

Reunión Anual SOCIEDAD ESPAÑOLA DE **NEURORRADIOLOGÍA**

20 - 22 de octubre de 2022

ZARAGOZA

Sede: Cámara de Comercio



Currículum neurorradiológico, desde la facultad a la subespecialización (ESR currículum)

José María García Santos

Hospital Universitario Morales Meseguer

Murcia



No hay conflicto de intereses

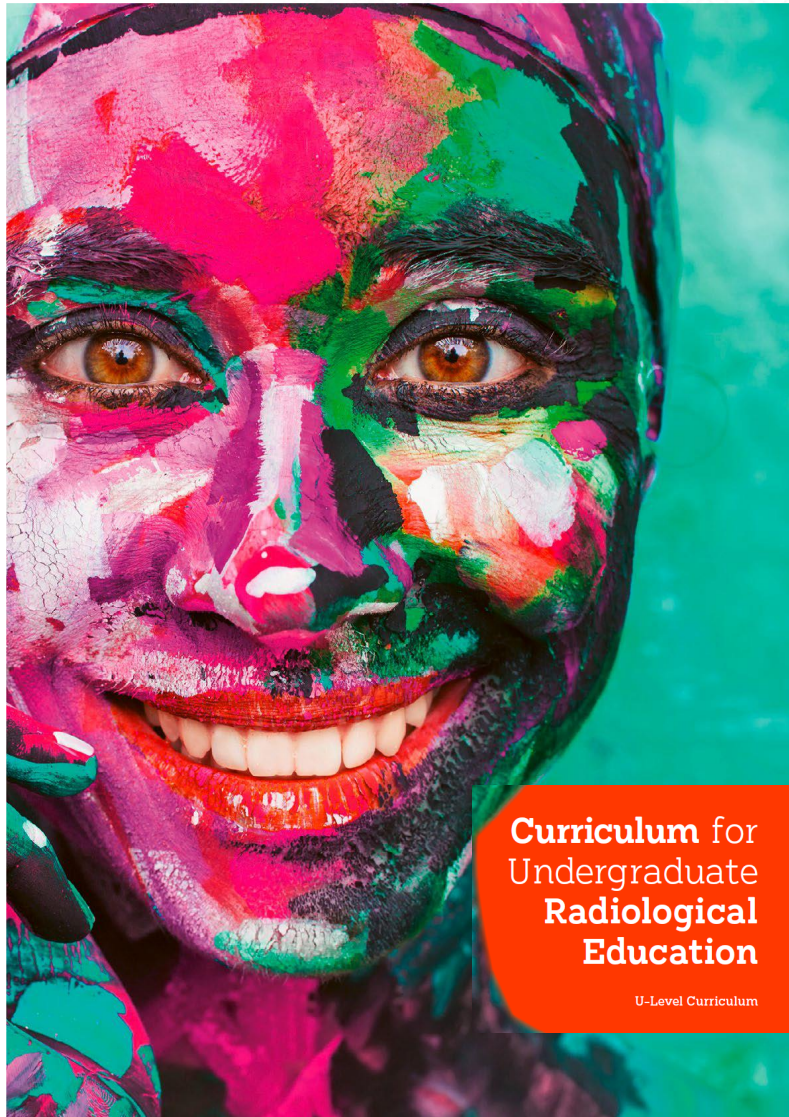
... tal vez de competencia.

European Training Curriculum (ETC)

The ETC defines the **contents of training** and **expected learning outcomes** of trainees in radiology and its ultimate goal is to achieve, throughout all European countries, a **standardised system of education in the field of radiology,** which will enhance the quality of radiological care for patients.

¿Por qué hacemos las cosas?

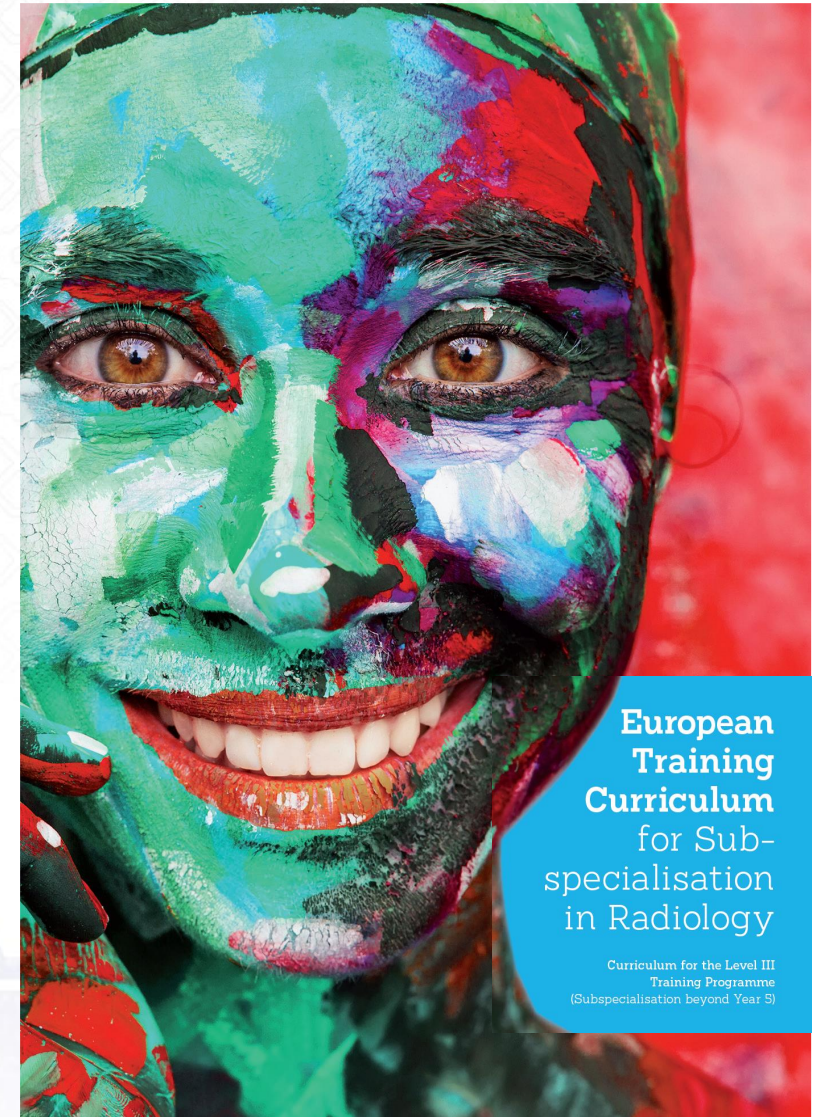




Edition June 2021



Edition March 2020



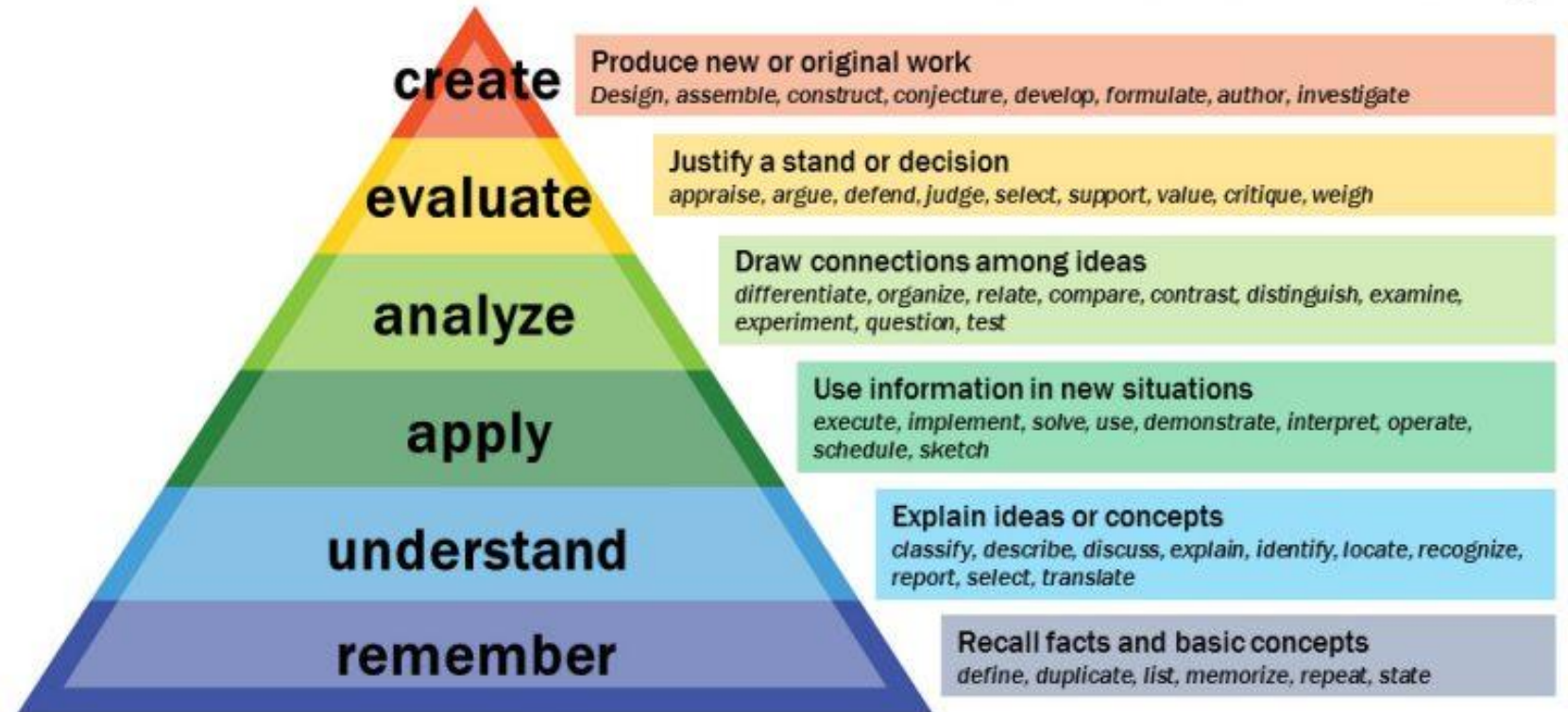
Edition March 2020

Objetivos de la formación



Benjamin Bloom

Bloom's Taxonomy



 Vanderbilt University Center for Teaching

Ordenar jerárquicamente los procesos cognitivos

LIFELONG LEARNING

Education Techniques for Lifelong Learning

Writing Multiple-Choice Questions for Continuing Medical Education Activities and Self-Assessment Modules¹

Jannette Collins, MD, MEd



Jannette Collins, MD, MEd, FCCP, FACR

Collins J. Education techniques for lifelong learning: writing multiple-choice questions for continuing medical education activities and self-assessment modules. Radiographics. 2006;26(2):543-51.

doi: 10.1148/rg.262055145

Examples of Objectives and MCQs for Three Levels of Learning

Level	Objective	Question
<i>Knowledge</i> (learner must recall memorized information but not explain or apply it)	State the average effective radiation dose from chest CT	What is the average effective radiation dose from chest CT? a. 1 mSv b. 8 mSv c. 16 mSv d. 24 mSv
<i>Combined comprehension and application</i> (learner must demonstrate an ability to use, not just explain, new information, applying rules, methods, concepts, principles, laws or theories)		
<i>Problem solving</i> (learner must understand components of a concept, and their relationships to each other, and analyze information)		

Bloom's Taxonomy

1 **remember** Recall facts and basic concepts
 define, duplicate, list, memorize, repeat, state

2 **understand** Explain ideas or concepts
 classify, describe, discuss, explain, identify, locate, recognize, report, select, translate

3 **apply** Use information in new situations
 execute, implement, solve, use, demonstrate, interpret, operate, schedule, sketch

analyze Draw connections among ideas
 differentiate, organize, relate, compare, contrast, distinguish, examine, experiment, question, test

evaluate Justify a stand or decision
 appraise, argue, defend, judge, select, support, value, critique, weigh

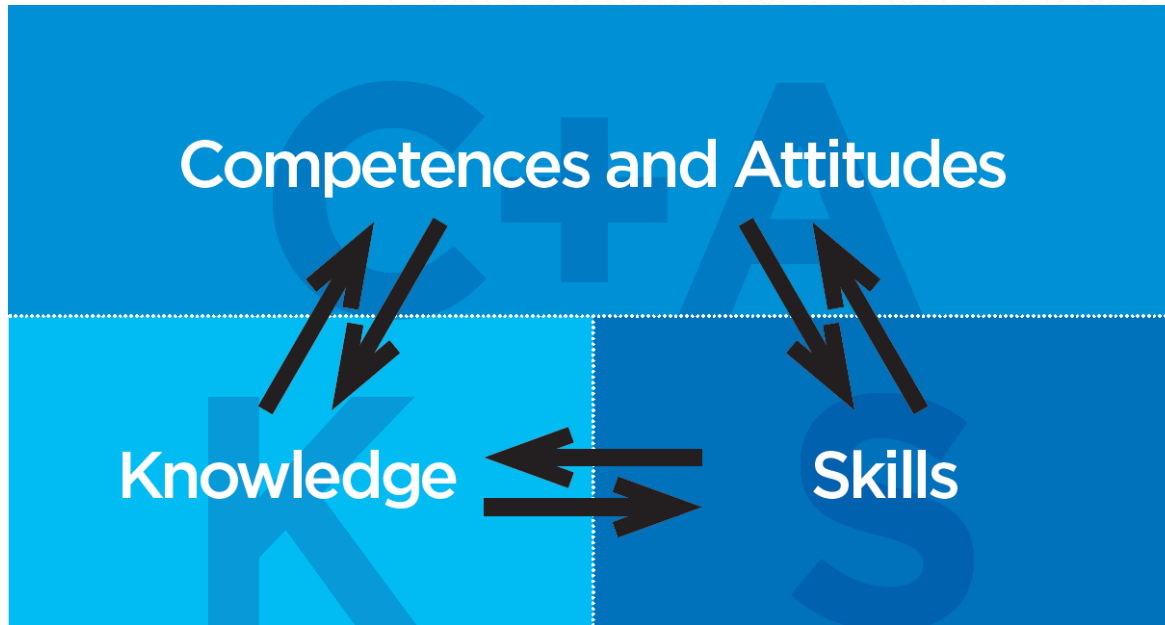
create Produce new or original work
 Design, assemble, construct, conjecture, develop, formulate, author, investigate

Vanderbilt University Center for Teaching



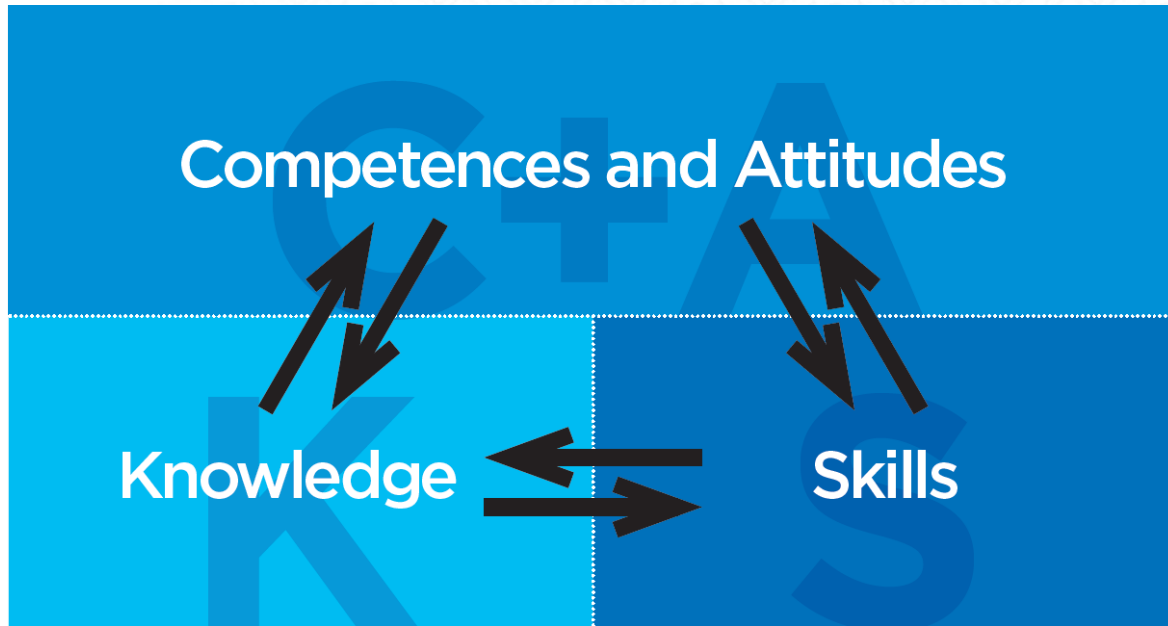
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KSCs/KSAs

Instead of just focussing on the “learning inputs”, the “learning outputs” have increasingly been in the centre of educational attention and endeavours.



<https://www.myesr.org/education/training-curricula>



I. TRAINING REQUIREMENTS FOR TRAINEES

- 1. CONTENT OF TRAINING AND LEARNING OUTCOME**
- 2. ORGANISATION OF TRAINING**

II. TRAINING REQUIREMENTS FOR TRAINERS

- 1. PROCESS FOR RECOGNITION AS TRAINER**
- 2. QUALITY MANAGEMENT FOR TRAINERS**

III. TRAINING REQUIREMENTS FOR TRAINING INSTITUTIONS

- 1. PROCESS FOR RECOGNITION AS TRAINING CENTER**
- 2. QUALITY MANAGEMENT WITHIN TRAINING INSTITUTIONS**



B-I-10 NEURORADIOLOGY

KNOWLEDGE

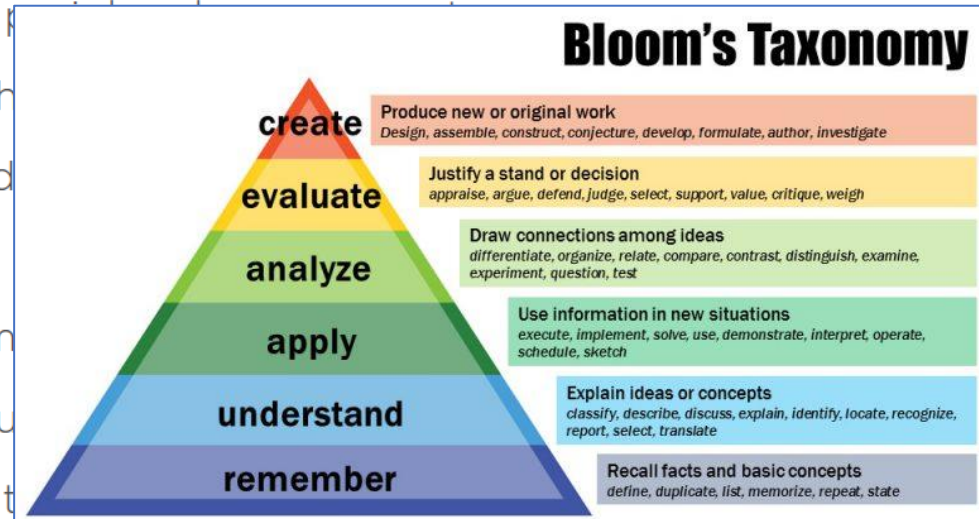
- To describe normal and spinal cord, and
- To describe the normal to diagnostic and interventional
- To describe characteristics of neuroradiology (brain, spine, and peripheral nervous system)
- To recall common conditions
- To understand the role of imaging in diagnosing and managing disorders of the brain and peripheral nervous system
- To describe the position of the brain, skull, skull base, and spine
- To understand the

SKILLS

- To perform ultrasound
- To observe ultrasound
- To perform basic vascular
- To observe diagnostic
- To observe image-guided
- To plan CT examinations of the diagnostic lumbar spine
- To plan CT examinations of the brain and spine and to adapt the decision for or
- To plan MRI examinations of the brain, skull, skull base, and spine and to adapt

COMPETENCES AND ATTITUDES

- To justify diagnostic imaging examinations and/or interventional procedures of the extracranial head, spine and spinal cord, and peripheral nervous system
- To choose the best-suited method for evaluating disorders of the brain, spine, and peripheral nervous system
- To communicate with patients and colleagues about interventional procedures of the nervous system
- To choose optimal imaging techniques of the brain, skull, skull base, and spine
- To apply techniques to



I. TRAINING REQUIREMENTS FOR TRAINEES

1. CONTENT OF TRAINING AND LEARNING OUTCOME

2. ORGANISATION OF TRAINING

Calendario y duración de la formación

Nivel 1 (básico)

Nivel 2 (subespecializado)

Currículo del entrenamiento/infraestructuras

Módulos de formación

Equipamiento

Salas de estudio; material docente

Cursos y congresos (*pride, profiling, relay*)

Evaluación

Local; EDIR

Acreditación (“Governance”)

II. TRAINING REQUIREMENTS FOR TRAINERS

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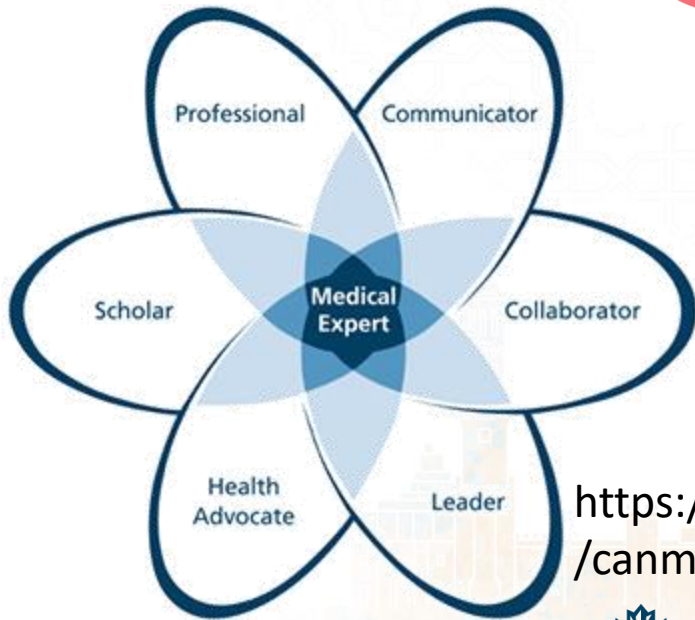
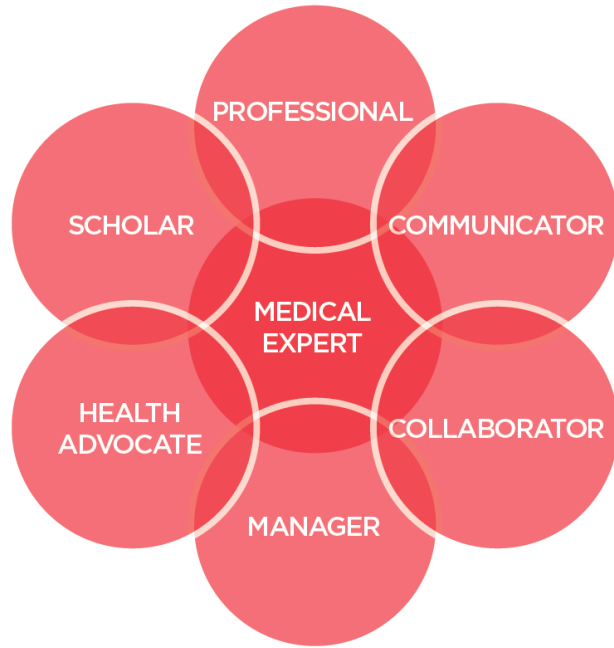
- 1. PROCESS FOR RECOGNITION AS TRAINING CENTER**
- 2. QUALITY MANAGEMENT WITHIN TRAINING INSTITUTIONS**

¿Qué radiólogos deben estar acreditados?

- Formación MIR
- Formación subespecializada
- Formación como formador
- Experiencia en formación pre y posgrado
- Carrera universitaria

¿Qué centros deben estar acreditados?

- Hospital grande docente universitario
- Programa con objetivos docentes KSAs
- Número y espectro de pacientes
- Número de radiólogos acreditados
- Equipamiento e instalaciones
- Espíritu de excelencia académica
- Acreditación oficial... ETAP

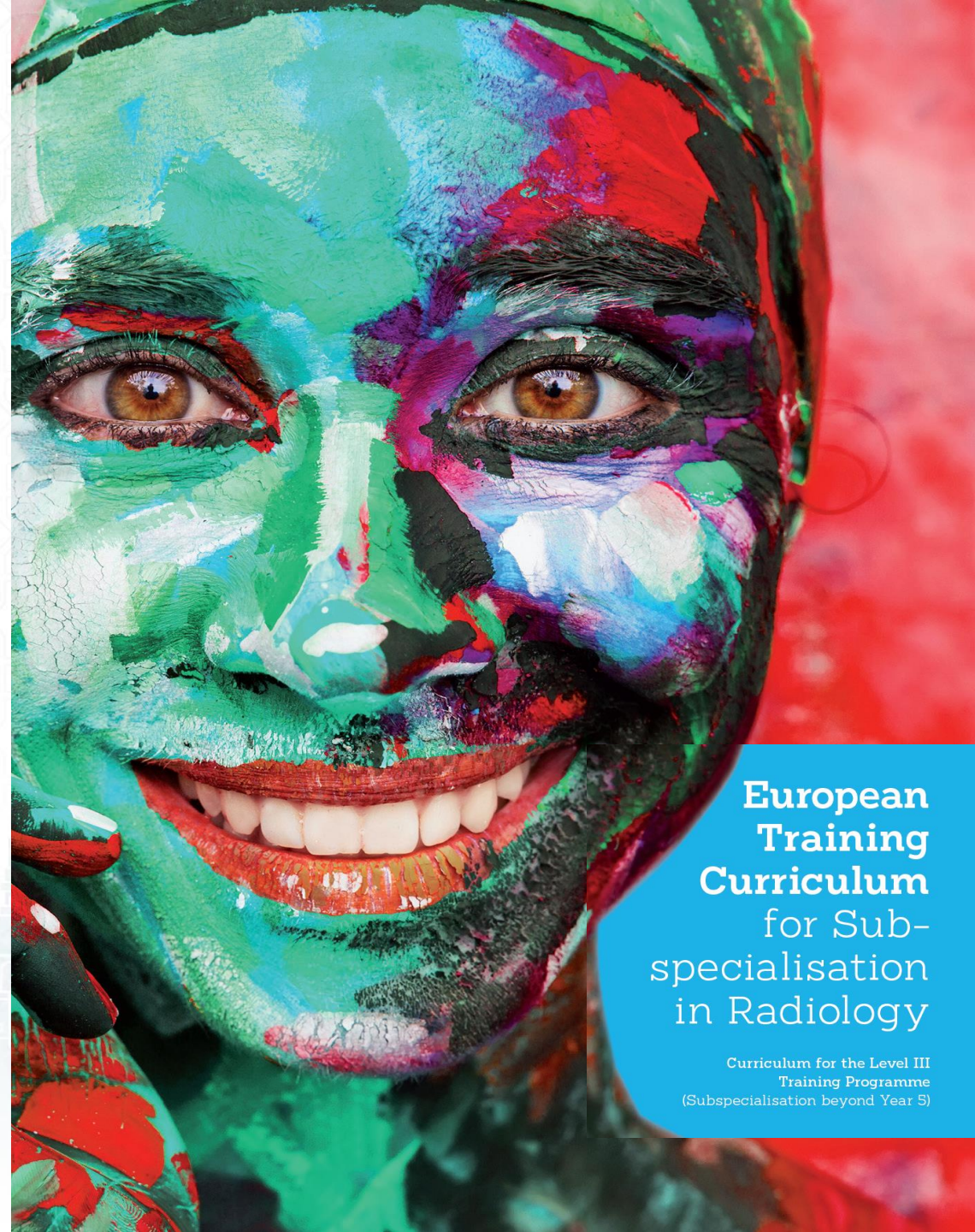


CANMEDS

<https://www.royalcollege.ca/rcsite/canmeds/canmeds-framework-e>



ROYAL COLLEGE
OF PHYSICIANS AND SURGEONS OF CANADA
COLLÈGE ROYAL
DES MÉDECINS ET CHIRURGIENS DU CANADA



**European
Training
Curriculum**
for Sub-
specialisation
in Radiology

Curriculum for the Level III
Training Programme
(Subspecialisation beyond Year 5)

SKILLS

- To delineate the basic normal anatomy of the brain and spine on cross-sectional imaging
- To detect and differentiate the different types of intracranial haemorrhage and ischaemic brain features on cross-sectional imaging
- To recognise basic imaging patterns of the most common benign and malignant diseases on neuroradiologic imaging examinations in correlation with their description in the radiologic report

COMPETENCES AND ATTITUDES

- To communicate with patients in order to explain the benefits, risks and basic technical aspects of diagnostic and common interventional procedures of the brain and spine
- To be able to communicate the results of an imaging examination of the brain and spine to patients and their families by the end of the medical studies
- To be able to correctly prescribe the most appropriate imaging examination depending on the clinical situation by the end of the medical studies

5
4
3
2
1

Saber justificar, hacer un consentimiento informado e informar de los resultados.

Módulo U-I: Basado en las modalidades.

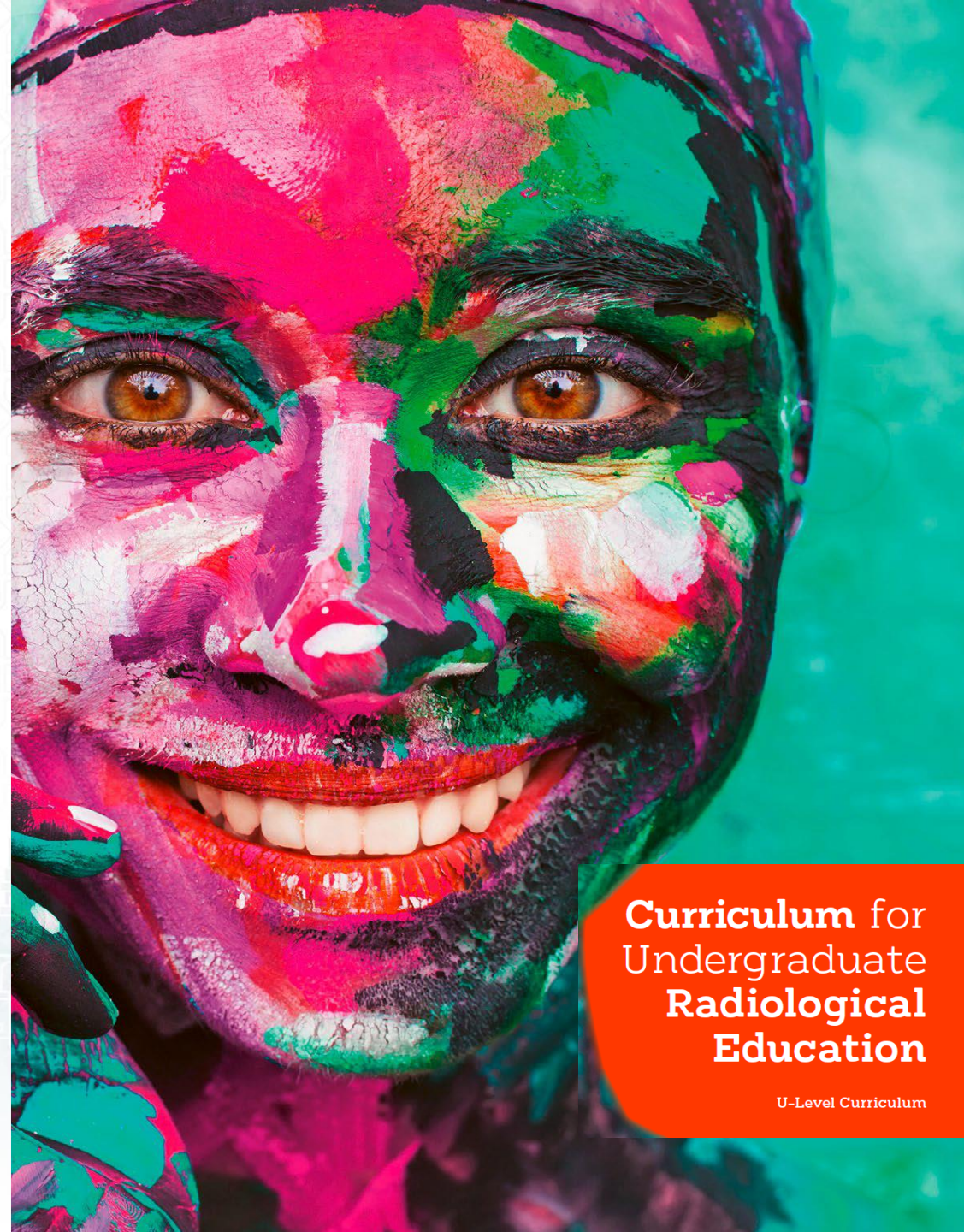
Módulo U-II: Basado en órganos y sistemas

U-Level Training
 Undergraduate Education

Module U-I
Module U-II

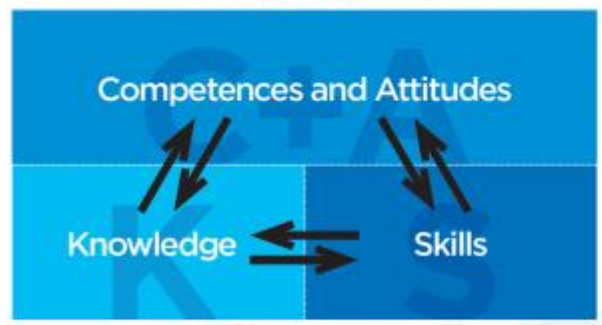
Chest Radiology, Emergency Radiology,
 Head and Neck Radiology, Interventional Radiology,
 Oncologic Imaging, Paediatric Radiology,
 Urogenital Radiology, Medical Imaging Informatics

Respiratory Radiology, Cardiac Radiology,
 Gastrointestinal and Abdominal Radiology,
 Gynaecological and Obstetric Radiology,
 Head and Neck Radiology, Interventional Radiology,
 Nuclear Medicine as Basic Training,
 Paediatric Radiology, Urogenital Radiology,
 Radiation Protection Education and Training,
 Principles of Imaging Technology & Molecular Imaging,
 Principles of Medical Imaging Informatics,
 Communication and Management,
 Research and Evidence-Based Medicine



**Curriculum for
 Undergraduate
 Radiological
 Education**

U-Level Curriculum



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¿Por qué hacemos las cosas?







Organización Mundial de la Salud



Although the recommendations in the (Flexner) report had the great merit of focusing on the search for excellence in the preparation of future physicians, they may have also **diverted attention away from other aspects affecting the impact of educational strategies on the way physicians practice and health services are organized and delivered** – the very things a reformed medical education system was supposed to improve.

It may be that Flexner made the implicit assumption that good medical education is the beginning of a cascade of events that would eventually determine the quality of medical practice, the distribution of medical workforce, the performance of health services, and eventually the health status of people. To my dismay, this assumption is still widely held today. Even if not openly expressed, **the impression is too often given that medical education is a cornerstone in health, whereas it should be seen as one important part interacting with others in the health system.**

*Boelen C. A new paradigm for medical schools a century after Flexner's report.
Bull WHO 2002; 80: 592-593*

This paradigm implies that **medical schools should be held accountable for their products**, be they medical graduates, research results, or models of health service delivery, and should demonstrate how these products contribute to improving quality, equity, relevance, and cost-effectiveness in health services. The **concept of “social accountability”** can be defined as the **obligation to direct their education, research and service activities towards addressing the priority health concerns of the community, region and/or nation they have the mandate to serve.**

**MEDICAL EDUCATION
IN THE
UNITED STATES AND CANADA**

A REPORT TO
THE CARNEGIE FOUNDATION
FOR THE ADVANCEMENT OF TEACHING

BY
ABRAHAM FLEXNER

WITH AN INTRODUCTION BY
HENRY S. PRITCHETT
PRESIDENT OF THE FOUNDATION



Social Accountability

The weak southern schools apologize for their wretchedness by alleging the shortcomings of the student body. But the shortcomings of the students are a call for better, rather than an excuse for worse, teaching.

Flexner A. Medical Education in the United States and Canada. A report to the Carnegie Foundation for the Advancement of Teaching. The Carnegie Foundation, Bulletin Number Four, 1910

- **Doctor en Medicina y Cirugía. Especialista en Radiología (Neurorradiología) 1992**

- **Jefe de Sección de Radiología Hospital Universitario Morales Meseguer (1995-2011)**

- **Jefe de Servicio de Radiología Hospital Universitario Morales Meseguer (2011-Hoy)**

- **Coordinador de la Unidad Funcional de Radiología Áreas V y VI de Salud de la CARM**

- **Profesor Asociado de Radiología. Facultad de Medicina, Universidad de Murcia (2010-Hoy)**

- **Padrino de las promociones 2013-2019 y 2014-2020 de la Facultad de Medicina, Universidad de Murcia**

- **Tutor de Residentes Hospital Universitario Morales Meseguer (1998-2011)**

- **RSNA 2009 Editorial Fellow (Eyler Editorial Fellowship)**

- **Editor Jefe de Radiología 2007-2018**

- ***Deputy Editor (Neuroradiology) European Radiology 2012-Hoy***

- ***Associate Editor Radiology 2019-Hoy***

- **Revisor:** European Radiology, Insights into Imaging, Neuroradiology, Radiología, Radiographics, Radiology, Revista Argentina de Radiología