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Decision-making in pediatric specialist training

Abstract

The training of pediatric specialists has gone through several stages over the years. The analysis of decision-making is essential in the training of this specialist. The aim of this work is to evaluate decision-making in the training of this professional, with its corresponding premises, stages, objectives, and concrete actions, following the logic of the Clinical Method. The feasibility and relevance of this proposal was corroborated by means of the Delphi Method, which makes it possible to calculate the numerical ray, and the identification of the different stages, objectives and concrete actions in the numerical range of excellence. This was also corroborated by Kendall's W statistical method through the assessment of a group of experts, who were previously selected for their level of competence on the subject.

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Introduction

Professional skills are those that allow you to stand out as a professional and to demonstrate your specific professional and demonstrate the specific knowledge of the profession. They are acquired and refined over time and include teamwork, adaptability, negotiation, stress management, communication adaptability, negotiation, stress management, communication skills, innovation, creativity, initiative and decision-making.[1–3]

In the specific case of the medical profession, among the skills that a specialist in Pediatrics must have, there is Decision Making, related to the training and development of skills associated with the diagnosis and treatment of childhood illnesses and the identification of risk factors in children.[4,5]

The emphasis of the above lies on practical skills and the interpretation of complementary studies to solve the pediatric patient's health problem. However, decision-making is not explicitly stated within the skills of the resident in training, although it is described as a professional skill in which the pediatrician must possess the necessary means to make an instant decision in a safe and calm manner in case of an emergency.

On this basis, pediatricians must be motivated to continue their education, keep abreast of medical treatments that change over time, and require a strong sense of personal motivation to prepare themselves as a comprehensive pediatrician. This requires informed decision-making based on knowledge and a willingness to acquire and refine professional skills over time. Professional skills are understood as those actions and operations that involve mastery of the method(s) of the profession.[1,6–8]

To validate the decision-making ability, the Delphi method of expert consultation was used, taking into account the experience and knowledge of the selected experts on the subject. Through systematic consultation and the calculation of statistical tables, leading to the Numerical Ray, which finds confidence intervals to place the activities in a range of Very Adequate, Fairly Adequate, Adequate, Poorly Adequate and Inadequate, which is checked with Kendall's W statistical method to find the concordance of the experts.[9]

This analysis makes it possible to identify the need to make decisions as an essential feature, as an indispensable element in the professional mode of action of the Pediatric Specialist.

Method

Synthetic analytical: to assess the concept of decision-making as a skill in the scientific literature, and its importance in the training of pediatric specialists.

Systematisation: to analyse the actions carried out in the training of pediatric residents, according to the logic of the clinical method and the stages of education at work.

Mathematical statistical methods: The application of the Delphi Method to validate the Decision-making skill in Pediatric Specialist Training.

Discussion

In the different stages of Resident Training, they participate as members of the health team, alongside their teachers/tutors. The tutors are selected according to the skills proposed in the activity to be performed, in correspondence with the individual and collective characteristics of the students, and based on the specific conditions of the scenario in which the activity is to be carried out.[10,11] The following activities stand out as essential in the training process:

Visiting pass (assistance, teaching-assistance), Ambulatory care, Field visits, Medical on-call, Case presentation and diagnostic discussion, Medical-surgical care, On-call handover, Joint nursing visit, Discharge meeting, handover and receipt of service, Nursing care, Pre-professional practice.[12]

It is thus recognized that, although decision-making skills are not tacitly declared among the skills to be trained in the medical career, therefore, in the specialization programs, they constitute an implicit skill in the rest of the professional skills that must be trained and/or developed in pediatric specialists.[12]

The decision-making skill has a structure composed of a gnoseological base (constituted by knowledge), an executor component (formed by the system of actions and operations of the skill) and an inductor component (given by motivations and objectives).[13]

According to this position, whoever teaches (teacher/tutor) emphasizes in the transmission of social experience, about how to do, proceeds to the stimulation (motivation) of the resident towards the required activity, by means of resources of practical and axiological significance, promoting the gradual transformation into internal (psychic) and external (practical) activity of the learner.

Within this framework, and in order to guarantee the correct acquisition of the professional skill, it is necessary to repeat the modes of operation, with frequency and periodicity, which will allow systematizing the formation of the skill, expressed in a variation in the degree of mastery and speed in the resolution of specific tasks. To the extent that this is achieved, it will be a question of decision and know-how.[1,3,8,14.15]

However, these generic skills associated with the profession's methods are cross-cut by a more complex professional skill: decision-making.[16,17]

Decision-making, as a professional skill, has a structure of execution that goes through the following steps or stages:

1. Definition of the problem
2. Development of solution options
3. Evaluation of the options and selection of the best one
4. Implementation and follow-up of the decision

These steps are consistent with the clinical method, the mastery of which allows to solve the child's health problem. The medical actions are not performed randomly, but on the basis of a logical organization, a sequential concatenation of steps and a certain order in time (obtaining information, interpretation of the information and decision making).

Validation of decision-making skills in pediatric specialist training by expert assessment

The Plan of Stages, Objectives and Actions for Decision Making as a professional skill in Pediatric Specialist Training is presented for Validation by the experts.

For each criterion you must answer according to the following scale. (Table 1)

1. Inadequate
2. Poorly Adequate
3. Adequate
4. Fairly Adequate
5. Very Adequate

Table 1 Stages, objectives and actions for decision making as a professional skill in pediatric specialist training

	1	2	3	4	5
GENERAL OBJECTIVE Contribute to the development of Decision Making as a professional skill in the training of pediatric specialists.					
Essential premises in the development of decision-making skills in pediatric specialist training.	**XX**	**XX**	**XX**	**XX**	**XX**
On-the-job education with modular rotations.					
Presence of the teacher / tutor.					
Consider previous pediatric content (knowledge, skills and values) acquired in the medical career.					
The complexity of the actions will be considered by the year in which the resident is in training.					
Management of protocols and policies established by the Maternal and Child Program.					
Teaching methods will be used that demand the participation of the teacher/tutor and the resident on the basis of independent study, and method that following the logic of the profession.					
The resident's professional skills will be developed in the healthcare teaching scenarios in which the in which the pediatrician is trained, such as: on-call staff, general and specialized general and specialized wards and primary health care.					
The humanistic training inherent to the ethics of medicine in the pediatric stage will be stimulated.					
Accurate communication between the resident and family member.					
The evaluation considers the self-preparation and solution alternatives presented by the resident to the health problem presented, considering the protocols to be followed.					
Methodological preparation of the teacher to facilitate the development of the professional skill Decision Making.					
Stage. 1 Cognitive					
Objective: To provide the essential contents for Decision Making in the attention to the child's health problems of the child in the different scenarios in which the resident is trained the resident.					
Actions of the teacher - Tutor:	**XX**	**XX**	**XX**	**XX**	**XX**
The approach of the essential knowledge of Pediatrics, for clinical decision making in the teaching-care scenarios in which the resident is trained.					
It orients and stimulates the use of teaching methods that enable the Decision Making skill.					
It orients the phases of the clinical method, as a logic of the profession in the essential knowledge of Pediatrics, for the clinical Decision making in the teaching-care scenarios.					
Motivates and sensitizes the resident to the need to develop DM skills for professional performance.					
Guides the evaluation by means of the resident's self-evaluation, in decision making, considering the steps of the formation of the decision making skill.					
Enables the individual and collective attention that each resident needs in their training, related to the development of decision making.					
Reinforces the practice of medical ethics.					

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Table 1 Continued...

	1	2	3	4	5
Resident's actions:	**XXXXXXXXXX**	**XX**	**XX**	**XX**	**XX**
Preparation in the essential contents that require the attention of the child (cognitive and executive) required by DM.					
Demonstrates in the different teaching-care scenarios, the theoretical and practical knowledge achieved in the care of the child.					
Internalizes the difficulties he/she has in the TD steps and the consultation with the tutor-teacher. with the teacher-tutor.					
Self-prepares for the demands of the different cases they present.					
Develops the independent work inherent to the contents of the year in which he/she is.					
Applies the ethical foundations in Decision Making.					
Stage 2: Methodological					
Objective of the Stage Execute the actions of the essential content inherent to the development of the Decision Making skill.					
A Actions of the tutor/teacher	**XX**	**XX**	**XX**	**XX**	**XX**
Explains the structure and resources of the professional skill Decision Making.					
Exemplifies with real cases the steps of the clinical method for DM					
Completes the president's actions in a gradual way in correspondence with the year in which he/she is.					
Guides the analysis of the results found in the child and DM based on scientific evidence, without being rigid in situations that are out of the routine.					
Assesses the implications of emotional states, on success and failure in Decision Making.					
Resident's actions:	**XX**	**XX**	**XX**	**XX**	**XX**
Identify the sequence of actions and operations involved in decision making during the application of the clinical method.					
Consider the degree of urgency of the situation to be resolved in order to adapt the procedures to be used in the preparation of the clinical history, the time to be used and the extent and depth of the information to be obtained.					
Interrogate the child or relatives to obtain the patient's symptoms, organize them chronologically (chronopathogram) and specify their semiographic characteristics.					
Inquire about other clinical (personal and family history, risk factors taking into account age, surgical interventions, previous admissions, associated diseases among others), epidemiological, psychological, economic or social elements that may be useful.					
Perform a detailed physical examination by system, taking into account the characteristics of the child according to age, identifying vital signs, and signs that may be alarming.					
Determine if there is a need to indicate complementary tests to verify the clinical diagnosis, or to clarify it.					
Propose complementary tests in correspondence with the suspected clinical hypothesis.					
Specify information related to medical assistance previously received, complementary tests performed and their results, and treatments carried out, with their corresponding effects.					
Perform a new interrogation, if necessary, to obtain additional information from the findings of the patient's examination.					
Initiate a progressive approach to the child's diagnostic hypotheses.					
Recognize among the entities subject to comparison the one or those that, on the basis of their frequency, clinical manifestations, association to certain risk factors, epidemiological elements or socioeconomic aspects, are more likely to correspond to the child's situation.					
Form An opinion about severity, risks, possibility of unfavorable evolution or possibility of being admitted.					
Inform the family member and/or the child of the result of the diagnostic process carried out, with objective arguments, showing kindness and uncertainty management.					
List the behavioral variants that are most frequently used by the pediatrician in his/her context of action, and recognize within these variants, if there is any pre-established for the diagnosed health problem, in the case of the child, and depending on the age, decide whether the child is admitted or can continue the guidance at home, when it requires subspecialty assessment depending on the pathology and risk factors.					
Compare behavioral variants and select the most suitable one, and follow up on the selected behavior.					
Stage III: Evaluation					
Objective: to demonstrate the mastery (actual and potential) of the DM skill in the progressively developing development progressively achieved by the resident.					
Actions of the tutor/teacher:	XX	XX	XX	XX	XX

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Table 1 Continued...

	1	2	3	4	5
Assesses that the resident achieves the medical interview establishing a good relationship with the child and the family member and taking care of medical ethics.					
Observes the resident's decisions during the whole process of care of the child (questioning, physical examination, indication of complementary tests, diagnosis and treatment), with mastery of decision making as a professional skill and adequate management of uncertainty and anxiety.					
Verify if work is carried out with different behavioral variants and if the existence of pre-established behavioral existence of pre-established behavioral options is considered.					
To verify if the evaluation of options takes into account the particularities of the child and of the context, applying the biopsychosocial approach to health care, medical care.tencia médica.					
O Observe that the resident acts on the basis of fundamentals, avoiding impulsivity, that he/she does not blindly follow routines and protocols without ignoring the importance of evidence-based medicine.					
Show the inevitability of errors, without this meaning to endorse negligence, nor resignation, nor resignation in the face of incompetence, nor abandonment of efforts to reduce them as much as possible.					
Resident's actions:	**XX**	**XX**	**XX**	**XX**	**XX**
The resident individually masters the medical interview complying with bioethical principles during the communicative process.					
Master the internal structure of the skill, following the logic of the clinical method performs the interrogation and physical examination, indication of complementary and diagnostic approach aware that decision making is a continuous process during the medical care of the child.					
Identifies the symptoms and signs arriving at the appropriate syndrome and diagnostic approach.					
Chooses the conduct to follow in terms of treatment and follow-up and does so appropriately.					
Shows autonomy, decision, adheres to protocols without being a blind and routine follow-up, integrates his knowledge for DM					
He is collaborative, making independent and informed decisions and avoiding errors.					

The Delphi method of expert consultation was used to evaluate the decision-making ability, since it allows taking into account the experience and knowledge of the selected experts on the subject matter. Experts were assumed to be individuals capable of offering conclusive assessments of the problem in question and making recommendations regarding its fundamental moments with a maximum of competence. Seventy-six internal or external (to the research context) specialists were selected, professionals with a high qualification in the areas of knowledge and capable of offering conclusive evaluations on the subject related to the decision-making ability.

Once analyzed, 17 experts were definitely chosen and were consulted about their willingness to collaborate with the research, 4 of them with the scientific degree of Doctors of Science, the 17 are Masters of Science, have more than 10 years of experience in the Pediatric Specialty, 4 are Full Professors, 11 are Associate Professors and 2 are Assistant Professors.

The average Knowledge Coefficient Kc obtained by the experts is 85%, the average Argumentation Coefficient Ka was 88% and the average Competence Coefficient K = ½ (Ka+Kc) obtained was 86.5%, which indicates a HIGH Competence Coefficient, according to the Experts' Competence assessment: [18]

$K < 0.6$ Low

$0{,}61 \leq K < 0{,}8$ Medium

$0.81 \leq K \leq 1.0$ High

The above demonstrates that the experts consulted are highly competent to offer their assessments on Decision Making in Pediatric Specialist Training.

Application of the Delphi method

The Delphi method enables the systematic use of the intuitive judgment of a group of experts to obtain a consensus of opinions, this method is characterized by anonymity among members, feedback and response.

The Delphi method follows the following steps:

1. - Selection of Experts and Evaluation Criteria.
2. - Evaluation rounds of the Experts on the proposal of Decision-Making Criteria on the Training of Pediatric Specialists.
3. - Obtaining of the evaluations of the strategies of the proposal, for the Decision Making of the Specialists in Pediatrics, by the experts.
4. - Calculation of the Tables on the strategies of the proposal:
   a. Observed Frequency
   b. Cumulative Frequency
   c. Relative Cumulative Frequency
   d. Inverse Normal Distribution Values
   e. Average by Aspects
   f. N-P Values

1. Confidence Interval Coefficients according to each Evaluation Criterion, indicates the calculation of the confidence intervals of the criteria established in the Likert scale for the evaluation of the experts, the so-called cut-off points (CP) are obtained for the conformation of the numerical Ray:

CP 1 = - 3.09 (corresponding to inadequate criteria)

CP 2 = -3.06 (corresponding to the criteria to poorly adequate)

CP 3 = -2.52 (corresponding to the criteria adequate)

CP 4 = -1.43 (corresponding to the criteria quite adequate)

CP 5 = values greater than CP 4 (corresponding to very adequate criteria).

Results

Figure 1 Numerical ray.

The placement of the N-P of each stage, objectives and actions in the Numerical Ray gives that the 64 criteria were placed by the experts in the highest category of "**very adequate**". Superior to PC5.

Application of Kendall's W Coefficient to obtain the concordance of the experts in the Placement of the aspects studied.

For a significance Level ALPHA = 0.05 at 95% reliability, it is obtained that.

Asymptotic sig. = 0.000 < ALPHA = 0.05, then the alternative hypothesis that there is community of interest among the experts on the Delphi Method results is met (Table 2).

Table 2 Kendall´s W

Statistical Definition of the Test	Value
N	64
W Kendall	0.819
Chi.square	198.56
Degrees of Freedom	4
Asymptotic Sig	0.00

Conclusion

Decision-making skills in pediatrician training are based on the conception of the Clinical Method and the essential components of Education at Work. For the training of this specialist, three years of residency are necessary for the benefit of decision-making skills in the teaching-healthcare scenarios. The experts valued as very adequate the stages, objectives and actions structured to the Pediatric Specialist Training for decision making, as it could be verified with the application of the Delphi Method, from the selection of the group of experts, the calculation of their statistical tables and the Numerical Ray to validate decision making in the training of the Pediatric Resident, corroborated by the application of Kendall's W statistical method to obtain the concordance of the results.

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Conflicts of interest

The authors declare that there are no conflicts of interest.

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