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Educational Article

A guide to developing a competency based curriculum for a residency training program – Orthopaedic prospective



Wa'el S. Taha, MD ^{a,b}

^a Department of Surgery, Prince Mohammed bin Abdulaziz Hospital, Almadinah Almunawwarah, Kingdom of Saudi Arabia

^b King Saud bin Abdulaziz University for Health Sciences, Riyadh, Kingdom of Saudi Arabia

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المخلص

أصبحت برامج تدريب الأطباء المقيمين من الأساسيات الضرورية في حياة الطبيب التعليمية الطويلة. وقد بدأت في المملكة العربية السعودية مثل هذه البرامج منذ أكثر من ٢٥ سنة في التخصصات المختلفة، ومنذ بدأت طرأ على هذه البرامج الكثير من التغيرات، التي كانت في معظمها تعتمد على الخبرة الشخصية للقائمين على هذه البرامج، التي تعتمد على خبراتهم الشخصية في التدريب الذي حصلوا عليه. ترتب على ذلك أنه في أحيان كثيرة لم يتم تلبية الاحتياجات المهمة والرئيسية للأطباء المقيمين، ولم تكن طرق التدريب والتدريس تساعد على تحقيق أهداف هذه البرامج.

في السنوات الأخيرة قام عدد من الجهات المختلفة في العالم، بتطوير نماذج تدريب جديدة اعتمد كثير منها على تحقيق أهداف محددة ومعينة، يتم تحديدها بناء على دراسة الاحتياجات الفعلية. في هذه المقالة نقوم بشرح إحدى هذه الطرق والأساسيات المتبعة في تطوير برامج تطوير كفاءة الأطباء المقيمين، ونعطي مثالا لكيفية تطبيق بعض هذه النظريات على برنامج للمقيمين في جراحة العظام، وسوف يتم شرح طريقة إعداد البرنامج والمنهج بالاعتماد على طريقة التطوير العكسي لتحديد الكفاءات المطلوبة وتحديد نتائج التعلم.

الكلمات المفتاحية: كفاءة؛ المنهج؛ جراحة العظام؛ برنامج تدريب المقيمين؛ التخطيط العكسي

Abstract

Residency training programs have emerged as an essential and important element in the lifelong learning path for any physician. In the Kingdom of Saudi Arabia (KSA),

residency programs in different specialties have been implemented for more than 25 years. Although a number of changes have taken place regarding the format and conduct of these different training programs, the majority of residency programs have been developed based on the expertise of the prominent academics in the field and on feedback from physicians that underwent previous training programs in the region. However, in many centres, the true needs of physicians are not met and the teaching strategies used do not result in the intended outcome.

In recent years, many new models for the development of residency program curricula have been developed worldwide. Many of these models are based on specific needs or are goal-driven. This article describes several of the essential and fundamental concepts for developing a competency-based curriculum for a residency training program in the field of orthopaedics. The concept of backward planning is explained, and the possible teaching methods based on the identified competencies and desired learning outcomes of physicians are illustrated.

Keywords: Backward planning; Competency; Curriculum; Orthopaedic residency program; Residency training

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Corresponding address: Consultant Orthopedic surgery, Assistant Professor of Surgery, Department of Surgery 590, Prince Mohammed bin Abdulaziz Hospital, PO Box 40740, Almadinah Almunawwarah 41511, Kingdom of Saudi Arabia.

E-mail: tahaw@ngha.med.sa

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Introduction

Today's physicians continue to witness significant changes in the nature of health care delivery. Clinical practice

is changing daily, with literally thousands of medical journals documenting our evolving understanding of the clinical sciences. Patients are treated in more diversified settings.¹ Patients spend less time in hospitals, and those who stay longer are usually older patients with many co-morbidities. We live in an era with a rising emphasis on accountability, and information has been made easier to access than ever before. Furthermore, patients are more aware of treatment options.

Medical education has evolved in the last two decades, and new theories and methods have been introduced in this field. The aim of medical education is to educate care givers to provide a high standard of medical practice for a healthier community. An important step in the lifelong learning experience for any physician is residency training. New curricula have been developed in many parts of the world with the aim of providing physicians with a quality education to aid in the ultimate goal of developing a healthy community.

A new method of educational planning has been advocated with the end result in mind. In other words, the goal of a training program curriculum should be determined, and the planning of that program should be designed to reach that goal. The ultimate goal is to address issues that pertain to the overall health of the community and to identify competencies through which trainees can perform the skills needed to address these clinical issues.² However, there is very little information on using this method of educational planning in postgraduate education, specifically for residency training programs.^{3–7} The CanMeds is a famous example of a similar approach to educational planning.¹ There have been some efforts to establish SaudiMeds; however, these efforts are still in the earliest stages. The aim of this paper is to outline the important steps and processes in developing a curriculum for a residency program in orthopaedics using this new method.

Backward planning

This proposed curriculum for the orthopaedic residency program was designed using a “backward planning” strategy. The ultimate goal of medical education, the development of a healthy community, was outlined in the above paragraph. Thus, we first needed to identify the community health issues for which patients seek medical attention.

Once these clinical problems were identified, the next step was to identify the clinical performances that are required by the physician to address these clinical problems. For example, if we identify pain and disability following treatment of femoral neck fractures in the elderly as a common community health problem, then the performances affecting this problem would include a correct diagnosis, performing an anatomic reduction and performing the correct fixation. These are called the “performances”. Based on the identified performances, competencies need to be developed. Competency is holistic and requires the documentation of learning abilities, which include the cognitive knowledge, psychomotor skills and affect, or attitude, that will help physicians in performing at the level of clinical practice.⁸

A competency based curriculum aims at developing different aspects of the learner to allow him to have the

abilities necessary to perform at the level of clinical practice in the community. Competencies can be developed in many areas, including clinical, research, communication and other domains. However, here we concentrated on developing clinical competencies.

Competencies are broken down into the domains of learning, i.e., knowledge, skills and attitudes, and for each domain, the intended learning outcomes must be developed. The level of the resident must be considered because learning outcomes are different for junior residents and senior residents (Figure 1).

Documenting the learning objectives under a specific learning domain helps in choosing the correct teaching method. Specific teaching methods that are suitable for a specific learning domain are necessary to assure that the learning processes are effective (Figure 2).

Needs assessment

Performing a needs assessment is an important part of designing any educational curriculum. Needs assessments generate information regarding what health issues need to be addressed and how residents prefer to be taught. They also can help identify issues related to faculty development and help optimise training. Needs assessments can be conducted using a questionnaire and direct interviews with different stakeholders.⁹

Key principles and organisation of curriculum

Although this is a competency-based curriculum, other concepts from other curricula can be used.

Core curriculum with options

The “core curriculum with options” concept identifies certain topics as essential, and they become an integral part of the curriculum; the learner must complete those areas of the curriculum and learn those topics. In addition to the integral topics of the curriculum, there are topics that are considered optional, and the learner can choose to complete those areas of the curriculum based on a specific need.¹⁰

Spiral curriculum

With spiral curricula, basic science principles are covered in the first stages of learning. However, these principles are revisited as the learner progresses through the curriculum to help reinforce these principles.

Adaptive curriculum

Although adaptive curricula have received much criticism, this type of curriculum has the advantage of being adaptable. No resident is able to progress from one stage of learning to the next without comprehending the core principles of that stage. This ensures that at the end of the training the resident will have successfully acquired the core knowledge intended by the curriculum.

Taking into consideration these different concepts of residency training curricula, we present an example of the

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