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REVIEW

Portfolios: A Tool for the Training and Assessment of Residents in Dermatology, Part 1

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Abstract The medical resident's portfolio is a collection of materials that show reflective learning in the context of clinical practice. A portfolio contains documents (such as case histories and questionnaires the resident has used), images, and video recordings that reveal that an individual has acquired the competencies needed for professional practice. A portfolio is an assessment tool that simultaneously supports learning and gives evidence for certifying competence. It encourages independent continuing professional development that is incremental and centered on answering questions about what one has learned, how it might be applied, what still needs to be learned, and what must be done to reach one's goal. Answering such questions provides evidence of competencies that have been acquired and what is still lacking, allowing the trainee to develop a plan for personal improvement and evaluate subsequent achievements. The first step in creating a portfolio is to list required skills and abilities, along with the actions that will allow the resident to acquire them during each year of residency training. The ultimate goal is to define the resident's professional competence. We describe a model on which to base a training and assessment portfolio for residents in dermatology.

PALABRAS CLAVE
Portafolio;
Docencia;
Residentes;
Aprendizaje

El portafolio como herramienta de formación y evaluación de los residentes de Dermatología (I)

Resumen El portafolio del residente es un cuaderno de aprendizaje basado en la reflexión sobre la práctica diaria. Consiste en una recopilación de documentos (historias e informes clínicos), encuestas, fotografías y videograbaciones que permiten certificar la adquisición de las competencias necesarias para ejercer la profesión. Sirve al mismo

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tiempo como instrumento de evaluación, tanto formativa como sumativa. Favorece el autoaprendizaje continuo y progresivo alrededor de las preguntas: ¿qué he aprendido?, ¿qué aplicación ha tenido?, ¿qué me falta por aprender? y ¿qué he de hacer para alcanzarlo? Estas preguntas evidencian las competencias adquiridas y las deficiencias de formación, lo que permite la elaboración de un plan de mejora individual y su reevaluación posterior. Para su diseño se necesita en primer lugar hacer una lista de las competencias a adquirir y las actividades a realizar en cada año de residencia, con el fin de definir el perfil del profesional. Presentamos aquí un modelo de portafolio para la formación y evaluación de los residentes de Dermatología.

Introduction

The process of adapting our education system to the European Higher Education Area is bringing about important changes in medical education in Spain that are reflected in new legislation on specialized medical training and the new curricula being implemented in our medical faculties. The new legislation published in the Official State Journal (BOE) in February 2008 regulates the role of the education committees, highlights the role of the training supervisor or advisor (referred to as the resident's tutor), and emphasizes the importance of assessing acquired competencies.[1]

There is general agreement about the importance of providing quality training for residents in order to produce competent specialists. The new European legislation together with the many changes in the field of dermatology in recent years (immunology, pharmacology, genetics, and molecular biology) and in the skills needed by dermatologists (dermatoscopy) has led the National Board for Medical-Surgical Dermatology and Venereology to draw up a new edition of the official syllabus for the specialty (BOE, 2007).[2] This document specifies the competencies dermatologists must have to exercise their profession and how these are to be acquired through gradually decreasing supervisor intervention and increasing trainee responsibility. The process will be different for each resident and should be reflected in a personalized annual training plan for each individual.

The best learning system is unquestionably based on practice at the patient's bedside, particularly when such clinical practice is evidence-based and supported by information and communications technology. With the support of an expert mentor, this method provides the best and most comprehensive training and motivates the residents to learn.[3]

In Spain, specialist training in medical and surgical dermatology and venereology is a 4-year program. During their first year, residents spend between 6 and 12 months in rotation in internal medicine and general surgery departments (the exact period is decided by each training hospital). After this introduction, they start their specialist training. The residents' progress over the 4-year program is assessed annually to ascertain whether they have acquired the competencies corresponding to the year. This assessment is based on an objective report by the resident's tutor and the contents of a resident's log book in which acquired competencies are certified. After the final assessment at the end of the fourth year, successful trainees' names are inscribed in the National Register of Specialists in Training. The list is duly transferred to the Ministry of Education and Science, which issues a diploma certifying the resident's specialty . Residents who obtain a positive assessment with merit may sit an optional examination set by the National Board for Medical-Surgical Dermatology and Venereology in order to obtain an additional qualification (Diploma of Merit or Diploma of Merit with Distinction).

The portfolio offers one of the best ways to certify and assess the acquisition of competencies, guaranteeing broad and comprehensive training.[3] In this article, we propose a semistructured portfolio model that serves to support the training and assessment of medical residents specializing in dermatology. Some of the statements made in this paper are based on the experience of the authors (XS and JMC) after 4 years of applying this model. Our report will be published in 2 parts. The first deals with the content of the portfolio, basic notions of reflective learning and the critical incident, the structured interview, and the steps that must be followed in the design of a portfolio. The second part will focus on how to implement the model in a dermatology department and how the portfolio can be used as a tool to support both training and final assessment.

Reflective Learning and the Critical Incident

In medicine, the term reflective learning is used to refer to the succession of events that occurs almost automatically when we are faced with a new problem or critical incident (Appendix 1).[4] Our first step is to mentally review what we already know that bears on the case and the circumstances in which we have previously applied such knowledge. Then we ask what more we need to know and the best way to resolve the lack of knowledge (consulting MEDLINE or specialist reference books, asking questions of the attending physician or tutor, or preparing a presentation of the problem at a departmental conference). The concept of the critical incident refers to a wide variety of professional and personal situations that frequently oblige us to engage in this process of reflection. Incidents could include, for example, confusing tinea and eczema, our first encounter with a case of pemphigus or severe psoriasis, observing that our flap scars are less cosmetically acceptable than

Table 1 Documents That Should Be Included in the Portfolio

Records
- Case histories
- Clinical reports
- Surgery reports
Video recordings and photographs of procedures performed
Documents generated by interaction with the tutor
Summary of the tutor-resident structured interviews
Documents relating to formative assessment
Documents relating to summative assessment
Critical incidents giving rise to reflective learning
Scientific activity
- Sessions
- Conference papers
- Articles
- Evidence of acquired competencies
- Video recordings of surgical interventions
- Video recordings of clinical interviews
- Clinical photographs
- Annotated dermatoscopy images
- Annotated histologic images
Summaries of courses attended

we would like or that our surgical margins are positive more often than is usual, failure to clearly distinguish on dermatoscopy between a common nevus and an atypical one, failure to persuade patients to adhere to treatment, or difficulties in our relations with another member of the department. In the world of medicine, as soon as one set of problems has been solved, new ones will crop up to trigger the reflective process once again, making us, in effect, lifelong learners.

The Portfolio

In general terms, the portfolio is an orderly compilation of documents accrediting work carried out by a professional and a tool used mainly in the context of job interviews. In the health sciences, the term portfolio refers to a folder or binder that documents learning by way of a diverse collection of materials that certify the competencies acquired by a student or professional and serve as evidence that the owner is competent to exercise his or her profession.[5-7] A portfolio should also record the learner's reflections on the doubts and problems that arise in routine practice—the aforementioned critical incidents. The incident record is very important because reflection on such events leads the learner to acquire knowledge in a more structured, consolidated, and exhaustive way.[8] The portfolio facilitates comprehension of the actual learning process, particularly in view of the fragile and unreliable nature of memory. During residency, the trainee's reflections on the problems that arise in routine practice are an inexhaustible resource for learning. Experience is the best teacher.

Table 1 lists the different types of material that should be included in the portfolio.

The Role of the Portfolio in the Supervisory (Tutorial) Process: The Structured Interview

The tutor is responsible for coming to an agreement with the resident on a personal annual training plan and discussing the learning goals for each rotation with the relevant supervisor. The tutor must interview the resident to assess what has been learned at least twice during each internal or external rotation (half way through a rotation and at the end). The tutor and the resident should spend 10 to 15 minutes a day (approximately 1 hour a week) reviewing critical incidents that have occurred and commenting on possible learning strategies. These interviews should be structured (Appendix 2) to include feedback and facilitate constructive comments. They should take place often during the initial months of residency. The interval between meetings can become longer as the program progresses but should never exceed 3 months. In each interview, the participants should discuss progress made in relation to the learning goals set at the beginning of the year. The content of these interviews should be noted in the portfolio.

In one surgical program in which only 50% of residents had compiled a portfolio, the introduction of a monthly resident-advisor interview, encouragement of resident-advisor e-mail contact, and quarterly notification of goals not yet achieved led to greater acceptance of the portfolio method among residents.[9] The authors attributed the change to the greater dedication of faculty and the greater perceived importance of the project. With the new system, 100% of the participants compiled their portfolios.

Types of Portfolio

If classified according to structure, a portfolio may be described as follows: a) a free portfolio, when the learning goals are defined but the resident chooses what tasks to undertake and what documentation to present as evidence; b) a structured portfolio, when the type of activity the resident must undertake to achieve the competencies and the documentation that must be included is predetermined; and c) a semistructured portfolio, when the 2 systems are combined.

When a portfolio is classified according to purpose, it may be a) a formative or learning portfolio based mainly on reflection, a process that helps to identify the areas in which the resident has or has not yet made progress; b) an assessment portfolio, whose objective is to certify that the resident has acquired a predetermined set of competencies; or c) a mixed-purpose portfolio, which pursues both objectives, making it a useful tool for both trainee and supervisor.

Creating a Portfolio

When portfolios are introduced into a residency program it is very important to ensure that they are well designed. The first task is to define the competencies that must be acquired by the resident (Tables 2-4) and assign them to the years of the residency program as specified in the national syllabus for dermatology.[2] The next step is to define the activities or tasks the resident must undertake to acquire

Table 2 Knowledge Competencies of the Dermatologist

001.	Clinical signs of common skin diseases and tumors as well as less common, but serious, dermatologic diseases, as specified in the syllabus for the specialty, stratified by year of residency
002.	Diagnosis, treatment, and prognosis of these skin diseases and tumors
003.	Knowledge of the diagnostic and therapeutic techniques required to treat these skin diseases and tumors
004.	Pharmacologic treatment of said dermatoses and tumors
005.	Ability to recognize warning signs and complications associated with serious skin conditions (bullous diseases, anaphylaxis, severe psoriasis, vasculitis, collagen disease), as well as premalignant and malignant tumors (carcinomas and pigmented tumors)
006.	Understanding the repercussions of severe and incapacitating skin disease on the patient's quality of life
007.	Prevention and early detection of infections, especially sexually-transmitted diseases
008.	Prevention and early detection of skin tumors, particularly carcinomas and melanoma
009.	Health education, medical and lifestyle counseling, particularly with respect to infections and tumors

the required competencies (Table 5) and determine how each competency will be assessed. The final step defines the professional profile of the dermatologist we wish to produce by assigning a percentage to each area of competency; this profile will be used for assessment purposes.

Competencies Required in Dermatology and Tasks Undertaken To Acquire Them

Following the recommendations of the World Federation of Medical Education[10] and the requirements of the National Board for Medical-Surgical Dermatology and Venereology,[2] dermatologists who have completed their residency must be competent in the following areas:

1. The diagnosis and management of common skin disorders and tumors as well as less common, but serious, skin diseases as specified in the national syllabus. The resident should have sufficient knowledge to formulate a correct differential diagnosis, the clinical judgment to identify what further tests may be needed to make a firm diagnosis, and be competent to prescribe the most appropriate treatment on the basis of scientific evidence and standards of practice. It may seem obvious to add that knowledge must be acquired through personal study of books and reading of journals. Reference to such study can be included in reflections on critical incidents, which may include the abstracts of pertinent articles. We consider that, in dermatology, the study of between 2 and 5 critical incidents per month is sufficient to acquire the necessary knowledge and to develop clinical judgment on the need for additional tests and the most

Table 3 Skill Competencies of the Dermatologist

010.	Medical history taking
011.	Performing and interpreting specific diagnostic tests and complementary methods of examination (dermatoscopy, biopsy and dermatopathology, serology, potassium hydroxide technique, and patch testing)
012.	Elaborating an appropriate treatment plan
013.	Management of topical and systemic therapy in common skin disorders and tumors and also in less common but serious dermatologic diseases (as specified in the national syllabus for the specialty, stratified by year of residency)
014.	Management of phototherapy (UV-B and psoralen-UV-A) in cutaneous lymphomas and severe inflammatory skin diseases, such as psoriasis
015.	Ability to perform the surgical techniques required for the treatment of benign and malignant tumors (curettage and electrocoagulation, dermatological surgery with scalpel—excision with direct closure, flaps, and grafts). These skills are acquired through decreasing supervisor intervention and increasing trainee responsibility in accordance with the national syllabus for the specialty, stratified by year of residency)
016.	Record keeping (medical histories, clinical reports, pathology order forms, and surgery reports)
017.	Clinical judgment and decision-making skills in the choice of diagnostic tests and investigations and the elaboration of an appropriate treatment plan
018.	Clinical interview
019.	Interpersonal skills (assertiveness, empathy, interpersonal sensitivity, ability to get along with others)
020.	Team work skills (ability to collaborate and work with the other members of the team to achieve common goals, generating an environment of mutual support)
021.	Public speaking in departmental sessions and scientific conferences

Table 4 Competencies Relating to the Attitudes and Values of the Dermatologist

022.	Espectful attitude to patients and colleagues
023.	Providing precise information on the procedures to be performed
024.	Maintaining an ethical attitude
025.	Maintaining good interpersonal and team relationships
026.	Ability to approach problems scientifically (questioning why things happen and proposing working hypotheses and research questions)
027.	Openness to dialogue and ability to negotiate
028.	Ability to make decisions
029.	Having a positive attitude to continuing learning and self-improvement

Table 5 Tasks and Activities the Resident Must Undertake and Include in the Portfolio

1. A record of clinical interviews (starting in the second year of residency training)
2. Examples of case histories (descriptions of elementary lesions and chronic inflammatory dermatosis with summaries of treatments, and of complex tumors including the comments of the tumor committee)
3. Record of clinical reports, with significant examples
4. Record of quality-of-life questionnaires administered together with significant examples and commentaries
5. Phototherapy and psoralen-UV-A therapy regimens for various patients with comments on the UV dose used
6. Record of the interventions performed during residency training. Comments on some examples should be included
7. List of surgery reports with significant examples
8. List of case presentations made at departmental meetings, including abstracts
9. Critical incidents and work plan illustrated by a timeline (2 to 5 incidents per month)
10. Record of the content of structured interviews (twice-monthly formative interviews and yearly or twice-yearly summative interviews). This information is seen only by the tutor and the resident.
11. Annotated summaries of departmental dermatopathology sessions
12. Annotated clinical images, including the correct description of the lesions as per standards
13. Annotated photographs of patch testing results with interpretation
14. Photographs of histologic slides with comments
15. Dermatoscopy images with comments
16. Video recordings of clinical interviews
17. Annotated video recordings of punch biopsy, cryotherapy, curettage and electrocoagulation of benign and malignant skin tumors
18. Annotated video recordings of surgical interventions (difficult wedge sites, simple and complex flaps and grafts)
19. Record of scientific talks and papers given together with abstracts of same, conference certificates and slide presentations
20. Video recordings of talks and papers given at conferences
21. Articles published
22. Research projects
23. Annual personal learning plan

appropriate treatment options. The exact number in each case will depend on the scope of the incidents considered and the stage of training reached. The resident's training is complemented daily by comments from the attending physician and the tutor as well as by structured interviews. Residents can also include in the portfolio the medical records of some of their patients and annotated summaries of such cases so that the tutor can review their work and discuss any errors detected. This is particularly important in the early stages of the program when the resident is learning how to describe the appearance and distribution of lesions precisely. The pocket dermatoscope is becoming a routine tool for examining skin tumors. To learn to differentiate between different types of pigmented tumors using a dermatoscope, trainees can view photographs of such lesions on a computer screen and discuss them with colleagues in departmental sessions. It is also very useful for residents to attend dermatoscopy courses and use online tools such as the Dermatoweb Dermatoscopy Atlas. For assessment purposes, residents can include some significant dermatoscopy images in their portfolio and comment on these as they would a critical incident. For example, they could present examples of basal cell carcinoma, seborrheic keratosis, a common melanocytic nevus, an atypical nevus, and a melanoma.

2. Performing and interpreting the results of diagnostic tests used in dermatology, including patch tests for contact dermatitis, direct examination of the skin under a microscope to detect the scabies mite, the Tzanck test for certain bullous diseases and herpes virus infections, and the potassium hydroxide technique. Representative photographs with commentary may be included in the portfolio as evidence of competency.
3. Skin biopsy (choosing the most appropriate site and type of lesion to sample, a skill acquired through feedback from the attending physician in routine practice) and interpreting the results (a skill learned during rotation in the pathology department and in the weekly departmental sessions dedicated to this aspect of dermatology). To facilitate assessment, the resident can include in the portfolio dermatopathology images of bullous disease, interface dermatitis, granulomatous dermatitis, and different types of tumors, all annotated with reasoned commentaries.
4. The indications for and practice of UV-B phototherapy and photochemotherapy (psoralen-UV-A), which can be learned by monitoring the treatment of patients with psoriasis. The nurse in charge of the phototherapy unit can explain how the booths work, how the dose of UV light is adjusted according to the patient's phototype, and inform the residents when complications occur so that they become familiar with them. This training only requires some dozen patients and should be reflected in the portfolio with pertinent comments.
5. Surgical skills, such as curettage, electrosurgery, laser therapy, and cryotherapy of benign and malignant epidermal tumors in addition to sufficient skill with a scalpel to excise the principal skin tumors, choosing the most appropriate procedure and performing a sufficient number of interventions to gain proficiency. The resident must learn to perform simple wedge excision with direct closure and more complex excisions requiring flaps or grafts for closure. Before undertaking surgery the resident must become skilled in the different types of stitches and suture methods, local anesthesia, and types of local and regional anesthesia. Surgery must be learned gradually, with progressively less direct supervision. According to the national syllabus for the specialty, actions carried out directly by the resident without supervision are classified as level 1, actions performed by the resident under direct supervision are level 2, and activities in which the resident is an observer are level 3. We consider that during the first year of dermatology

training (the second year of residency or R2), the resident can and should perform numerous procedures, including cryotherapy, curettage and electrocoagulation. Trainees initially work under supervision (level 2) but by the end of the year will consult only when in doubt about some aspect of the case (level 1). After first practicing with mannequins, residents can and should also resect tumors using wedge excision, initially assisting the principal surgeon (level 2) and, towards the end of the year, taking on the role of principal surgeon (level 1). During the second year of dermatology training (R3), in addition to wedge excisions, residents can and should assist the attending physician in surgical interventions involving simple flaps and grafts (level 2) and by the end of that year they should be acting as principal surgeon in such procedures (level 1). By the beginning of R4, residents can be the principal surgeon in interventions requiring simple flaps (level 1) and can assist in other more complex interventions, such as those requiring more complex flap closure (level 2). In the second half of the fourth year residents can act as principal surgeon in the more complex interventions (level 1), requiring supervision only in selected cases. These descriptions are merely guidelines, as actual progress will depend on individual skill. Examples of all such experiences should be included in the portfolio, either in the form of annotated summaries of the case histories and surgery reports or else as critical incidents. What problems were associated with the case? What solutions am I aware of? What would the alternative solutions be? How can I learn about them? In the same way, video recordings of selected interventions can be included together with before and after images for each level of autonomy. This material will be used as evidence of competence.

6. Oral communication skills that will facilitate interaction with patients, both to obtain information from them and to provide appropriate information concerning their skin disease or tumor, the seriousness of their condition, the tests they will need to undergo, and the proposed treatment. To develop these skills from the outset, residents will conduct numerous interviews with both inpatients and outpatients to put into practice what they learned in courses on doctor-patient interaction in which they studied the concepts of empathy, verbal and nonverbal communication, active listening, and negotiation. Sample interviews can be included in the portfolio in the form of video recordings. These should provide evidence of the resident's communication and negotiating skills and clinical judgment.
7. Public communication skills are initially practiced in departmental sessions and further developed by presenting scientific papers at seminars and conferences. Improvement should come through feedback from the tutor and through application of concepts learned in courses on scientific communication (slide design, striking a balance between a natural and a professional style of delivery, voice modulation, gestures, nonverbal communication, etc). Papers presented should be included in the portfolio. Residents may also include video recordings of presentations that demonstrate their formal speaking skills.
8. Written communication skills are practiced by writing up all kinds of records. Residents start by drafting simple case histories, learning to describe with precision the characteristics of skin lesions and tumors (primary lesion, site, pattern of distribution, and so on). They later progress to more complex case histories, including differential diagnosis and indicated tests. Residents also learn to summarize clinical findings in reports and to describe surgical techniques in surgery reports. Significant examples can be included in the portfolio as evidence of competence.

During their training, dermatology residents should also develop the attitudes and values appropriate for a physician: a) show consideration, respect, and sensitivity in their treatment of patients; b) behave ethically in terms of demonstrating dedication, integrity, and professional responsibility, taking part in ethically difficult diagnostic and therapeutic decisions; c) respect colleagues and hone interpersonal skills (assertiveness, empathy, sensitivity, the need to get on well with others) and team skills (ability to cooperate); d) sustain an interest in learning, reinforce self-directed learning habits, and consolidate the use of information technology to obtain medical information; e) adopt a critical attitude toward information obtained from medical articles; f) maintain an open and generous attitude towards helping others to learn, sharing knowledge and experience gained with other residents, students, and colleagues from the same or other departments; g) maintain and further develop an attitude of scientific curiosity that will lead to greater understanding and lay the foundations for future research; h) develop an awareness of the social and economic impact of decisions, which should be evidence-based whenever possible; and e) resolve cases as promptly as possible because, given the high number of consultations typical of our specialty, residents learn to quickly discriminate between common and serious skin diseases.

Residents can improve their interaction with patients by taking courses in medical history taking techniques and with the help of their tutor. They can also discuss ethical problems with their tutor and work on these in courses based on cases calling for ethically difficult diagnostic or therapeutic decisions. They can also take courses on teamwork and interpersonal relationships. An annotated summary of all of these courses could be included in the portfolio. One way to promote the residents' interest in learning and teaching and improve their ability to think critically is to involve them in departmental sessions, summaries of which should be included in their portfolios. The cost of the tests ordered and treatments recommended by the resident can be calculated as evidence that the resident has taken into account the financial burden associated with decisions. The resident's attitude to, interest in, and curiosity about research is demonstrated by the presentations he or she has made and the articles published. It is important to agree at the beginning of the year on the minimum number of presentations and articles that must be included in the portfolio. Residents should also be included in some of their department's ongoing research projects to facilitate their doctoral theses. This work should also be included in the portfolio.

As already stated, the training of medical residents is based on the tutor-resident relationship. The content of the planned, structured interviews (Appendix 1) conducted as part of the training program and seen only by the resident and their tutor, should also form part of the portfolio.

The national syllabus for dermatology recommends that all these skills be developed progressively in a constant feedback loop, with acquisition spread out over the years of training, characterized by ever decreasing supervision and progressive shouldering of responsibility on the part of the resident.

Once each annual summative assessment has been completed, the tutor and the resident must set new learning goals for the following year. These will form the basis of the personal learning plan for the year, which will serve to guide the acquisition of new competencies. Strict adherence to the predefined plan is not, however, important. In the course of the year, goals may change as a result of critical incidents, although the specifications of the national syllabus for the specialty should always be the point of reference. Training plans can also be defined quarterly.

Advantages of the Portfolio

The portfolio is a learner-centered tool in which the competencies to be acquired are precisely defined in detail from the outset. These include not only knowledge and practical skills, but also competencies bearing on communication with patients, medical ethics, attitudes of respect towards colleagues, and an interest in learning. The result is a broader and more comprehensive training experience.

As the portfolio is based on questions arising from critical incidents, it encourages trainees to take responsibility for their own competence and adopt a more proactive attitude towards their learning needs.[11] Medical residents who use a portfolio have been shown to spend more time reflecting on their practice and studying critical incidents and to pose and resolve a greater number of clinical problems.[5] Portfolio users also tend to set a broader range of learning goals and develop more comprehensive personal training plans. However, residents need to be absolutely certain that the information they provide will be treated as confidential or they may be inhibited in their reflections.

The portfolio is also a reflection of real activity during residency training—what residents really do rather than what they know how to do—and this is changing assessment practices. Assessment systems based on observation of clinical practice in the workplace (workplace-based assessments) are being introduced to replace objective structured clinical examinations, which are, nonetheless, very useful for assessing technical and communication skills through role playing.[12-14]

Finally, the portfolio is an ideal instrument for tutor-resident exchange because it serves as a bridge between the learning goals and the formative activities of the resident by facilitating instruction and feedback during structured interviews. Although the portfolio is also used for assessment, it is well accepted by residents in this respect because it does not make them feel they are being examined.

The principal advantages of the portfolio are summarized in Table 6.

Table 6 The Advantages of the Portfolio

1. A portfolio is a resident-centered learning tool
2. The learning goals are known from the outset
3. The portfolio helps to focus the resident's learning process on the goals
4. Residents take more responsibility for their own learning because they themselves choose some of the goals
5. The goals include knowledge, practical skills, communication skills, attitudes, and values and the resulting training is broader in scope
6. Portfolios promote reflective learning and stimulate independent and self-directed learning
7. The portfolio is a record of what the resident really does rather than what he or she knows
8. This tool is generally well accepted by residents as it does not make them feel like they are being examined
9. The portfolio serves as a bridge in the relationship between tutor and resident
10. This flexible assessment tool combines a number of different evaluation methods
11. Both formative and summative assessments are present

Drawbacks of the Portfolio

Although portfolios are used widely in health sciences in English-speaking countries, they are as yet little used in Spain. This approach is currently only used in the training of medical residents studying family and community medicine[15,16] and internal medicine.[17] However, its introduction into other specialist training programs is foreseen in the near future.

The design of a portfolio is complex because of the different skills that must be learned in each specialty. Consequently, before a portfolio is introduced, the content must be analyzed in detail. It is also essential to allocate sufficient time for designing and implementing the model. The processes of planning, introducing the system into the department, compiling the portfolio (the resident), and assessing the result (the tutor) are all time-consuming tasks.

Ideally, portfolios should not be very voluminous. Large portfolios tend to be dense and lack clarity. The tutor spends more time on assessment and the portfolio is equally impractical for the resident.[18] Residents should be selective and include only the materials that facilitate assessment and serve to demonstrate the competencies acquired. The learning goals should be clear and significant. Ideally, some of these goals should be personalized, that is to say, they should be discussed and agreed on with the resident and should reflect the training needs of the individual. The method for assessing whether or not the goals have been reached should also be agreed on and should include both qualitative and quantitative criteria.[19]

Another disadvantage of the portfolio is its scant flexibility in terms of format and content. Although the competencies required and the tasks the resident has to undertake should be clearly defined and detailed from the outset, a good portfolio design should afford the residents some room for

Table 7 Drawbacks of the Portfolio

1. Not yet widely used in Spain so there may be some resistance to its introduction
2. Complex design
3. Compiling the content requires a time commitment from the resident
4. Assessment requires a time commitment from the tutor
5. Lack of flexibility in terms of format and content
6. Difficult to quantify
7. May lead to accumulation of paper
8. Residents may be skeptical about its usefulness

maneuver, allowing them to set some of their own goals and choose some topics of particular interest (allowing the "surgical" resident to gain more experience in surgical techniques, the "scientific" trainee to spend more time on research, and the "dermatopathologist" to spend more time looking down a microscope, and so on) while ensuring that all of them acquire the minimum core set of required competencies. The key is to create a portfolio that strikes a balance between structure and freedom of action.

Portfolios are not easy to quantify. Tutors tend to identify with the trainee and are generally too lenient and subjective in their assessment of portfolios. This makes it hard for them to take difficult decisions, such as failing a resident. However, if the right choices are made it is possible to define a rigorous and reliable set of psychometric criteria that are sufficiently individual and not too standardized. Portfolio assessment is based primarily on qualitative information, which must subsequently be converted to quantitative data for the purposes of the summative annual assessment. The material can be quantified by 2 or 3 well-prepared raters who have devised a method for assessing each competency and who discuss the results obtained during the assessment process.

Other drawbacks are the difficulty of storing large quantities of paperwork in the spaces available in large hospitals (a problem that can be solved by using online portfolios[20,21]) and the fact that residents are often skeptical about the role of the portfolio as a training tool.

The drawbacks of the portfolio are summarized in Table 7.

Comments

It should go without saying that the role of the tutor in the Spanish medical residency training system is enormous. Tutors should work with each resident to identify strong and weak points and to promote learning goals that are realistic and coherent with professional development. During the first interview with residents, the tutor should highlight the training role of the portfolio and the ways it will help them to develop a reflective approach to learning based on analysis of critical incidents. A clear understanding of the purpose of the portfolio will facilitate its implementation and counter the residents' inevitable complaints at the outset about the time spent compiling and writing the material. Tutors also play a key role in the introduction of a portfolio-based system in their teaching hospitals and in the management of problematic residents.

A dermatologist's training is a journey that starts with undergraduate studies and finishes at the end of the residency, which is one of the most important stages in this journey because it prepares the physician in training to become a lifelong learner. With the creation of the European Higher Education Area, specialist medical training in Spain had to be modified to facilitate the mobility of professionals made possible by the common framework stipulating equivalent competencies. The portfolio is a useful tool for certifying acquired competencies because it contains documents that serve as evidence.

In Spain, the annual assessment of residents is based on the tutor's report on an individual and on portfolio assessment. The principal advantage of the portfolio is its impact on the overall, well-integrated training of the resident.[3,22,23] It contains documents that demonstrate the competencies acquired, including not only diagnostic and therapeutic knowledge and skills but also oral communication skills needed for patient interviews, interaction with colleagues, and public speaking along with written communication skills needed for drafting case histories and reports. In addition, it documents ability in adopting a scientific method and other pertinent values, such as medical ethics and a desire to learn. The broad scope of the tool promotes integrative learning. Another advantage is that the competencies that must be acquired are defined from the outset in the portfolio. This gives direction and helps residents to focus on their personal training goals. It also encourages reflection and self-directed learning because they are involved in setting some of the goals and tasks. Keeping a portfolio up to date also helps residents to monitor their own progress in clinical practice and to acquire knowledge in an orderly fashion.

One of the drawbacks of the portfolio is the time commitment it requires from both the resident and the tutor, a characteristic that is not always well accepted and can hinder introduction of the system. Another disadvantage is that portfolios are not easy to assess. To facilitate the introduction of the portfolio system, it is essential to have a well-designed model and strong institutional support from the staff. The tutor must be properly briefed on the objectives of the system and should have regular meetings with the resident.

The model used must be validated and well structured, but the portfolio should also leave room for a resident to choose a topic or direction that satisfies his or her curiosity and learning preferences[6,7] while ensuring that the core requirements of the syllabus are met.

The portfolio should not be voluminous, especially when regular, specific feedback is planned. The tutor must be motivated if he or she is to overcome any initial rejection of the concept by the resident. Success will also depend on the relevance and quality of the portfolio model and the availability and flexibility of both tutor and resident with respect to the time commitment.

Conflict of Interest

The authors declare that they have no conflict of interest.

Appendix 1. Critical Incident No. ...

Date

Any situation or event in clinical practice that gives rise to doubts or perplexity owing to a lack of knowledge on the part of the physician, a lack of coherence in the findings, or unexpected results.

Description of the incident:

Key questions
What do I know about the subject? (Consolidated competencies) How did I acquire that knowledge?
What do I need to learn now? (Learning goals) 1. 2. 3. 4. 5.

How can I learn what I need to know? (Methods for achieving goals)
Goal 1
Goal 2
Goal 3
Goal 4
Goal 5
(More than 1 method may be proposed for each goal.)

Methods that can be used to achieve goals

1. Consult books
2. Search the literature
3. Prepare a literature review session
4. Courses/seminars/workshops
5. Help from tutor
6. Consult other specialists
7. Original research on the subject

Documents that can provide evidence that learning goals have been achieved

1. Summary of the chapter of a book, of literature consulted, or of the literature review session presented at a departmental session.
2. Summary of the course, seminar, or workshop attended
3. Summary of the interview with the tutor
4. Video recording of a patient interview or a physical treatment (cryotherapy, curettage, electrocoagulation, UV-B phototherapy) or of a surgical procedure
5. Comments on dermatopathologic or dermatoscopic images, etc.

Response to the goals set

Goal 1
Goal 2
Goal 3
Goal 4
Goal 5

Appendix 2. Structured Interview No. ...

Date Time

Name of resident: ..... Year of residency: .....

Name of tutor: ..... .

1. Follow-up on learning goals

Goal 1.

Goal 2.

Goal 3.

Goal 4.

Goal 5.

(documents accrediting learning)

2. Follow-up on critical incidents

Critical incident 1

Critical incident 2

Critical incident 3

3. Competencies acquired

a) Interpersonal skills: communication with the patient

b) Public speaking skills

c) Surgical skills

d) Relationship with colleagues

4. Scientific activity

a) Departmental sessions

b) Poster presentations at meetings and conferences

c) Publications

d) Other activities (courses, Advanced Studies Diploma, doctoral thesis)

The resident's strong points

The resident's weak points

Strategies for correcting weak points

Personalized learning plan

Monthly, quarterly, and semiannual learning goals

Goal 1

Learning method

Goal 2

Learning method

Goal 3

Learning method

Goal 4

Learning method

Date of next meeting

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