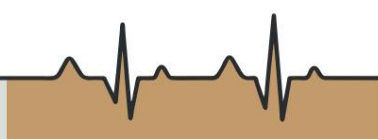
Annex 3

An exemplary outline of a research methods curriculum¹¹

There is flexibility in terms of the duration, format, and content of the formal research methods training for residents/fellows. The following is an exemplary outline for a research methodology training curriculum to guide the accredited programs and their sponsoring institutions in ensuring the coverage of the required research competencies.

- **Introducing research:** defining research and investigation, research paradigms and types, approaches to conducting research
- **Designing research:** hypothesizing and conceptualizing, research questions and objectives, study population and sampling, methods and tools, standardization and quality
- **Conducting research:** the literature review and its approaches, data collection and fieldwork, data management, and analysis,
- **Reporting research:** the research report, academic writing, writing for publication
- **Disseminating research:** identifying relevant conferences and journals, platforms for dissemination, translating research into action

¹¹ The research curriculum must include content on both quantitative and qualitative research methods



Annex 4

Guidance on the role of residents/fellows in teaching junior colleagues and students

This guidance is intended to represent a framework for the development of teaching competencies among residents/fellows¹². It can assist residents/fellows in self-development and likewise support programs/institutions in ensuring the acquisition of residents/fellows of the required teaching competencies.

Teaching theory

- Structure speech and talk fluently
- Design and deliver effective presentations using appropriate technology
- Adjust the content according to the level of audience and context
- Provide effective summaries including the take-home messages
- Arrange the content in an efficient manner and align it with the learning objectives
- Use examples to facilitate learning and understanding
- Interact with learners during teaching and facilitate learners' reflections
- Seek feedback from learners in the spirit of adjustment and improvement

Teaching procedural skills

- Describe the procedure including the principles and listing of the steps involved
- Introduce the procedure correctly adopting a step-by-step approach to ensure learning

¹² Liang JF, Hsu TF, Chen CY, Yang CW, Jean WH, Ou LS, Cheng HM, Huang CC, Yang YY, Chen CH. Developing a competency-based framework for resident-as-teacher. *J Formos Med Assoc.* 2022 Oct;121(10):1956-1962. doi: 10.1016/j.jfma.2022.01.027. Epub 2022 Feb 10. PMID: 35151563.



- Introduce the learner to the patient and show awareness of the patient's feeling
- Provide proper opportunities for learners to practice
- Discover the learner's mistakes and give instructions for improvement
- Provide supervision according to the complexity of the task e.g., non-invasive interventions, invasive interventions
- Attend to feedback and adjust learning accordingly

Assessing learning

- Introduce learners to the principles and types of assessment for learning
- Ensure the correct understanding of assessment as a means for improving learning and ensuring competence
- Use common assessment tools correctly and in accordance with the learning level
- Give specific, constructive, timely, and customized feedback on assessment according to the performance of learners
- Identify the difficult learners, counsel them, and provide for appropriate referral if and when needed
- Obtain feedback from learners and plan for responsive measures and improvement
- Provide feedback on the performance of learners to the appropriate level in the program and in a timely manner
- Observe ethical principles of learning, assessment, and feedback reporting
- Incorporate the feedback and directives from the program senior levels and use that for self-development and improvement of learning



Annex 5

Matrix for assessing scholarly activities for the purposes of accreditation (for accreditation surveyors' use)

ASSESSMENT DOMAINS FOR SCHOLARLY ACTIVITIES		
Program/institution	Resident/fellow	Faculty
Leadership commitment e.g., statements, strategy, funding	Awareness of and motivation for scholarly activities	Engagement in the planning and organization of scholarly activities
Governance structure for scholarly activities e.g., focal person, unit, committees	Engagement in the planning and organization of scholarly activities	Engagement in teaching residents/fellows and other learners
Dedicated curriculum on scholarly activities	Participating in formal research methods training	Participation in faculty development activities
Actual protected time for scholarly activities	Access to support, supervision, and mentoring	Engagement in resident/fellow supervision and mentoring
Provision for formal research training e.g., block or longitudinal course	Access to learning resources and research facilities	Protected time for scholarly activities and access to research facilities
Budgeting for scholarly activities and actual spending	Actual engagement in conducting research; evidence of participation in service improvement aspects	Participation in structures relating to scholarly activity governance e.g., committees
Infrastructure for scholarly activities e.g., learning	Evidence of scholarly output e.g., conference paper,	Evidence of scholarly output e.g., conference papers,



resources, research facilities, statistical support, and software	published journal manuscript	published journal manuscript
Initiatives and innovations e.g., awards, prizes	Engagement in teaching junior colleagues and students	Other scholarly contributions e.g., developing guidelines, contributing to professional societies, reviewing for journals





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