

Professional trajectory of medical course alumni from from Campinas University, São Paulo, Brazil:

graduates' point of view in evaluating the course

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The School of Medical Sciences of UNICAMP implemented a new curriculum in 2001, predating the national guidelines. This study analyzed the professional trajectory and the new curriculum's impact. Graduates from 1991 to 2005 were grouped in the pre-curricular renovation group, and those from 2006 to 2012 in the post-group. A semi-structured survey was sent through e-mail and social media. There were 213 (15.8%) answers from pre-renovation group and 126 (16.1%) from post. Data showed low geographic dispersion of alumni, 2.4 work posts per physician, residency as a necessary complementation, suggestions for curricular inclusion of management issues and higher frequency of preparatory courses for residency in post-renovation group. There are signs of better integration between basic and clinical areas after the reform. Alumni showed positive perceptions regarding their undergraduate course. The study contributes to the implementation of systematic follow-up of graduates.

Keywords: Medical education. Curriculum. Evaluation.

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Introduction

The training and the practice of the medical profession have been submitted to regulatory actions and policies in Brazil, including the National Curricular Guidelines (NCG), published in 2001¹ and updated in 2014², the National System of Evaluation of Higher Education - SINAES³ and the "More Doctors Law"⁴. The interaction of these programs and their impact on the curricula is a complex phenomenon^{5,6}. The profile of the graduated is considered a mirror of the formative process, as it must reflect what the course intends to achieve, constituting an integral element of SINAES³. Through the identification of the trajectory and perceptions of the alumni it is possible to perceive the course from the point of view of those who experienced it.

Besides being a requirement supported by the legal framework of institutional evaluation, the study of the professional trajectory of graduates also brings internal contributions. The evaluation of the course by the graduates can supply information regarding strengths and suggestions for improvement and can also be understood as a strategy to seek the excellence of the training program, as long as the findings are analyzed and then used to guide improvement actions. In addition, establishing a channel of continuous communication with the graduates can bring important contributions such as the offerings of continuing education, their participation as members of advisory boards and scientific groups, voluntary mentoring for students, encouragement of donations, among others⁷.

While the analysis of the direct and indirect results of educational programs is of great importance, this process present challenges in creating instruments and indicators for this evaluation. The studies on medical education use several questionnaires, leading to the publication of guides for its adequate creation and obtaining good response rates^{8,9}. In studies involving medical graduates, their application is routine¹⁰⁻¹⁴.

Using different instruments, several studies with graduates of different medical courses in Brazil (Londrina, Porto Alegre and Marília) indicate the work overload, the need for improvement and continuing education, as well as positive and negative criticisms, common to the offered curricula^{10,11,15}. Positive points include: humanistic training, working around the doctor-patient relationship, preparation for teamwork, and the qualification of the faculty. Among the negative ones mentioned: the dissociation between theory and practice, between basic and clinical areas, lack of knowledge about the labor market, the lack of scientific initiation and the demotivation of some teachers^{10,11,15}.

At the same time, there is a recognition of the difficulties of access to graduates, with answers ratios ranging from 7.5 to 40% in national studies^{11,16}. Antepohl et al¹⁷ in Sweden, recorded 77% of responses using a questionnaire with 31 questions mailed to ex-students located by a regularly updated university database. The high rate was considered to be due to a positive attitude of the respondents towards their *alma mater*. The existence of an institutional policy for the management of the graduates and their follow-up is incipient in most institutions in Brazil and there are few published studies^{7,16}.

The medical course of the School of Medical Sciences (FCM) of Unicamp graduated its first class in 1968. The curriculum was adapted and a new model was started with the group of students from 2001, after a process of analysis and discussion by the academic community, anticipating the first national guidelines that were published at the end of the same year¹. The model implanted by this initiative is described as integrated both horizontally and vertically, with transversal curricular axes of basic health care, from initiation to the practice of sciences, ethics and bioethics, inspired by the same principles that later guided the NCG of 2001¹. The course is developed in modules, in which teachers from different departments work with an emphasis on practical learning, geared to the needs of the population in various settings (primary and tertiary care in Campinas - university hospitals - and secondary hospital care in Sumaré)¹⁸⁻²⁰.

After 16 years of the first NCG¹ and eleven classes graduated after curricular reform, it was necessary to review the changes in the training of those who have experienced this formative process. The present study was proposed to analyze the professional trajectory and the perceptions regarding the contributions of the course for the professional education, among doctors graduated from 1991 to 2012, focusing on the possible differences associated to the curricular change of 2001.

Casuistic and methods

The study was cross-sectional and descriptive. It was carried out from August 2014 to July 2016 and had the approval and institutional support of the direction, the coordination of the Medical course as well as the Nucleus of Evaluation and Research in Medical Education (Napem) of Unicamp.

The list of trainees from 1991 to 2012 was obtained from the Academic Board (DAC), cross-checked with the book of graduates²¹. The graduates, former students from 1991 to 2005 constituted the pre-curricular reform (pre-reform group), while the graduates from 2006 to 2012 made up the post-reform group. It was decided to include the trainees by 2012 to obtain a picture of what was later their insertion in the labor market, after the conclusion of the medical residency. The questionnaire was previously tested in a pilot study carried out on graduates of the Medical School of the Faculty of Medical Sciences and Health of Sorocaba of PUCSP (after approval by the local Ethics Committee for Research).

The data collection used a semi-structured questionnaire with 55 questions, eight of them open, containing: personal data, professional and academic information, training complementation, implications of academic training in professional life and opinions about integration between basic subjects, (basic cycle, two first years) and clinical (clinical cycle, two following years). In the questionnaire there was a list of the specialties and areas of practice recognized by the Federal Council of Medicine (resolutions no. 216/15 and No.2149 / 2016). There was the possibility to be complemented ("other"), besides the option of acting as "general practitioner". The physicians that graduated before and after the reform were contrasted in relation to the outcomes. Those outcomes included performance in the professional activities, insertion in the market (specialty, acting in public or private service); self-assessment of upgradeability; identification of pedagogical experiences in graduation.

The research was published on the FCM-Unicamp website in five insertions of at least five days, with intervals of three to six months, containing information about the project and access to the questionnaire link. The presentation page stated the support of the management, the coordination of the medical course and the Napem. Accessing the link, the former student was directed to the Term of Free and Informed Consent.

Response requests were sent to the e-mail addresses obtained from the FCM-Unicamp Alumni Association (Assex) and those provided by DAC. The personal contacts of researchers with FCM-Unicamp alumni were also activated and the link to access the questionnaire was sent electronically using a snowball strategy. Similarly, social media (Facebook) was used, with calls on the pages of researchers and their networks of contacts. The research was also disclosed by the Society of Medicine and Surgery of Campinas, at its headquarters and on the website.

Data were organized in Excel spreadsheet and the frequencies obtained were compared with the chi-square test (χ^2), accepting as significant level $p < 0.05$.

The answers to the open question: "How do you evaluate the importance of graduation in FCM / Unicamp for your medical training and / for professional activities that you are currently developing?" were analyzed using a qualitative approach (thematic content analysis). Two researchers (MHS and MCGC) read the written answers in isolation, identifying the significant themes. By consensus, the chosen themes were retained and some key examples were selected and transcribed to better illustrate it²².

The present study was approved by the Research Ethics Committee of Unicamp (CAAE: 34332614.7.0000.5404).

Results

Students from 1991 to 2012 totaled 2110 graduates. From this total, 1346 graduated from 1991 to 2005 (pre-reform group) and 764 (post-reform group) from 2006 to 2012. Five ex-students who reported not to practice medicine (four in the pre- and one post- reform) answered the questionnaire, skipping the questions about acting as a doctor. A total of 213 (15.8%) responses from the pre-

reform group and 126 (16.1%) from the post-reform group (Figure 1) were obtained, covering former students from all classes.

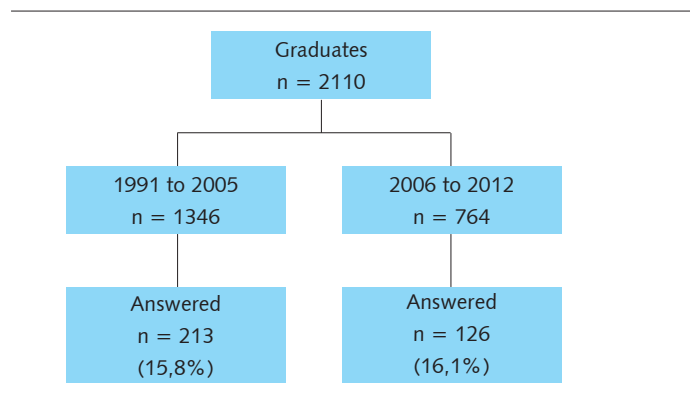


Figure 1. Distribution of respondents (n=339) according the year of graduation

In the pre-reform group, the female percentage was 51.2% and in the post-reform was 60.3%, with no statistical difference. There was also no statistical difference between the groups regarding the municipalities of origin and the current dwelling, whether in the Metropolitan Region of Campinas or other municipalities. A high percentage of alumni before and after curricular reform remained in the region (Table 1).

Table 1. Distribution of respondents per year of graduation and places of origin and present dwelling

		1991-2005 Pre-reform (%)	2006-2012 Post-reform (%)
Origin	Campinas Metropolitan Region	39 (18,3)	23 (18,2)
	Other places	174 (81,7)	103 (81,8)
Present dwelling	Campinas Metropolitan Region	98 (46,0)	45 (35,7)
	Other places	115 (54,0)	81 (64,3)

Origin: $\chi^2 = 0,0002$; no significance; Present dwelling: $\chi^2 = 3,44$; no significance

The medical residency was not attended by about 5% of the participants in each group. The five programs most cited and the places that received the most graduates are presented in Table 2.

Medical practice as a general practitioner was reported by 15/213 in the pre-reform group while 12/126 reported this practice in the post-reform group. Three and four graduates, respectively, did not have medical residency and they work in primary care units, public or private ambulatory or emergency services, hospitals and as an occupational physician. The remaining twenty did their residency in various programs.

Table 2. Distribution of respondents per five most frequent programs, their sites and year of graduation

	Areas without pre- requisite	Areas with pre- requisite	SITES
1991 to 2005	1. Clinical Medicine	1. Cardiology	Unicamp 77,0%
	2. Pediatrics	2. Oncology	
	3. Surgery	3. Plastic Surgery	USP 7,7%
	4. Obstetrics and Gynecology	4. Gastric surgery	
	5. Psychiatry (62% of the total answers)	5. Nephrology (40% of the total answers)	
2006 to 2012	1. Pediatrics	1. Neonatology	Unicamp 55,0%
	2. Clinical Medicine	2. Intensive Pediatric Medicine	USP 32,0%
	3. Obstetrics and Gynecology	3. Cardiology	
	4. Psychiatry	4. Geriatrics	
	5. Surgery (59% of the total answers)	5. Mastology (56% of the total answers)	

The areas of professional practice most cited by 308 pre-reform and 168 post-reform graduates were: Pediatrics, Medical Clinic, Obstetrics and Gynecology, Intensive Medicine, common to both groups, accompanied by Cardiology and Orthopedics in the pre-reform and Psychiatric and Nuclear Medicine groups in the post-reform group. These areas accounted for 54.0% and 69.0% of the total responses, respectively. The professional practice in subspecialties or areas of activity, responsible for about 30% of the total responses, were in Health Administration, Emergency Medicine and Ultrasound in Obstetrics and Gynecology (pre-reform), and Health Administration, Emergency Medicine and Neonatology (post-reform).

Half of the jobs in each of the groups are in the private sector, followed by about one-third of public sector occupations and hospital-school or teaching activities. The 213 pre-reform graduates occupy 526 jobs (2.4 jobs per individual), while the 126 post-reform workers occupy 305, generating the same ratio. In the pre-reform group 52 (24.4%) doctors work in emergency / emergency services, representing 14.2% of the posts. In the post-reform group, these figures correspond respectively to 60 (47.6%) doctors and 25.2% of the posts.

Among the respondents, 59 (27.7%) pre-reform ex-students and 12 (9.5%) post-reform have other positions and functions, as well as doctors. In the first group, approximately 60% of the functions were technical area management or health and teaching service. In the post-reform group, the most frequent functions (54%) were of technical area coordinator or health service and preceptor of medical residency.

The vast majority of respondents identified the medical profession as their sole source of income (88.3% in the pre and 94.5% in the post-reform group). In the pre-reform group, the most cited net monthly income (42.9%) was 10 to 20 thousand Brazilian *reais* (*BRL*), followed by a range of more than 20 thousand *BRL* (39.9%). In the post-reform group, the same range prevailed (47.5%), however, followed by the range of 5 to 10 thousand *BRL* (25.8%).

The majority of alumni in both groups also consider themselves as having a good or excellent ability to update the scientific transformations and / or technological innovations inherent in medical practice. The factors responsible for the self-assessment were the interest and yearning for the studies and the training during the graduation for constant search of material.

The attendance to congresses once a year was 32.0% in the pre and once every six months group attained 39.0% in the post-reform group. The weekly reading of scientific articles and other publications related to their area was referred by 48.0% of both groups. The lack of time, the distance to larger centers, not being connected to the university and the high costs of congresses and other related were indicated as responsible for the reduced capacity for professional updating.

Pre-reform (19.2%) and post-reform (25.2%) respondents reported their current participation in activities at Unicamp. The vast majority of respondents stated that they would like to receive informative material from the institution on courses and possibilities for improving their training (84.6% of the pre-reform group and 82.7% of the post-graduate group).

The percentage of respondents who attended or were attending *senso strictu* post-graduate programs corresponded to 45.1% in the pre-reform group and 22.2% in the post-reform group. There was a significant difference when comparing doctorates and masters (academic and professional) between the two groups ($\chi^2 = 5.9$, $p < 0.05$). The three institutions most frequently reported by graduates of the pre-reform group for postgraduate courses were Unicamp (58.5%); USP / SP (12.8%); USP / Ribeirão (8.4%) and in the post-reform group, Unicamp (44.4%), Unifesp (11.1%) and USP (7.4%). The option for the *senso strictu* post-graduation was due to the choice for an academic career or researcher and / or to improve knowledge (85.4% pre-reform and 78.6% post-reform).

Asked regarding their work in the first year after graduation, they indicated that they were doing either their residency ($n = 106$, 49.5% in the pre-reform group, $n = 30$, 23.6% in the post-) singly or together with emergence on duties ($n = 44$, 20.6% in the pre-group, $n = 45$, 35.4% in the post-group with significant difference - $\chi^2 = 19.7$, $p < 0.01$). At the end of the medical course, about one quarter of respondents felt safe to act immediately as general practitioner (in the pre-group $n = 49$, 22.9%, while $n = 35$, 27.6% in the post-group). Most of the respondents stated the need to complement their studies, with residency or practicum ($n = 152$, 71.0% in the pre-group, $n = 78$, 61.4% in the post-group).

The three complementary activities carried out most frequently during the undergraduate course were participation in scientific events, congresses and the like, 25.8% in the pre and 23.8% in the post group; scientific initiation (20.5% in the pre-group, 21.8% in the post-group); and participation in academic leagues (16.3% in the pre-group, 22.7% in the post-group). There was a significant increase in placements abroad from 2.4% to 6.4% ($\chi^2 = 11.5$, $p < 0.05$) after curricular reform.

Nineteen respondents (8.9%) from the pre-reform group stated that they attended preparatory courses for the residency examinations during the undergraduate course and 17 (7.9%) after graduation. In the post-reform group, these numbers changed to 39 (30.7%) and 33 (26.0%), respectively, a significant increase.

The course was considered very adequate or adequate to the professional market reality for 81.7% (pre-group) and 92.9% (post-group), a significant difference ($\chi^2 = 8.1$, $p < 0.05$).

There was no difference in the importance attributed (important and very important) to the academic activities carried out in the basic and clinical areas of the course (Table 3). The justifications included: being essential for later learning, fundamentals for good medical training, support for clinical reasoning, support for daily medical practice, internships in different settings, and support for general training.

When adding up the opinions that there is an integration, even if partial, between the basic and clinical areas and comparing them with the frequency of the evaluations that indicate its non-existence, it was observed that the post-reform group presented a positive evaluation, that is significantly higher than the one of the pre-reform group ($\chi^2 = 33.2$, $p < 0.01$) - Table 4

The evaluations of the graduates on the importance that their course in Unicamp had for their training and / or their current professional activities are shown in the answers (217 from the pre-reform group and 130 from the post-reform group) to an open question, summarized in the Chart 1. They demonstrate gratitude for the training received, their differentiated performance compared to other professionals, their good preparation for future changes and the recognition of the fundamental contribution in technical, ethical and humanistic training, without neglecting the importance of completing medical residency. Suggestions for improvement state the need to include discussions on aspects of private clinical practice and regarding labor market issues.

Table 3. Distribution of respondents regarding the importance of academic activities in basic and clinical areas of the course

Importance attributed to BASIC Areas	1991 – 2005 n (%)	2006 – 2012 n (%)
Very important	62 (29,0)	45 (35,4)
Important	106 (49,5)	65 (51,2)
Not very important	42 (19,6)	15 (11,8)
Unimportant	4 (1,9)	2 (1,6)
TOTAL	214	127
Importance attributed to CLINICAL Areas		
Very important	166 (77,6)	107 (84,3)
Important	42 (19,6)	19 (15,0)
Not very important	6 (2,8)	1 (0,8)
Unimportant	-	-
TOTAL	214	127

Table 4. Distribution of respondents regarding the integration among the basic and clinical areas of the course

Integration among basic and clinical areas	1991–2005 n (%)	2006–2012 n (%)
Integrated	17 (7,9)	39 (30,7)
Partial integration	125 (58,4)	80 (63,0)
Disconnection	72 (33,6)	8 (6,3)
TOTAL	214	127

($\chi^2 = 33,2$; $p < 0,01$ integrated and partial integration vs. disconnection)

Chart 1. Emergent themes distributed by year of graduation, importance of graduation for medical training and/or present professional activities

	1991-2005	2006-2012
Gratitude	"[...] I have true devotion to the institution." "All the achievements [...] I owe to Unicamp, [...] my second home, my passion.."	"Unicamp is responsible for this [being a good professional]." "I'll always be grateful." "I owe a lot to some professors and the structure of Unicamp".
Comparison with other courses	"Differentiated [training] ... compared to the various educational centers in the country." "It is very noticeable the gap with other courses of other faculties."	"[...] I had the best medical training in Brazil and one of the best in the world." "Comparing my training with that of colleagues from other institutions, I can see that our graduation was very complete in all areas."
Preparing for the future	"Course gave the opportunity to study and know how to seek broad and specific training at the same time." "Training [...] gave me theoretical and practical support for the exercise of medicine in a questioning way."	"[...] provided the necessary knowledge to search for technical and scientific updates on its own, with critical evaluation conditions." "[...] I learned how to think and seek the information I need in my profession."
Need to complement after graduation	«[...] the residence was more important than the graduation.» "[...] Unicamp prepared well enough for the next stage of life in the medical residency. Needed add-ins later. "	"I felt the need to complement through the residence." «Unicamp [...] was responsible for the formation of the professional activity that I exercise today through the medical residency program."

it continues

Chart 1. continuation

	1991-2005	2006-2012
Fundamental/essential importance	"Fundamental, I was able to achieve success and recognition of my work very easily, in addition to technical knowledge, general vision and respect for the patient."	"Extremely important, apart from being recognized for excellent academic training, I feel that I was prepared to practice medicine beyond technical knowledge, but also in the emotional and social aspects in which patients are inserted."
Needed improvement	"[...] perhaps the basic cycle could be more intertwined with the clinical part, but as far as I know that has already changed." "The training was very important from a theoretical point of view, but the practice came in the medical residency." "[...] lack of notions in administration and / or law in medicine." "[...] I lacked guidelines on the labor market, [...] on private medicine."	"[...] little training for the market - marketing, administration, finance, organization of the office, etc." "[...] I was not prepared to practice medicine in the private clinic as working with medical health plans, such as setting up an office." "[The training was] fundamental from a technical and human point of view, however with failures in the suitability for the market."

Discussion

The present study revealed data about the trajectory of a sample of graduates and some of their perceptions about the undergraduate course. It allowed verifying the recognition of the alumni towards the training institution, and also captured the suggested improvements to the course development. The criticism about the lack of integration between the basic areas and the clinical ones has been softened or remedied with the curricular reform, constituting a point of greater contrast between the pre- and post-reform groups.

The data show the importance of female representation in both periods, something that is also a trend in the medical profession^{9,21,23}. Respondents showed little dispersion across the country after graduation. In any case, the greatest concentration of physicians in large urban areas is a phenomenon known in Brazil and in other countries^{9,21,23}.

The most frequent areas of activity were constant in both groups, with the inclusion of Psychiatry and Nuclear Medicine in the post-reform group, replacing Cardiology and Orthopedics. Most of those who have defined themselves as general practitioners went through residency programs, but they see themselves as using an integrated approach of the patient and they practice the specialty with a focus on general attention to the individual.

Health management represents an area of practice that is frequently cited in both groups, showing that it is an important option in the professional career of the graduates. Likewise, the activities in other positions and management functions were more common in the pre-reform group, leading to believe that this is a matter of time in career development. Thus, in both groups, undergraduate preparation for administrative issues (both in public or private services), market aspects, and marketing and finance subjects appears to be necessary improvements. Although the dimensions and competencies brought into the 2014 curriculum guidelines in its topic on Health Management are broader, there is a demand for improvement in the more specific aspects of administration². It is important to emphasize that the curricular reform under study was implemented in 2001, together with the first version of the NCG, while was only in the 2014 NCG that the concept of more comprehensive health management emerged. Our finding coincides with that of Goldacre et al. in 2010 showing that about one-third of UK junior doctors did not feel well prepared by the school in administrative matters, either one or three years after graduation²⁴.

The sites where professional practice is performed remained practically the same, predominantly in the private ambulatory service. Multiple jobs are a constant feature in the medical profession, even with more graduates, and the proportion of 2.4 jobs per doctor found here is similar to the

predominant in Brazil, where half of the physicians occupy two to three posts²¹. The number of post-reform physicians working in public and private emergency and emergency services is relevant, a trend that meets well-known results and supports the need for training in these services, which is established in the last NCG^{2,21,25}.

It could be a matter of time to obtain better wages, since the highest salary range corresponded to physicians trained before reform, although there may be a generational and economic context difference that impacts this expectation. Medicine is the greatest source of income; however being a liberal professional in a private practice, common in the past, is an exception in the sample analyzed²¹.

The ability to update the scientific transformations and / or technological innovations in medical practice was considered excellent or good for about 80% of the respondents. There are those who complain about the lack of support from the large centers, because they are far, and there were complains regarding the cost charged for attending congresses and other events. This represents a path that still needs to be followed by the medical school to reach its alumni in order to continue to promote permanent education, be it virtual or face-to-face, with strategies different from those usually offered by specialty societies or even the pharmaceutical industry. An indication of this need is the high percentage (about 80%) of doctors who would like to receive informative material about courses and possibilities of improvement offered by the university.

The medical residency is understood as complementary and necessary to the graduation and has been experienced by almost all the graduates. This understanding is evidenced by the alumni's opinions on their training, shown in Chart 1, as well as by the responses that only about 25% of the former students felt safe to act as a doctor soon after the course was finished. It can also be interpreted that the self-criticism and demand of the graduates makes them feel insecure to assume the profession in an environment in which the need of practicing specialized medical practice is the rule.

There is a decrease in alumni who have completed their residency program in the original university. It may be due to an option to experience experiences in other institutions, compatible with the most innovative and less attached to the tradition spirit of the new generations of students^{21,26}. Although this aspect has not been further explored, it is necessary to raise hypotheses for the additional search and consequent approval in residences pertaining to other prestigious institutions. In fact, it may reflect a greater sense of preparedness to face the fierce competition of selection processes outside the home institution. Another factor may be perception of greater neutrality in the selection process from when the "subjective" (interview) component was reduced to only 10% of the grade. Thus, graduates of other institutions compete in conditions more similar to those of the "in-house" graduates.

Complementary activities in the form of academic leagues increased in the post-reform group. Internships abroad also increased, coinciding with the internationalization policy of the courses. Likewise, interest in the "prep courses" for medical residency has proliferated in the group of post-reform graduates, during and after graduation, a phenomenon that was already acknowledged²⁷.

The majority of graduates in both groups considered their training as adequate or very adequate to professional practice. Likewise, the importance attributed to the activities carried out in the basic cycle for vocational training was positive in both groups, and more frequently in the post-reform group. The most frequent justification for this is that they have been "essential for further learning". The answer of the basic areas was little or nothing important for the professional formation was justified by the fact that the knowledge is scarcely applied to the daily medical practice and not too integrated to the clinical cycle, more frequent for the pre-reform group than for the post-reform group. The clinical cycle was valued for providing a variety of scenarios for the majority of the sample. The integration between the basic and clinical areas was more accentuated by the post-reform group respondents, with 94% referring to total or partial integration, compared to 66% in the pre-reform group. The curricular reform was a watershed in this sense. Opinions about the disassociation of basic and clinical areas have appeared more clearly and forcefully in the pre-reform group, including indications that "perhaps this has already changed." Effective curricular changes lead students to feel better prepared for professional life, especially shortly after graduation²⁸.

The answers to the open question about how graduates evaluated the importance of being graduates to conduct their activities and / or professional training showed positive results and suggestions for improvements, similar in both groups. This outcome draws attention to aspects related to gratitude, preparation for the future and the importance attached to the course. These three aspects, together, refer to the highly positive perception about graduation. And they would still like to stay connected, stating that they want to receive informational material about the institution.

There are suggestions that indicate better preparation of the graduates of Unicamp in their self-assessment regarding the comparative performance with other colleagues in the workplace. The results can depict a representative set of idealization in respect to the course and profession, supported by its social representations and reproducing veiled but existing hierarchies between different medical schools. Regarding the necessary improvements in training, management and administrative aspects of the profession were pointed out, both in the public and private fields. This is an interesting aspect that should be considered by the program managers.

The present study presents weaknesses. The most clear is the number and composition of the respondents, characterized as a convenience sample formed by the responses of all individuals with whom contact was possible. The difficulty of access to alumni, even considering the present connectivity conditions, refers to the need to feed and maintain reliable files with the data of the trainees. The addresses, electronic or not, present in the registers of the alumni of the institution correspond to the time of graduation, almost all of the city of Campinas and therefore outdated. The social networks, the personal contacts and the registers carried out by ex-students in the page destined to them in the site of the FCM constituted the great source of the respondents. Precisely for this reason, such respondents can be considered as those who are more closely related to the institution, with whom they are linked, thus tending to value it positively. We understand that this may represent a bias, but the percentage of responses obtained in both periods was similar, which may have biased in equal measure both groups.

Despite the weaknesses of the study, with the support of the managers a new program of access to graduates is already underway updating the information sources, through a portal of graduates⁽¹⁾, and its own email address⁽²⁾ as well as actions for the systematic investigation of their professional trajectories. In this sense, the present research can be considered as an incentive to add new data and analysis. It represents one of the links of the complex chain that involves the evaluation of the courses, the medical training and the professional life of the alumni. It was a decisive initial step to recompose his trajectories.

⁽¹⁾ www.fcm.unicamp.br/fcm/portal-dos-egressos

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Authors' contributions

Maria Helena Senger; Maria Celeste Gonçalves Campos; Maria de Fátima Corrêa Pimenta Servidoni: active participation in research design, data collection, analysis and discussion of results, revision and approval of the final version of the text. Eliana Martorano Amaral: active participation in research design, institutional support, analysis and discussion of results, revision and approval of the final version of the text. Sílvia Maria Riceto Ronchim Passeri, Ivan Felizardo Contrera Toro, Angelica Maria Bicudo; Paulo Eduardo Neves Ferreira Velho: institutional support, discussion of results, revision and approval of the final version of the text.

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