

Ten years of experience of the Mexican Academy of Surgery in the promotion of the next generations of researchers

Diez años de experiencia de la Academia Mexicana de Cirugía en la promoción de las próximas generaciones de investigadores

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Abstract

Objective: The objective of the study was to describe the productivity of the research works presented in the Interuniversity and resident doctors Competition of the Mexican Academy of Surgery since its origin in 2010. **Methods:** An observational cross-sectional descriptive study in which the variables are considered: category of participation (university/resident), type of work (research, clinical case, etc.), university and institution of origin, and type of presentation (poster/oral). Descriptive statistics were used. **Results:** Since 2010, nine interuniversity competitions and eight resident doctors have been developed. A total of 974 papers were presented, predominantly residents (65.29%), oral presentations (54.51%), and original works (58.11%). About 8.9% of the published works. **Conclusions:** The contest is a good forum to disseminate research in the new generations of doctors.

Keywords: Scientific productivity. Students. Residents.

Resumen

Objetivo: Describir los primeros 10 años del Concurso Interuniversitario y de Médicos Residentes de la Academia Mexicana de Cirugía. **Método:** Estudio observacional de tipo transversal descriptivo en el que se consideran las variables categoría de participación (universitario/residente), tipo de trabajo (investigación, caso clínico, etc.), universidad e institución de procedencia, y tipo de presentación (cartel/oral). Se empleó estadística descriptiva. **Resultados:** Desde 2010 se han desarrollado nueve concursos interuniversitarios y ocho de médicos residentes. En total se han presentado 974 trabajos, predominando los de residentes (65.29%), las presentaciones orales (54.51%) y los trabajos originales (58.11%). El 8.9% de los trabajos han sido publicados. **Conclusiones:** El Concurso es un buen foro para difundir la investigación de las nuevas generaciones de médicos.

Palabras clave: Productividad científica. Estudiantes. Residentes.

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Introduction

By developing scientific research, the student not only acquires knowledge but also is in the position of taking the unbeatable opportunity to, through the scientific method, be able to develop skills, attitudes, and values that help him solve problems with independence and creativity; all of this of vital importance within medical training^{1,2}.

The success of student research lies in good training of teachers and adequate promotion and accompaniment of students with effective tutoring processes³.

Despite the foregoing, limitations have been recognized for effectively developing this activity in the medical area, a situation that deepens in Latin America, which negatively impacts on the next generations.

Established in 1933, the Mexican Academy of Surgery is a scientific corporation civil association comprised surgeons and related professionals, dedicated to research, study, promotion, perfection, and educational development of medical-surgical disciplines. It analyzes, proposes, and performs actions to the benefit of the health of the Mexican United States population, and maintains relationships and academic exchange with national and international natural persons and legal entities⁴.

Being coherent with this concern, the Mexican Academy of Surgery decided to establish, within its largest annual event, the National Surgical Week, a new way to encourage research, the Interuniversity and Resident Physicians Competition, a forum for both medical trainees and future specialists to share their research experiences. The first edition of this competition took place in 2010 within the 52nd National Surgical Week celebrated in the city of Puebla, in which only poster presentations of university participants were included. Over the years, and in view of the interest and concern of participants, the competition was opened to residents of different specialties and, in an effort for being more inclusive, different modalities of presentation were created: oral or electronic poster presentations, original research works, clinical case reports, and reviews.

This work presents first 9 years' main productivity results of the Interuniversity and Resident Physicians Competition.

Methods

A cross-sectional, observational, analytical study, where the characteristics of the research works

presented at the Interuniversity and Resident Physicians Competition were analyzed, from its inception in 2010 to the 2018 edition. Descriptive statistics were used.

Results

Since its origin in 2010, there have been nine editions of the Interuniversity Competition and eight of that of Resident Physicians (Table 1). Initially, university works (54) only participated in the poster modality, and by 2011, inclusion of postgraduate resident physicians from different specialties was considered. As of 2013, presentations for each category were divided into oral or electronic posters, while evaluations of works were carried out according to the following groups: original research, clinical case reports, and reviews.

There have been 974 works that have been presented since 2010 in this competition, out of which 65.29% (636) were carried out by residents. Oral presentations (54.51%) and original works (58.11%) have predominated.

A total of 3273 authors-coauthors have collaborated in the presented works, belonging to 21 states of the Republic, 31 universities, and 54 health care institutions. In the category of university students, 127 participants have resubmitted works in subsequent calls in resident categories; of the category of residents, 189 participants have taken part as coauthors-advisers once they completed their specialty.

A gradual increase has been observed in the number of works over the years: from 54 in 2010 to 192 in 2018.

Presentations on surgical subjects predominate, with 44.76%, followed by internal medicine (24.02%) and obstetrics-gynecology (10.36%) (Table 2).

Clinical case presentations and prevalence studies predominate in both categories, although the fact that the number of experimental works in the university category is higher stands out (Table 3). The percentage of original works has also increased over time, from 37.03% in the first competition to 67.18% in the most recent. Since its inception, 87 works (8.9%) have been published.

Discussion

Understanding science as a social phenomenon, scientific activity is closely related to other practices of society⁵.

Table 1. Interuniversity and Resident Physicians Competition productivity summary, 2010-2018

Competition no.		Year	Site	Works						Reviews		States	Institutions	Universities	Authors
University	Residents			Total	University	Residents	Oral	Posters	Original	Cases	Cases				
1	0	2010	Puebla	54	54	0	29	25	20	29	5	8	12	13	128
2	1	2011	Oaxaca	42	27	15	19	23	24	14	4	11	15	15	146
3	2	2012	San Luis Potosí	111	42	69	24	87	43	57	11	14	23	25	232
4	3	2013	Mexico City	73	23	50	28	45	31	35	7	15	31	26	234
5	4	2014	Mexico City	157	44	113	70	87	92	54	11	15	45	28	624
6	5	2015	Mexico City	106	39	67	71	35	77	19	10	9	53	21	539
7	6	2016	Mexico City	103	31	72	71	32	66	30	7	12	49	24	421
8	7	2017	Mexico City	136	35	101	90	46	84	35	10	14	42	29	428
9	8	2018	Puebla	192	43	149	129	63	129	49	14	21	54	31	521
Total				974	338	636	531	443	566	322	79	119	324	212	3273

Table 2. Distribution by specialties of the 974 works presented in the Interuniversity and Resident Physicians Competition, 2010-2018

Surgery	436
Internal medicine	234
Obstetrics-gynecology	101
Pediatrics	76
Gastroenterology	45
Ophthalmology	30
Intensive therapy	21
Emergency medicine	12
Miscellaneous	10
History of medicine	5
Aerospace medicine	4
Total	974

A key point in the training of health professionals is to know and properly implement the scientific method, landed on the real situations they are faced with every day.

It is a reality that research, both in students and residents, is considered to be poor for many reasons, including a lack of interest by students, lack of a true research culture by tutors, or the false idea that research is only for "elite" groups¹⁻⁸.

In this sense, both the development of research projects and their dissemination are cornerstones that transcend patients' quality of life and really impact on health systems⁶.

Studies carried out in Latin America report that, although health science students are motivated to conduct research, few manage to present their works in conferences, considering that the main limitations include a lack of propitious spaces, lack of advice, and considering that their works do not have the necessary quality^{7,8}.

The constant growth in the number of participants stands out, which went from 54 in the first edition to 192 in the most recent, which certainly tells us both about a better dissemination of the event and higher interest from participants.

Another issue that should be pointed out is the investment the type of presented works has had, which initially leaned toward reviews and clinical case presentations, and in recent competitions, they

Table 3. Distribution by type of study of the 974 works presented in the Interuniversity and Resident Physicians Competition, 2010-2018

	Clinical case	Prevalence	Case series	Case-control	Cohorts	Quasi-experimental	Experimental	Systematic review	Other
University students	190	99	19	16	10	6	56	7	19
Residents	201	106	50	44	56	26	35	9	25
Total	391	205	69	60	66	32	91	16	44

have been inclined toward original investigations. This is surely influenced by the larger number of participants from medical residencies, who use this forum to present advances of their specialty theses.

Given the essence of the Mexican Academy of Surgery, surgical issues were expected to predominate among the presentations, but the increase in the presence of “clinical” subjects should be highlighted, as well as the inclusion of “novel” topics, as those of aerospace medicine would be. This is surely influenced by the openness the event has had, as well as the process of dissemination between different universities, institutions, and sites of specialties throughout the country.

Although studies regarded as more “simple” (clinical cases and prevalence studies) predominated, an interesting number of university students presented experimental works. This is most likely influenced by their inclusion since basic cycles in research groups of their own universities.

More than a mere academic meeting, the competition has become a forum where participants, by sharing their experiences, allow both generating lines of study and fostering interest on research. The number of participants who over time not only continue to participate but also now guide and advise new generations is highly relevant. Interestingly, participants of the contest first editions have become tutors of the most recent versions, promoting the participation of their students, which reflects a real impact on the new and next generations of researchers.

Although the frequency of works publication is similar to that of other reported series⁹, the task of working on generating a greater and better publication culture in the academic training of undergraduate and graduate students is still pending.

Conclusions

- The modality of competition is constituted as a multidisciplinary forum for sharing experiences at different levels and areas of medicine.
- Participation in the Interuniversity and Resident Physicians Competition has increased.
- It is necessary for a true research culture to be developed, both in students and tutors.

Conflicts of interest

The authors confirm that they have no conflicts of interest and that neither did they receive any funding.

Ethical disclosures

Protection of human and animal subjects. The authors declare that the procedures that were followed adhered to the ethical standards of the responsible committee for experimentation on human beings and were in agreement with the World Medical Association and the Declaration of Helsinki.

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. The authors have obtained informed consent from the patients and/or subjects referred to in the article. This document is in the possession of the corresponding author.

References

1. Bascó Fuentes EL, Barbón Pérez OG, Solís Cartas U, Poalasin Narváez LA, Pailacho Yucta H. Diagnóstico de la actividad científica estudiantil en la carrera de Medicina de la Universidad Nacional de Chimborazo. *Educ Med.* 2017;18:154-159.
2. Toro-Huamanchumo CJ, Failoc-Rojas VE, Díaz-Vélez C. Participación en sociedades científicas estudiantiles y en cursos extracurriculares de investigación, asociados a la producción científica de estudiantes de medicina humana: estudio preliminar. *Educ Med.* 2015;18:293-8.

3. Mejía Álvarez CR, Quiñones Laveriano DM, Chacón Mostacero JI, Aguirre Valenzuela EA, Miñan Tapia VAL, Rosas Varillas AM. Médicos investigadores: percepción de estudiantes de medicina y factores asociados a la posibilidad de serlo. *Educación Médica Superior*. 2017; 31:53-63.
4. Academia Mexicana de Cirugía. Acerca de la AMC. (Consultado el 6 de septiembre de 2018.) Disponible en: <http://amc.org.mx/historia.php>
5. Corrales-Reyes IE, Rodríguez García MJ, Reyes Pérez JJ, García Raga M. Limitantes de la producción científica estudiantil. *Educ Med*. 2017;18:199-202.
6. González RMR, Sánchez SY, Alcaide GY, Vázquez VMJ, Arteaga VB, Cece GL. Comportamiento de las publicaciones científicas. *Revista Cubana de Educación Médica Superior*. 2015;29(3).
7. Corrales-Reyes IE, Rodríguez García MJ, Reyes Pérez JJ, García Raga M. Limitantes de la producción científica estudiantil. *Educ Med*. 2017;18:199-202.
8. Toro-Polo M, Pereyra-Elías R, Nizama-Vía A, Ng-Sueng LF, VélezSegovia E, Galán-Rodas E, et al. Publicación de los trabajos presentados a los congresos científicos de estudiantes de medicina, Perú 2002-2009: características y factores asociados. *Rev Peru Med Exp Salud Publica*. 2012;29:461-8.
9. Valladares-Garrido MJ, Flores-Pérez I, Failoc-Rojas VE, Marinas-Miranda W, Valladares-Garrido D, Mejía CR. Publicación de trabajos presentados a congresos científicos internacionales de estudiantes de medicina de Latinoamérica, 2011-2014. *Educ Med*. 2017;18:167-73.