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# The medical profession and young physicians' lifestyles in flux: challenges for specialty training and health care delivery systems

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## Summary

**QUESTIONS UNDER STUDY:** The profile of the medical profession is changing in terms of employment conditions, attitudes towards the profession and the lifestyle of young physicians. The aim of this study was to investigate (1) what modifications should be made in the specialty-qualification curriculum to allow for a better balance of career and personal life, (2) what institutional conditions and (3) what personal attitudes and behaviour are required for physicians to successfully combine career and family.

**METHODS:** As part of a prospective survey on the career development of Swiss medical school graduates (*SwissMedCareer Study*) begun in 2001, 526 physicians (274 females, 52.1%; 252 males, 47.9%) participated in the sixth assessment in 2010. The graduates were asked by mail-out questionnaires to provide free response answers to the three questions formulated above. Their statements were transcribed, content categories were inductively formulated for each question, and their descriptions were written down in a code manual. Responses were encoded according to the said manual and assigned to content categories (Mayring's content analysis). Frequency distributions were given for categories and tested with chi-square tests for gender differences.

**RESULTS:** The 526 participants made 457 statements on the first question, 1,038 on the second, and 937 on the third. Content analysis of the physicians' answers yielded nine categories dealing with desired changes to the specialty qualification curriculum, eight categories addressing changes in institutional conditions, and nine categories concerning personal attitudes and behaviour. Of all responses to the first question, 70% fell into the top three ranking categories of "specialty qualification requirements", "part-time jobs" and "structured residency programmes". The three top-ranking categories ("childcare facilities", "part-time jobs", "working hours") yielded by responses to the second question accounted for 87% of the statements. Distribution of the responses concerning personal attitudes and behaviour was more widespread across the nine categories. Marked organisational skills and the ability to adapt flexibly to various everyday demands at work and home were recognised as essential in one third of the statements.

**CONCLUSION:** In order to meet the needs of the medical profession's changing profile in terms of feminisation and modern lifestyle, changes must be initiated at different levels. Postgraduate training must be provided in structured programmes, and curriculum requirements must be revamped. Hospital authorities should offer more part-time jobs as well as adequate and affordable childcare facilities for physicians with young children. Physicians should engage critically and to a greater extent with the continued development of their profession.

**Key words:** Physicians; feminisation of medicine; balanced life style between work and family; specialty training; institutional conditions; personal attitudes to combining career and family

## Introduction

Over the past few decades, the medical profession in the West has moved from a male dominated profession towards a situation where females comprise the majority of new medical graduates – a trend referred to as "the feminisation of medicine" [1–2]. While females are overrepresented in residency posts, they are underrepresented in senior and chief positions [3–5]. In some, mainly surgical specialties women remain in the minority, while they are overrepresented in others such as family medicine, gynaecology & obstetrics, and paediatrics [5–10]. Career paths in medicine are still

gender biased to the disadvantage of female physicians [9–10]. Horizontal segregation is evident in the differences in choice of specialty; vertical segregation is reflected in the medical hierarchy [11–12].

In Switzerland, most physicians complete a clinical specialist training after graduation [13]. Depending on the specialty chosen, this training as regulated by the Swiss Medical Association takes at least five to six years, and is completed after eight years on average [14]. Postgraduate training poses a number of difficulties. There are no nationwide residency-matching programs; residency contracts are awarded not for the full training period, but for one to two years only; during specialty training, residents must work in different healthcare delivery systems (training hospitals with basic healthcare, university hospitals, and some accredited training practices), with the result that they must apply for different training posts, and often must move house; the training curricula are poorly structured. The abovementioned factors account for prolonged specialty training. In addition, most residency posts are full-time jobs, making it difficult to combine professional life with family obligations.

Postgraduate specialty training falls in the phase of life in which a family is normally started. Only a minority of female trainees have their children during residency; the majority postpone childbearing until they have completed their specialty training [9, 15]. For male physicians, starting a family does not delay their career. Physician mothers, however, take maternity leave and often subsequently work part-time, which leads either to prolonged specialty training or slower career promotion [9]. Main career obstacles faced by physician parents are the lack of adequate and affordable childcare facilities geared towards physicians' working hours, as well as limited opportunities for working flexible hours or part-time.

As seen in several studies, not only female physicians but also an increasing number of male physicians attach importance to a balanced lifestyle between work and family [16–18]. The motto "my job is my life" no longer applies to the younger generation of physicians, whether female or male. In addition to the falling prestige of the medical profession in society, highly demanding working conditions might be one of the reasons that a decreasing number of men are opting for a career in medicine. Despite the working hours not being family friendly, there is a continuous flow of women into medicine. Since medicine has been male dominated for such a long time, however, and since influential positions in hospitals, medical associations and medical specialty societies are still mainly held by men, neither the training conditions and requirements for specialty qualification nor the institutional working conditions have yet been adapted to the needs of (female) physicians with children, or of dual-career couples [19].

To date, most studies limit themselves to reporting the influence of the feminisation of medicine on the medical workforce [1–2, 20]. There is a shortage of data on what is needed to balance work and family, to keep women in medicine once they start a family, and to advance them to senior positions. The present study aims to extend existing knowledge on these issues. Participants in the prospective SwissMedCareer Study [9] were asked to report what aspects of postgraduate training programs and institutional conditions should be modified to allow for a better balance of career and personal life. In addition, their opinion was assessed as to what personal attitudes and behaviour are required by physicians in order to successfully coordinate career and family. The study results should provide key medical training authorities and health policymakers with specific suggestions for the improvement of specialist curricula and working conditions.

## Method

### Study design and study sample

This study is part of an ongoing prospective survey (*SwissMedCareer Study*) of a cohort of graduates of the three medical schools in German-speaking Switzerland (Basel, Bern, and Zurich) begun in 2001 [9]. Seventy-one percent ( $n = 711$ ) of all registered final-year students ( $N = 1004$ ) participated in the first assessment, which took place during the participants' final year of medical school. The sixth assessment (T6) was conducted in 2010, eight years after graduation. A total of 703 subjects were addressed by mail-out questionnaires; 526 questionnaires were returned (response rate: 74.8%). To ensure participants' anonymity, the collected questionnaires were identified only by a code. Respondents sent their addresses to an independent address-administration office, which allowed for a follow-up. The study was approved by the Ethical Committee of Zurich University.

The *sample of this study* comprised 526 physicians participating in the sixth assessment (T6). Their socio-demographic characteristics are listed in table 1. Gender differences were to be found only with regard to employment. Less female than male physicians worked full-time. Of those females with children, 35 (27.6%) worked less than 50% time or did not work, 61 (48.0%) worked 50–60% time, and 7 (5.5%) worked 70–90% time.

### Measurements

The three free response items of the questionnaire read as follows: (1) "In your opinion, what modifications should be made in the specialty qualification curriculum to allow for a better balance of career and personal life?" (2) "In your opinion, what institutional conditions are required for physicians to combine career and family?" and (3) "In your opinion, what personal attitudes and behaviour are required for physicians to combine career and family?"

### Content and statistical analysis

The qualitatively assessed data (free response answers) were evaluated according to Mayring's content analysis [21] as follows: In a first step, the respondents' handwritten answers (keywords or whole sentences) were transcribed into an Excel file. In a second step, content categories were inductively formulated and their descriptions written down in a code

manual (definitions, examples and rules for coding). In a further step, the respondents' answers were assigned to the content categories by the first author according to the code manual. Frequencies were calculated and gender differences analysed for the individual categories with chi-square tests. Those answers which did not relate to the questions posed and the inductively formulated categories were assigned to "not codable".

Inter-rater reliability: A random sample of 10% of the analysed answers was also submitted to the second author for coding. The index of concordance (ratio of answers identically rated by the first and the second author to all rated answers) and Cohen's Kappa were calculated.

Table 1: Study sample characteristics (N = 526).	
	Total (N = 526) n (%)
<b>Gender</b>	
– female	274 (52.1)
– male	252 (47.9)
<b>Age (T6)</b>	
– mean (SD)	36.2 (2.3)
– range (ys)	32 - 51
<b>Living in stable partnership</b>	464 (88.2)
– dual doctor couples	167 (36.0)
<b>Children (yes) (T6)</b>	249 (47.3)
<b>Specialist training completed (T6)</b>	301 (57.2)
<b>Employment (full-time) (T6)</b>	
– females without children	110 (75.3)
– females with children	24 (18.8)
– males without children	118 (90.1)
– males with children	94 (77.7)

## Results

Of the 526 residents, 217 did not answer question (1) on the modification of the specialty-qualification curriculum, 47 did not answer question (2) on required changes in institutional conditions and 90 participants did not respond to question (3) on personal attitudes and behaviour. For the first question, 457 statements were made (mean 1.48 statements per person); for the second, 1,038 (mean 2.17 statements p.p.) and for the third 937 (mean 2.15 statements p.p.). Participants' responses to each question were assigned to the content categories inductively formulated from the retrieved material.

*Inter-rater reliability:* The index of concordance for the allocation of statements to the categories of the first question was 93.3% and Cohen's Kappa was 0.91; for the second question, the figures were 98.6% and 0.98 respectively, while for the third question they were 87.3% and 0.85 respectively.

### Required modifications in the specialty qualification curriculum; ranking and frequency distribution of statements

The 457 responses to the question of what modifications should be made to the specialty qualification curriculum to allow for a better balance of career and personal life were assigned to nine categories. Table 2 lists the categories, their definitions, and examples, while table 3 shows the allocation of the responses to the nine categories according to their content by gender, ranked by frequency of the statements.

Most answers referred to the urgent need to reorganise the high, complex demands of the specialty qualification: the residency for all clinical specialties should be limited to five years, as in most other European countries. The range and number of operations or special interventions to be performed should reflect the range and number of operations performed in the clinic in question.

Residency training should be less focused on hospital medicine, given that nowadays most health care is delivered in outpatient settings. Furthermore, specialty training should be structured with certain goals for each year. Other desiderata refer to the awarding of contracts for the entire specialty training period, and not being obliged to look for the various residency posts by themselves. The aforementioned arguments focus on allowing young physicians to complete their specialty training in due time. In our study, eight years after graduation, only 61.6% of the cohort doctors, both male and female, had completed their specialty qualification.

As shown in table 3, there were several gender-related differences in terms of ranking and frequency distribution. Male physicians made more statements on modifications in specialty qualification curriculum. Female physicians called for more part-time jobs and for the degree of employment to be offered more flexibly, i.e. not just 100% or 50% time, but also less than 50% time, or somewhere in between full-time and half-time. Furthermore, they called for guaranteed residency posts upon return from maternity leave.

**Table 2:** Code manual for statements on required modifications in the specialty qualification curriculum for a better balance of career and personal life.

	Category	Definition	Examples
1	Modification of specialty qualification requirements	Shortening or adaptation of specialty training requirements	Abolition of the additional qualification year ("Fremdjahr") Maximum of 5 years' specialty training for all specialties Better combination of clinical and outpatient specialty training Reducing the number of surgical procedures to be performed Recognition of research activity as a component of specialty training Publication no longer a requirement for consultant qualification
2	Part-time jobs	Larger range of part-time posts	Part-time posts with varying workload Recognition of <50% part-time post for specialty training Sub-specialization posts also available part-time
3	Structured residency programmes	Binding specialty training concept in a network of specialty training institutions	Employment contracts for the entire specialty training period with defined rotating posts Two-to-three-year basic specialty training with subsequent (sub-) specialization Circumscribed programme for each specialty-training year (incl. list of surgical procedures to be performed, interventions, examinations) Audit of the quality of specialty training at an institution of further education by the Swiss Medical Association (FMH) and the professional association Supervision by tutors
4	No change needed		
5	Working hours	Compliance with the weekly working hours	More flexible working hours Elements of specialty training within the working hours Recognition of overtime, which may be compensated Better staff scheduling
6	Financial support	Financing of obligatory specialty training modules by the further education institutions	Co-financing psychotherapy training modules for residents in psychiatry and psychotherapy: psychotherapy training costs several tens of thousands of Swiss francs which must be paid by the specialty training candidates themselves Co-financing advanced cardiac life-support courses for intensive care
7	Compatibility of career and family	Better compatibility of career and family	Guaranteed specialty training post after return from maternity leave No "career slump" because of maternity leave Six months' maternity leave taken into account as specialty training time Special support of female physicians with children
8	Need based junior staff planning	Planning and coordination of specialty training posts in the individual specialist fields and subspecialties for the whole of Switzerland based on an analysis of need regarding medical junior staff	Sufficient range of posts for specialty qualifications Number of specialty training posts to match the number of cases in the clinic, since specialty training is otherwise extended Promotion of GP training
9	Career counselling	Mentoring by chief consultants	Early and continuous career counselling with clear agreement on objectives Career counselling which takes family situation into account
	Not codable		

**Table 3:** Ranking and frequency distribution of statements on modifications of specialty qualification curriculum.

Rank	Category	Total n (%)	Men n (%; CI 95%)	Women n (%; CI 95%)	p
1	Modification of specialty qualification requirements	149 (32.6)	76 (37.6, ± 6.7)	73 (28.6, ± 5.5)	<0.05
2	Part-time jobs	88 (19.2)	21 (10.4, ± 4.2)	67 (26.3, ± 5.4)	<0.001
3	Structured residency programs	85 (18.6)	50 (24.7, ± 4.5)	35 (13.7, ± 4.2)	<0.01
4	No change needed	47 (10.3)	22 (10.9, ± 5.9)	25 (9.8, ± 3.6)	n.s.
5	Working hours	31 (6.8)	11 (5.4, ± 3.1)	20 (7.9, ± 3.3)	n.s.
6	Financial support	15 (3.3)	7 (3.5 *)	8 (3.1 *)	n.s.
7	Compatibility of career and family	14 (3.1)	2 (1.0 *)	12 (4.7, ± 2.6)	<0.05
8	Need-based junior staff planning	13 (2.8)	7 (3.5 *)	6 (2.4 *)	n.s.
9	Career counselling	11 (2.4)	4 (2.0 *)	7 (2.7 *)	n.s.
	Not codable	4 (0.9)	2 (1.0 *)	2 (0.8 *)	n.s.
	<b>Total</b>	<b>457 (100)</b>	<b>202 (100)</b>	<b>255 (100)</b>	

\* no confidence interval given due to unmet precondition  $p \cdot q \cdot n \geq 9$  [47]

### Institutional conditions for combining career and family; ranking and frequency distribution of statements

The 1038 responses to the question of the institutional conditions required for physicians to combine career and family were assigned to eight categories. The categories, their definition and examples are listed in table 4, while table 5 shows the allocation of the responses to the eight categories according to their content by gender, ranked by frequency of the statements.

Two-thirds of the responses fell into the first two categories. To date, the lack of adequate childcare facilities is recognized as the main barrier to combining career and family. It is not just the number of day nursery places that must be increased, but opening hours must also be adapted to the working hours of physicians, who often begin work early in the morning and finish their shift late in the evening. Nurseries should be a standard part of hospital infrastructure and a certain number of places should be reserved for physicians' children. Not least, childcare should be affordable. A further crucial concern of the respondents was the need to provide more part-time jobs on all hierarchical levels of medicine. In some surgical specialties or in senior positions, part-time jobs are very rare. Participants also called for working hours to be reduced to 42 hours per week, the same number of hours worked by all other employees in Switzerland. Furthermore, new working-time models such as flexible or annual working hours should be implemented. Gender differences in the responses were seen in the statements assigned to the categories of "Part-time jobs" and "Working hours".

### Personal attitudes and behaviour conducive to combining career and family; ranking and frequency distribution of statements

The 937 responses to the question of what personal attitudes and behaviour were conducive to successfully combining career and family were assigned to nine categories. Table 6 lists the categories, their definition, and examples. Table 7 shows the allocation of the responses to the nine categories according to their content by gender, ranked by frequency of the statements.

Responses to this question exhibited a wider spread. Marked organisational skills and the ability to adapt flexibly to various everyday demands at work and home were recognized as essential in one third of the statements. In almost three quarters of the couples ( $n = 337$ , 72.6%), both partners had a university degree; 167 (36.1%) were dual doctor couples. Not surprisingly, statements on the necessity of tempering one's own career goals were made quite frequently. Further responses addressed mutual support, goal-oriented career planning, and the ability to set boundaries between one's work and private life.

**Table 4:** Code manual for statements on institutional conditions conducive to combining career and family.

	Category	Definition	Examples
1	Childcare	Expansion of childcare facilities	Day nurseries with opening hours adapted to physicians' working hours Workplace nurseries Subsidy for external childcare costs
2	Part-time jobs	More part-time posts in all fields and at all hierarchy levels for men and women	More part-time posts for specialist training, e.g. 20% of all hospital posts part-time Part-time position does not slow down career progress Flexible part-time models Option of both parents working part-time Part-time posts carry no stigma for men ("He's only half serious about his job")
3	Working hours	Flexible working hours and better staff scheduling	Shorter working hours (42-hour week) Flexi-time, especially in outpatient work Fixed staff scheduling for part-time posts to allow for the organisation of childcare Annual working time
4	Career support for working parents	Better general conditions for protecting and supporting working parents	More understanding / flexibility on the part of the employer towards physicians with children Senior consultants who rate family values highly and who reconcile career planning with parenthood Maternity leave not a career damper Granting of paternity leave Academic career also for female physicians with children
5	Network of further education institutions	Specialty training in a network of further education institutions	Central coordination of specialty training posts over the whole of Switzerland -> job near one's home -> no commuting -> more time for spouse/partner and family Structured, continuous career counselling by superiors
6	Better earnings	Adaptation of salary structure to that of the competitive sector	No unfairly low wages owing to the "feminisation" of medicine Better compensation of research activity Swiss National Science Foundation promotion grants are too low to support a family. For this reason, many physicians with a family forego the option of research activity abroad.
7	Optimization of work processes	Better organisation of work sequences and focusing on medical activity	Structured, efficient work sequences Burden of administrative tasks eased Option of doing work at home without contact with patients (remote access to electronic case histories)
8	No changes		
	Not codable		

**Table 5:** Ranking and frequency distribution of statements on institutional conditions conducive to combining career and family.

Rank	Category	Total n (%)	Men n (%; CI 95%)	Women n (%; CI 95%)	p
1	Childcare facilities	397 (38.2)	167 (37.0, ± 4.5)	230 (39.2, ± 3.9)	n.s.
2	Part-time jobs	307 (29.6)	119 (26.4, ± 4.1)	188 (32.0, ± 3.8)	<0.05
3	Working hours	196 (18.9)	98 (21.7, ± 3.8)	98 (16.7, ± 3.0)	<0.05
4	Career support for parents	53 ( 5.1)	19 ( 4.2, ± 1.9)	34 ( 5.8, ± 1.9)	n.s.
5	Network of training institutions	27 ( 2.6)	14 ( 3.1, ± 1.5)	13 ( 2.2, ± 1.2)	n.s.
6	Better salary	24 ( 2.3)	13 ( 2.9, ± 1.5)	11 ( 1.9, ± 0.9)	n.s.
7	Optimization of work processes	13 ( 1.3)	9 ( 2.0 *)	4 ( 0.7 *)	n.s.
8	No change needed	3 ( 0.3)	3 ( 0.7 *)	0 ( 0)	
	Not codable	18 ( 1.7)	9 ( 2.0 *)	9 ( 1.5 *)	n.s.
	<b>Total</b>	<b>1'038 (100)</b>	<b>451 (100)</b>	<b>587 (100)</b>	

\* no confidence interval given due to unmet precondition  $p \cdot q \cdot n \geq 9$  [47]

**Table 6:** Code manual for statements on personal attitudes and behaviour conducive to combining career and family.

	Category	Definition	Examples
1	Organisational skills	Working and private life well organised	Private and professional time management Efficient organisation of work, ability to delegate Ability to set priorities Budgeting of personal resources Ability to let go of perfectionist ideas and expectations
2	Flexibility	Ability to adapt to changing circumstances and requirements	Flexibility in terms of job planning, working hours and childcare
3	Scaling back of career goals	Realistic career planning and reduction of expectations and goals	Reduction of both partners' working hours Longer further training time Adapting professional goals or activity to family life Looking for "niche" jobs with a moderate workload
4	Coordination and support in the relationship	Tolerance, helpfulness, thoughtfulness in the relationship	Good communication and coordination between the partners Decision of both partners to bear the double load of career and family together Understanding for the desires and needs of the partner or the children Same ideas regarding living arrangements
5	Career planning	Career with a high level of commitment and sense of purpose	Gearing the timing of starting a family to one's career Commitment and motivation to advance professionally "in spite of having children" Combination of tenacity, stubbornness and willingness to compromise
6	Resilience	Ability to withstand stress and to set boundaries	Physical robustness Staying power and tolerance of frustration Good work-life balance Ability to "switch off" from the demands of one's job
7	Willingness to compromise and make sacrifices	Sacrifice, patience, equanimity in one's private life	Putting one's personal free space / leisure activities on hold Ability to lower one's own demands Thoughtfulness and willingness to make sacrifices
8	Outside support	Interconnectedness in the social environment	Support from family Part of the neighbourhood network Delegating or "outsourcing" tasks Trust in outside childcare
9	Freedom from standard conceptions	Pursuing one's own path with confidence	Courage to start a family rather than fear for one's career Confidence that the labour market is dependent on female physicians who work part-time Conviction that alternative work models can be made a reality in the medical profession
	Not codable		

**Table 7:** Ranking and frequency distribution of statements on personal attitudes and behaviour conducive to combining career and family.

Rank	Category	Total n (%)	Men n (%; CI 95%)	Women n (%; CI 95%)	p
1	Organisational skills	150 (16.0)	61 (15.7, ± 3.6)	89 (16.3, ± 3.1)	n.s.
2	Flexibility	142 (15.2)	43 (11.0, ± 3.1)	99 (18.1, ± 3.2)	<0.01
3	Scaling back of career goals	122 (13.0)	61 (15.7, ± 3.6)	61 (11.2, ± 2.6)	<0.05
4	Coordination and support in the relationship	109 (11.6)	49 (12.6, ± 3.3)	60 (11.0, ± 2.6)	n.s.
5	Career planning	108 (11.5)	38 (9.7, ± 2.9)	70 (12.8, ± 2.8)	n.s.
6	Resilience	105 (11.2)	50 (12.8, ± 3.3)	55 (10.0, ± 2.5)	n.s.
7	Willingness to compromise and make sacrifices in one's private life	80 (8.6)	36 (9.2, ± 2.9)	44 (8.0, ± 2.3)	n.s.
8	Outside support	48 (5.1)	10 (2.6, ± 1.6)	38 (6.9, ± 2.1)	<0.01
9	Freedom from standard conceptions	33 (3.5)	15 (3.8, ± 1.9)	18 (3.3; ± 1.5)	n.s.
	Not codable	40 (4.3)	27 (6.9, ± 2.5)	13 (2.4, ± 1.3)	<0.01
	<b>Total</b>	<b>937 (100)</b>	<b>390 (100)</b>	<b>547 (100)</b>	

## Discussion

The profile of the medical profession is changing – not only with the increase in the proportion of female doctors, but also with changes in employment conditions, attitudes towards the profession and the lifestyle of young doctors [3, 16, 22]. The percentage of females graduating from medical school has increased by up to 60 percent in most Western countries [23]. Most female physicians complete a specialty qualification, have a live-in partner, and have children as often as their male colleagues. They do not drop out after childbirth, but continue working, although in most cases part-time [9, 24–25]. Not only females but also an increasing number of males attach importance to a balanced lifestyle between work and family [17–18].

In many European countries, there is a tremendous shortage of young physicians to fill the gap of those leaving medicine, due chiefly to retirement [13, 26–28]. Several factors contribute to this state of affairs. There is a higher demand for physicians owing first of all to major, rapid advances in medicine; secondly, to the increasing number of older and chronically ill patients; thirdly, to the European employment contract, in place since 2005, which limits the working week to 50 hours; and fourthly, to the increasing number of physicians not working full-time.

Calling for an increase in the number of medical school entrants is not the only way to solve this problem. Changes in postgraduate training requirements are also needed. Senior positions in medicine are still held primarily by men, leading to training requirements and employment conditions in healthcare delivery systems tailored to the work biographies of men [19, 23, 29–30]. Employment conditions must be adjusted to changes in both men's and women's lifestyles. To our knowledge, the present study is the first to provide detailed evidence of what specific measures must be implemented in the near future to meet the changed profile of the medical profession.

The differences in frequency of the participants' statements regarding the three questions on changes aimed at balancing career and family can be explained as follows. The first question, which addresses changes in specialty training, is a more conceptual one. The young physicians have presumably struggled with their complex training requirements, but have not yet considered in detail what needs to be changed. The second and third questions dealing with institutional conditions and personal attitudes focus more on the actual experiences of their working and personal lives and are easier to answer within a questionnaire consisting of numerous items.

### Changes in postgraduate training

Unlike in the USA [31] and most European countries, there is no national residency matching program for which graduates can apply in Switzerland. Consequently, graduates are not awarded contracts for the entire training period required for a specialty, but must instead apply for compulsory rotations in various healthcare delivery systems. This often entails a delay in training and moving house. These factors create difficulties when both partners are in the midst of establishing their careers, even more so for those who already have children. Moreover, many study participants claimed that the training curriculum was not well structured. It was suggested that, as reported in US residency programmes [31], a training institution be required to guarantee the fulfilment of detailed programmes for each year of residency. In Switzerland, specialist training as regulated by the Swiss Medical Association takes at least five to six years, but, on average, is only completed after eight years [14]. In the surgical fields in particular, the number of interventions required is so high that trainees cannot meet these requirements within the intended period. If training institutions offered structured residency programs, postgraduate training would be more effective and more easily scheduled for residents as well as institutions. In countries where postgraduate training is provided in programmes, obtaining a specialty qualification takes less time – four to five years on average. Structured residency programmes would shorten the training period, enabling young physicians to start a family at an advanced stage of their career, in which part-time jobs are more readily offered. In Switzerland, the mean time taken to qualify in a specialty is over eight years [14].

The settings in which medicine is provided have undergone great changes. Most healthcare services are delivered in outpatient settings [13]. This change is not taken into account in most specialty qualification curricula. In the opinion of the study participants, postgraduate training should take place to a greater extent in outpatient systems.

A further matter of concern expressed mainly by female residents is the low number of part-time jobs for those hoping to obtain a qualification in a subspecialty. Other limiting factors are insufficient flexibility in the part-time jobs on offer. Many physicians would prefer to work 60 to 80%, rather than merely having the option of 50% while needing to find a job-sharing partner for the other 50%. Moreover, a post of less than 50% should be acknowledged for the obligatory residency period. Some physician-mothers would rather not take a long maternity leave, but are unable to arrange childcare for more than two days a week and therefore aspire to a personal employment rate of 30 to 40%, at least for a while. As a number of specialties – mainly highly prestigious and surgical ones – cannot accommodate these needs, many women have gravitated towards generalist and primary care disciplines, thereby contributing to the horizontal segregation of the medical profession [8–11].

### Institutional conditions for combining career and family

Healthcare delivery systems must react to the medical profession's changing profile in terms of feminisation and lifestyle. The main desideratum is the provision of adequate childcare that takes physicians' working hours into account. Hospitals should be obliged to provide nurseries as part of their infrastructure. The shortage of childcare services is also reported in other European countries [32], and reflects a gender role ideology that regards mothers as the parent mainly responsible for the family [33].

As reported in several studies, parenthood seems to be the main career obstacle [3–5, 9, 34]. This is partly owing to the lack of adequate childcare facilities. Another reason is the widespread attitude, prevalent mainly among male senior doctors, that having children is not compatible with a prestigious career in medicine for female physicians. Instead of being provided with special career counselling to enable them to balance career and family, they are excluded from institutional career planning and career support [35–36]. Senior doctors often fail to realize that, having undergone such a long and demanding education, female physicians also wish to pursue an ambitious career, but require more flexible, family friendly working conditions in order to do so. In the long run, however, institutions and training authorities will be compelled to create new career pathways and flexible work patterns to keep well-trained females in the medical workforce. As reported in a Canadian study [19] and as also found in our study [9, 35], mentoring and role models are key factors for career advancement, especially for female physicians. Meanwhile, in the business world it is now well recognized that companies must adapt to the needs of young families, and not the other way round [37].

### Lifestyle

Besides feminisation, there is a further phenomenon that currently exerts considerable influence on medicine as a profession. Among the younger generation of physicians, the priority given to work and career is decreasing [38]. Increasingly, men as well as women are matching their choice of specialty and their career preferences to a controllable lifestyle that allows a good work-family balance [6, 39–40].

As seen in our study, and as reported in other Western countries [41–42], in three-fourths of the physician couples, both partners are educated to the same level. Both partners usually start their relationship as equals in terms of their careers [43]. Despite this, with most couples, having children goes hand in hand with a tendency to fall back into more traditional gender roles in terms of working arrangements and family responsibilities, with the male partner usually continuing to work full-time while the female partner cuts back to part-time work and assumes more family responsibilities [33, 44]. Since medicine is a rapidly developing profession, female physicians cannot and do not wish to take long maternity leaves, but rather wish to keep up with developments and remain in the medical workforce. As seen from participants' responses, being one half of a dual employed couple requires skill in organizing one's professional and personal life and the ability to react flexibly to changing situations. Even so, one of the partners, usually the woman, tends to cut back in terms of their career. As mentioned, this occurs in part owing to inflexible working conditions and a lack of adequate childcare services, but also because of internalised gender-role ideology. While senior doctors make part-time jobs available to female physicians with children, they do not do the same for their male colleagues. Nevertheless, the statements recorded in our study revealed the widespread attitude that both partners must cut back on their career aspirations to enable both to pursue their careers while meeting family needs. This model of mutuality in career arrangements, which allows the balancing of career and family, is gaining increasing acceptance and currency among the younger highly qualified generation [45–46]. To successfully achieve a dual career pattern, however, mutual appreciation, coordination and clear communication are essential. Furthermore, both partners must be resilient and willing to compromise.

The data provided by the 526 physicians who participated in this study provide important indications as to the relevance of curricular, institutional and personal factors conducive to combining career and family. Although the results refer to one cohort of physicians only, they allow a certain generalisation to the population of young physicians in Switzerland because of the high response rate (74.8%).

### Conclusions

Switzerland has one of the best healthcare systems in the West. To ensure the continuation of this high quality in future, changes and modifications in various spheres are necessary. In the sphere of postgraduate training, for instance, structured residency programmes taking account of the needs of trainees with children must be implemented to reduce the length of residency. The Swiss Institute of Postgraduate and Continuous Education as well as the Swiss Medical Women's Association should initiate reforms in the residency programs for different medical specialties. In the institutional sphere, hospital authorities should specify that a certain number of physicians' posts be provided as part-time jobs for male and female physicians with young children. In particular, pilot models should be promoted. Furthermore, sufficient affordable childcare facilities should be provided. Lastly, in the individual sphere, both male and female physicians should be more concerned about current training and employment conditions and should engage critically and to a greater extent with the continuing development of their profession.

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## References

- 1 Levinson W, Lurie N. When most doctors are women: what lies ahead? *Ann Intern Med.* 2004;141(6):471–4.
- 2 Kilminster S, Downes J, Gough B, Murdoch-Eaton D, Roberts T. Women in medicine – is there a problem? A literature review of the changing gender composition, structures and occupational cultures in medicine. *Med Educ.* 2007;41:39–49.
- 3 Allen I. Women doctors and their careers: what now? *BMJ.* 2005;331:369–72.
- 4 Hohner H-U, Grote S, Hoff E-H. Geschlechtsspezifische Berufsverläufe. Unterschiede auf dem Weg nach oben. *Dtsch Arztebl.* 2003;100:A166–9.
- 5 Zuber MA. Analyse des Frauenanteils bei verschiedenen Qualifikationsstufen des Fachgebietes Humanmedizin in Deutschland. *Dtsch Med Wochenschr.* 2001;126(4):65–71.
- 6 Buddeberg-Fischer B, Klaghofer R, Abel T, Buddeberg C. Swiss residents' speciality choices – impact of gender, personality traits, career motivation and life goals. *BMC Health Serv Res.* 2006;6:137.
- 7 Gargiulo DA, Hyman NH, Hebert JC. Women in surgery: do we really understand the deterrents. *Arch Surg.* 2006;141(4):405–7.
- 8 Wendel TM, Godellas CV, Prinz RA. Are there gender differences in choosing a surgical career? *Surgery.* 2003;134(4):591–6.
- 9 Buddeberg-Fischer B, Stamm M, Buddeberg C, Bauer G, Hämmig O, Knecht M, Klaghofer R. The impact of gender and parenthood on physicians' careers – professional and personal situation seven years after graduation. *BMC Health Serv Res.* 2010;10:40.
- 10 Gjerberg E. Gender differences in doctors' preference – and gender differences in final specialisation. *Soc Sci Med.* 2002;54:591–605.
- 11 Allmendinger J, Podsiadlowski A. Segregation in Organisationen und Arbeitsgruppen. In *Geschlechtersoziologie*. Ed. Heintz B. Opladen: Westdeutscher Verlag; 2001;276–307.
- 12 England P. Gender inequality in labor markets: The role of motherhood and segregation. *Social Politics.* 2005;12(2):264–88.
- 13 Foederatio Medicorum Helveticorum. Schweizerische Ärztstatistik. *Schweiz Ärztztg.* 2010;91(11):4314.
- 14 Weiterbildungsordnung [[http://www.fmh.ch/files/pdf3/wbo\\_d.pdf](http://www.fmh.ch/files/pdf3/wbo_d.pdf)]
- 15 Willett L, Wellons M, Hartig J, Roenigk L, Panda M, Dearing AT, Allison J, Houston T. Do women residents delay childbearing due to perceived career threats? *Acad Med.* 2010;85(4):640–6.
- 16 De Jong J, Heiligers P, Groenewegen P, Hingstman L. Why are some medical specialists working part-time, while others work full-time? *Health Policy.* 2006;78(2-3):235–48.
- 17 Hoff EH, Grote S, Dettmer S, Hohner HU, Olos L. Work-Life-Balance: Berufliche und private Lebensgestaltung von Frauen und Männern in hoch qualifizierten Berufen *Z Arbeits- Organisationspsychol.* 2005;49(4):196–207.
- 18 Abele AE. Erwerbsverläufe von Frauen und Männern in der Medizin. In *Arbeitsbedingungen und Befinden von Ärztinnen und Ärzten Befunde und Interventionen*. Vol 2. Eds. Schwartz FW, Angerer P. Köln: Deutscher Ärzteverlag; 2010;149–58.
- 19 McGuire LK, Bergen MR, Polan ML. Career advancement for women faculty in a U.S. school of medicine: perceived needs. *Acad Med.* 2004;79(4):319–25.
- 20 McKinstry B, Colthart I, Elliott K, Hunter C. The feminization of the medical work force, implications for Scottish primary care: a survey of Scottish general practitioners. *BMC Health Serv Res.* 2006;6:56.
- 21 Mayring P. *Qualitative Inhaltsanalyse. Grundlagen und Techniken*. 7. ed. Weinheim: Beltz, Deutscher Studienverlag; 2000.
- 22 Philipps SP, Austin EB. The feminization of medicine and population health. *JAMA.* 2009;301(8):863–4.
- 23 Reichenbach L, Brown H. Gender and academic medicine: impact on the health workforce. *BMJ.* 2004;329:792–5.
- 24 Gjerberg E. Women doctors in Norway: the challenging balance between career and family life. *Soc Sci Med.* 2003;57(7):1327–41.
- 25 Gjerberg E. Medical women – towards full integration? An analysis of the specialty choices made by two cohorts of Norwegian doctors. *Soc Sci Med.* 2001;52:331–43.
- 26 Marty F. *Praxisbarometer 2008*. *PrimaryCare.* 2009;9(5):92–3.
- 27 Kopetsch T. *Studie zur Altersstruktur- und Arztlahntwicklung: Daten, Fakten, Trends 2007*. 2007.
- 28 Hofmeister D, Rothe K, Alfermann D, Brähler E. Ärztemangel selbst gemacht! Über berufliche Belastungen, Gratifikationskrisen und das Geschlechterverhältnis von Berufsanfängern in der Medizin. In *Arbeitsbedingungen und*

- Befinden von Ärztinnen und Ärzten Befunde und Interventionen. Eds. Schwartz FW, Angerer P. Köln: Deutscher Ärzteverlag; 2010;159–73.
- 29 Shollen S, Bland C, Finstad D, Taylor A. Organizational climate and family life: How these factors affect the status of women faculty at one medical school. *Acad Med.* 2009;84(1):87–94.
- 30 Fox G, Schwartz A, Hart K. Work-family balance and academic advancement in medical schools. *Academic Psychiatry.* 2006;30(3):227–34.
- 31 National Residency Matching Program 2002. Retrieved July 2002 from [[http://www.nrmp.org/about\\_nrmp](http://www.nrmp.org/about_nrmp)]
- 32 Platenga J, Remery C, Siegel M, Sementini L. Childcare services in 25 European member states. In *Childhood: Changing contexts*. Eds Leira A, Saraceno C. Bingley: Emerald; 2008;27–53.
- 33 Rusconi A, Solga H. Doppelkarrieren – eine wichtige Bedingung für die Verbesserung der Karrierechancen von Frauen. In *Dual Career Couples an Hochschulen*. Eds. Gramespacher E, Funk J, Rothhäusler I. Opladen & Farmington Hills, MI: Barbara Budrich; 2010;37–55.
- 34 Reed V, Buddeberg-Fischer B. Career obstacles for women in medicine: an overview. *Med Educ.* 2001;35(2):139–47.
- 35 Buddeberg-Fischer B, Stamm M, Buddeberg C. Academic career in medicine – requirements and conditions for successful advancement in Switzerland. *BMC Health Serv Res.* 2009;9:70.
- 36 Buddeberg-Fischer B, Ebeling I, Stamm M. Karriereförderliche und karrierehinderliche Erfahrungen in der Weiterbildungszeit junger Ärztinnen und Ärzte. Ergebnisse einer Schweizer Longitudinalstudie. *Dtsch Med Wochenschr.* 2009;134:2451–7.
- 37 Krause-Nicolai D. Dual Career Couples – Handlungsbedarf und Nutzen aus der Sicht der Unternehmen. In *Dual Career Couples an Hochschulen*. Eds. Gramespacher E, Funk J, Rothhäusler I. Opladen & Farmington Hills, MI: Barbara Budrich; 2010;89–98.
- 38 Heiligers PJM, Hingstman L. Career preferences and the work-family balance in medicine: gender differences among medical specialists. *Soc Sci Med.* 2000;50:1235–46.
- 39 Lambert EM, Holmboe ES. The relationship between specialty choice and gender of U.S. medical students, 1990–2003. *Acad Med.* 2005;80(9):797–802.
- 40 Dorsey ER, Jarjoura D, Rutecki GW. The influence of controllable lifestyle and sex on the specialty choices of graduating U.S. medical students, 1996–2003. *Acad Med.* 2005;80(9):791–6.
- 41 Rusconi A, Solga H. Determinants of and obstacles to dual careers in Germany. *Z Familienforschung.* 2007;19(3):311–36.
- 42 Rapoport R, Rapoport RN. The Dual Career Family: A variant pattern and social change. *Human Relations.* 1969;22(1):3–30.
- 43 Levy R, Ernst M. Lebenslauf und Regulation in Paarbeziehungen: Bestimmungen der Ungleichheit familialer Arbeitsteilung. *Z Familienforschung.* 2002;14(2):103–31.
- 44 Schulz F, Blossfeld HP. Wie verändert sich die häusliche Arbeitsteilung im Eheverlauf. Eine Längsschnittstudie der ersten 14 Ehejahre in Westdeutschland. *Kölner Zeitschrift für Soziologie und Sozialpsychologie.* 2006;58(2):23–49.
- 45 Behnke C, Meuser M. Vereinbarkeitsmanagement. Die Herstellung von Gemeinschaft bei Doppelkarrierepaaren. *Soziale Welt: Zeitschrift für sozialwissenschaftliche Forschung und Praxis.* 2003;54(2):163–74.
- 46 Dettmer S, Hoff E. Berufs- und Karrierekonstellationen in Paarbeziehungen: Segmentation, Integration, Entgrenzung. In «Wenn zwei das Gleiche tun» Ideal und Realität sozialer (Un)Gleichheit in Dual Career Couples. Eds Solga H, Wimbauer C. Opladen: Barbara Budrich; 2005;53–75.
- 47 Bortz J. *Statistik für Human- und Sozialwissenschaftler.* 6. ed. Heidelberg: Springer; 2005, p. 104.