

Demographic and Professional Characteristics of Specialists in Obstetrics and Gynecology Registered in Portugal: Needs, Resources and Challenges



ARTIGO ORIGINAL

Características Demográficas e Profissionais dos Especialistas em Ginecologia-Obstetrícia Registados em Portugal: Necessidades, Recursos e Desafios

Daniel PEREIRA DA SILVA¹, Cristina NOGUEIRA-SILVA^{1,2,3}, Jorge LIMA^{1,4,5}, António BRAGA^{1,5,6}, João SARAIVA^{1,7}, Fernanda ÁGUAS^{1,8}, Nuno NOGUEIRA-MARTINS^{1,9}, Susana SANTO^{1,10,11}, José Manuel FURTADO^{1,12}, Maria Céu ALMEIDA^{1,13}, Cristina GUERREIRO^{1,14}, Carlos VERISSIMO^{1,15}, João BERNARDES^{1,16,17}
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ABSTRACT

Introduction: The demographic and professional characteristics of specialists in Obstetrics and Gynecology registered in Portugal are presented and current and future needs assessed.

Material and Methods: An analysis of the data from Instituto Nacional de Estatística, Ordem dos Médicos and a survey sent to the directors of the departments of Obstetrics and Gynecology of Portuguese hospitals was performed. In order to calculate the necessary number of specialists, established indicators of the activity of the specialty were used.

Results: In 2018, there were 1 437 441 consultations of Obstetrics and Gynecology, 89 110 major gynecologic surgeries and 85 604 deliveries. For that, 1065 Obstetrics and Gynecology physicians, working 40 hours per week, with no more than 40% aged 55 years of age and older or including 30 residents per year, are deemed necessary. According to the National Institute of Statistics, in the same year there were 1143 specialists in Portuguese hospitals, of which 234 worked in private hospitals. On the other hand, 1772 specialists were registered with the Ordem dos Médicos: 1163 (66%) were aged 55 years old or above and 84% of specialists under the age of 40 were females. In 2020, there were 864 specialists, 46% of which aged years of age and older working in 39 out of the 41 public or public-private departments that answered the survey. In 2035, an increase of 7% in the required number of specialists is expected.

Conclusion: In Portugal, there is not lack of Obstetrics and Gynecology specialists in absolute numbers, but the large number of specialists aged 55 years of age and older, who are exempt from shifts in emergency department work, and the existence of regional asymmetries contribute to the perpetuation of some shortages of these healthcare professionals in several departments, namely in public hospitals.

Keywords: Demography; Gynecology; Obstetrics; Portugal; Professional Practice; Specialization

RESUMO

Introdução: Apresentam-se as características demográficas e profissionais dos especialistas de Ginecologia-Obstetrícia registados em Portugal e avaliam-se necessidades atuais e futuras.

Material e Métodos: Analisaram-se dados do Instituto Nacional de Estatística, da Ordem dos Médicos e de resposta a questionário enviado a diretores de serviços hospitalares portugueses de Ginecologia-Obstetrícia. Calcularam-se as necessidades de especialistas com base em indicadores estabelecidos de atividade médica da especialidade.

Resultados: Em 2018, registaram-se, em Portugal, 1 437 441 consultas da especialidade, 89 110 grandes cirurgias e 85 604 partos. Para essa atividade calcula-se serem necessários 1065 médicos da especialidade, em regime de 40 horas semanais, dos quais não mais do que 40% com idade igual ou superior a 55 anos; para manter este número são necessários 30 internos por ano. Segundo o Instituto Nacional de Estatística, nesse ano existiam 1143 especialistas nos hospitais portugueses, 234 dos quais em hospitais privados. Por outro lado, estavam inscritos 1772 especialistas na Ordem dos Médicos, dos quais 1163 (66%) apresentavam uma idade

1. Colégio da Especialidade de Ginecologia-Obstetrícia. Ordem dos Médicos. Lisboa. Portugal.
2. Serviço de Ginecologia e Obstetrícia. Hospital de Braga. Braga. Portugal.
3. ICVS e ICVS/3B's – Laboratório Associado. Escola de Medicina. Universidade do Minho. Braga. Portugal.
4. Serviço de Ginecologia e Obstetrícia. Hospital da Luz Lisboa. Lisboa. Portugal.
5. Faculdade de Ciências Médicas. Universidade NOVA de Lisboa. Lisboa. Portugal.
6. Serviço de Obstetrícia. Departamento da Mulher e da Medicina Reprodutiva. Centro Materno-Infantil do Norte. Porto. Portugal.
7. Serviço de Ginecologia e Obstetrícia. Hospital Garcia de Orta. Almada. Portugal.
8. Serviço de Ginecologia. Centro Hospitalar e Universitário de Coimbra. Coimbra. Portugal.
9. Serviço de Ginecologia e Obstetrícia. Hospital de S. Teotónio. Centro Hospitalar Tondela-Viseu. Viseu. Portugal.
10. Departamento de Obstetrícia, Ginecologia e Medicina da Reprodução. Hospital de Santa Maria. Centro Hospitalar Universitário Lisboa Norte. Lisboa. Portugal.
11. Faculdade de Medicina. Universidade de Lisboa. Lisboa. Portugal.
12. Serviço de Ginecologia e Obstetrícia. Hospital Senhora da Oliveira. Centro Hospitalar do Alto Ave. Guimarães. Portugal.
13. Serviço de Obstetrícia. Maternidade Bissaya Barreto. Centro Hospitalar e Universitário de Coimbra. Coimbra. Portugal.
14. Serviço de Ginecologia e Obstetrícia. Maternidade Alfredo da Costa. Centro Hospitalar Universitário de Lisboa Central. Lisboa. Portugal.
15. Serviço de Ginecologia e Obstetrícia. Hospital Beatriz Ângelo. Loures. Portugal.
16. Faculdade de Medicina. Universidade do Porto. Porto. Portugal.
17. Serviço de Ginecologia. Centro Hospitalar Universitário de S. João. Porto. Portugal.

✉ Autor correspondente: João Bernardes. jbernardes59@gmail.com

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igual ou superior a 55 anos, sendo 84% dos especialistas com menos de 40 anos do sexo feminino. Em 2020, nos 39 dos 41 serviços públicos e público-privados que responderam ao questionário, existiam 864 especialistas, dos quais 395 (46%) com idade igual ou superior a 55 anos. Para 2035 prevê-se um aumento de 7% nas necessidades de especialistas desta área.

Conclusão: Em Portugal não há falta de especialistas de Ginecologia-Obstetrícia em número absoluto, mas a existência de um elevado número de especialistas com idade igual ou superior a 55 anos, que tem direito a deixar de prestar atividade nos Serviços de Urgência, e de assimetrias regionais, contribuem para que continuem a existir algumas carências destes profissionais em vários serviços, nomeadamente em hospitais públicos.

Palavras-chave: Demografia; Especialização; Ginecologia; Obstetrícia; Portugal; Prática Profissional

INTRODUCTION

Staffing requirements and current medical supply (consultants) are crucial data for the planning of Obstetrics & Gynaecology departments, as well as planning of training activities. Statistical data and official reports on current staffing are regularly published,¹⁻¹¹ even though this information needs to be analysed and shared in a critical, available, and comparable way, given its relevance for the organisation and audit of national and foreign healthcare services. Given the scarcity of national and international publications on this subject, different sources must be compared to understand the reality of the specialty in Portugal.^{12,13,21-25,30}

One of the critical aspects that has been described regarding OG medical staffing is the evolution of the needs. On the one hand, a decrease in the number of births has been found while, on the other hand, there has been an increase in the complexity and pathology linked to ageing, namely regarding oncology, but also in maternal-foetal medicine, infertility and pelvic floor pathology.^{12,13} Other critical aspects include working contracts and the legal obligation to comply with standards regarding medical teams,¹²⁻¹⁸ while non-compliance may lead to medical-legal issues. The risk of staffing shortage due to the lack of demand and early abandonment of professional life, given the demands of the specialty, one of the most vulnerable to burnout, should also be considered.^{12,13} This issue, with great expression in the USA, has been gradually assuming greater relevance in Portugal, due to the high volume of complaints to which Portuguese consultants are exposed to^{19,20} and significant overtime involved.^{12,13} In addition, ageing, feminisation, geographical distribution (attraction to urban centres) and also the exchange from generalist to subspecialty careers should be considered.^{12,13,21-25}

This study was aimed at analysing the demographic and professional characteristics of the Portuguese OG consultants and assessing current staffing shortage and future constraints.

MATERIAL AND METHODS

This study was carried out at the request of the President of the Portuguese Medical Association [*Ordem dos Médicos* (OM)] to the College of the Specialty of Gynaecology and Obstetrics, who gave his consent to non-nominal analysis of the OM data and disclosure of a questionnaire, also non-nominal, sent to the heads of department working for the National Health Service [*Sistema Nacional de Saúde* (SNS)], within the scope of the College's assessment of the department's training capacity. A favourable opinion was obtained from the National Council of Medical Ethics and

Deontology (*Conselho Nacional de Ética e Deontologia Médicas*) of the OM. The study was considered exempt from the need for submission to the Ethics Committee given the anonymous and public nature of data.²⁷

Anonymous data from the OM's record of OG consultants were analysed, including information on gender and age by region, in addition to anonymous data from the annual reports of the Portuguese OG departments with training accreditation, that were sent to the specialty college. Public data from the National Statistics Institute (INE)³⁻⁹ and from the Central Administration of Health Services (ACSS) of the Ministry of Health^{1,2,26} were also analysed, as well as data collected through a questionnaire sent by the specialty college to the heads of department of public and public-private institutions. The questionnaire was sent via email between March and June 2020 and included reminders sent by phone and email. Anonymous information on staffing, the consultant's age and emergency workload were assessed with this questionnaire.

Data are shown in Tables and in a Figure, using descriptive statistics, whenever appropriate, including means and percentages.

Current staffing requirements

The 2018 indicators published by the INE were used to assess staffing requirements in Portugal (public, public-private and private sector) (Table 1).⁹ The following data were found: 1 - characterisation of public and public-private labour ward rooms, regarding the number of deliveries/year and the type of hospital (perinatal support or differentiated perinatal support), using data available from the OM and from a report by the National Commission for Maternal Health (*Comissão Nacional de Saúde Materna*) (Table 2)²⁸; 2 - staffing requirements (consultants aged <55, including registrars to complete standard teams) to ensure the existing labour ward rooms, according to Ordinance 82/2014, of 10 April 2014,¹⁷ in addition to Standard 1/2018 of the specialty college¹⁸; 3 - 40-hour work week schedule, including 18-hour emergency work and six-hour paid time-off, for emergency work completed by consultants/registrars as described above, according to current legislation (leaving a 16-hour work week schedule for routine work)²⁹; 4 - main 2018 indicators of routine activity (consultations, deliveries and major surgeries) published by the INE⁹; 5 - work time requirements for consultations, major surgeries and ultrasound testing - 2018; 6 - available work time (in addition to the time spent in labour ward rooms) for routine activities (consultations, ultrasound tests and surgeries), consider-

ing a 30-minute duration for each consultation and ultrasound (including breaks)³⁰ and two hours for each surgery (considering that at least two consultants are required for each surgery for at least one hour) and 44 working weeks per year, including holidays, leaves and absenteeism; 7 – staffing requirements, on a 40-hour work week schedule, to ensure routine activities not covered by the time available for consultants included in labour room teams (described in point six); 8 – final staffing requirements, adding the results obtained in points two and seven; 9 – application of a 5% increase in the number obtained, for department meetings

and training activities.

A similar methodology has been used to obtain staffing requirements in the private sector. The staffing requirements in private labour ward rooms are difficult to obtain and therefore a direct proportionality rule has been used, based on the staffing requirements in public and public-private labour ward rooms, the total number of births registered in these units and the total number of births registered in private units.

Staffing requirements (number of consultants) were divided by 35, to reach the number of registrars required to

Table 1 – Number of consultations, major surgeries, births, C-sections and instrumental vaginal deliveries performed in Portugal (public, public-private (PP) and private sector) and P/Public + PP ratio in 2003-2004 and 2017-2018 and ratio between both biennia, according to the INE.^{3,4,8,9}

	2003 - 04			2017 - 18			Ratio
	2003	2004	Mean	2017	2018	Mean	2017 - 18/ 2003 - 04
Total consultations	886,987	936,697	911,842	1,409,929	1,437,441	1,423,685	1.56
Public + PP	740,067	780,876	760,472	904,879	880,069	892,474	1.17
Private	146,920	155,821	151,371	505,050	557,372	531,211	3.51
Private/(Public + PP) ratio	0.20	0.20	0.20	0.56	0.63	0.60	2.99
Total major surgeries	106,656	99,161	102,909	86,680	89,110	87,895	0.85
Public + PP	94,945	83,571	89,258	72,148	71,359	71,754	0.80
Private	11,711	15,590	13,651	14,532	17,751	16,142	1.18
Private/(Public + PP) ratio	0.12	0.19	0.15	0.20	0.25	0.22	1.47
Total deliveries	107,195	110,976	109,086	84,684	85,604	85,144	0.78
Public + PP	97,936	101,957	99,947	72,597	73,238	72,918	0.73
Private	9,259	9,019	9,139	12,087	12,366	12,227	1.34
Private/(Public + PP) ratio	0.09	0.09	0.09	0.17	0.17	0.17	1.83
Total C-sections	35,467	35,868	35,668	28,022	29,252	28,637	0.80
Public + PP	29,616	30,433	30,025	20,221	21,054	20,638	0.69
Private	5,851	5,435	5,643	7,801	8,198	8,000	1.42
Private/(Public + PP) ratio	0.20	0.18	0.19	0.39	0.39	0.39	2.06
Total instrumental vaginal deliveries	14,036	13,870	13,953	16,281	15,853	16,067	1.15
Public + PP	12,644	12,546	12,595	14,066	13,731	13,899	1.10
Private	1,392	1,324	1,358	2,215	2,122	2,169	1.60
Private/(Public + PP) ratio	0.11	0.11	0.11	0.16	0.15	0.16	1.45
C-section rate	0.33	0.32	0.33	0.33	0.34	0.34	1.03
Public + PP	0.30	0.30	0.30	0.28	0.29	0.28	0.94
Private	0.63	0.60	0.62	0.65	0.66	0.65	1.06
Private/(Public + PP) ratio	2.09	2.02	2.06	2.32	2.31	2.31	1.12
Instrumental vaginal delivery rate	0.13	0.12	0.13	0.19	0.19	0.19	1.48
Public + PP	0.13	0.12	0.13	0.19	0.19	0.19	1.51
Private	0.15	0.15	0.15	0.18	0.17	0.18	1.19
Private/(Public + PP) ratio	1.16	1.19	1.18	0.95	0.92	0.93	0.79
C-section + instrumental vaginal delivery rate	0.46	0.45	0.45	0.52	0.53	0.53	1.15
Public + PP	0.43	0.42	0.43	0.47	0.47	0.47	1.11
Private	0.78	0.75	0.77	0.83	0.83	0.83	1.09
Private/(Public + PP) ratio	1.81	1.78	1.80	1.75	1.76	1.76	0.98

Table 2 – Work document with number of births per department, public and PP within the SNS, in 2018, compulsory minimum staffing in standard emergency teams, minimum staffing requirements for ensuring at least eight teams per week (one per day, including one day of paid time-off), to be completed with registrars and estimate of the total staffing requirements for each department.

	Births	Standard emergency teams	Minimum staffing for emergency teams, to be completed with registrars	Number of Consultants
Northern region				
Braga	3,195	5	24	35
Bragança		2	8	8
CMIN	3,332	5	24	36
Famalicão	1,112	2	16	16
Guimarães	2,057	4	16	24
Matosinhos	1,573	3	16	22
São João	2,433	4	16	36
Tâmega-Sousa	2,314	3	16	22
Viana do Castelo	1,453	3	16	22
Vila da Feira	1,545	3	16	22
Vila do Conde-Póvoa	1,055	2	16	16
Vila Nova de Gaia	1,671	4	16	24
Vila Real	1,328	3	16	22
Central region				
Aveiro	1,766	3	16	22
Caldas da Rainha	1,235	3	16	20
Castelo Branco	437	2	8	8
CHUC	4,740			
Byssaia Barreto		4	16	35
Daniel Matos		4	16	35
CHUC		2	8	8
Covilhã	534	2	8	10
Guarda	584	2	8	10
Leiria	1,975	3	16	24
Viseu	1,856	3	16	24
Southern region and Islands				
Abrantes	800	2	8	8
Almada	2,788	5	24	33
Amadora	2,653	5	24	33
Barreiro	1,513	3	16	22
Beja	1,137	2	16	16
Cascais	2,643	4	16	22
CH Algarve	3,757			
Faro	2,403	4	16	22
Portimão	1,354	3	16	22
Évora	1,097	3	16	16
Funchal	1,871	4	16	22
Loures	2,806	4	16	26
MAC	3,428	5	24	36
Ponta Delgada	1,440	3	16	22
Portalegre	483	2	8	8
Santa Maria	2,468	4	16	36
Santarém	1,073	2	16	16
São Francisco Xavier	2,583	5	24	33
Setúbal	1,589	3	16	22
Vila Franca de Xira	1,908	3	16	22
TOTAL	75,989		664	939

CMIN: Centro Materno-Infantil do Norte; CHUC: Centro Hospitalar Universitário de Coimbra; CH Algarve: Centro Hospitalar do Algarve; MAC: Maternidade Alfredo da Costa. For other explanations, go to Material and Methods.

ensure enough consultants, considering that each consultant remains active for about 35 years, i.e., usually between age 32 and 67.

Aimed at assessing the number of ultrasound tests that were performed (not published), it was considered that in each pregnancy an average of three different ultrasound tests were obtained and that three obstetric ultrasound tests were obtained for each 1.8 gynaecological ultrasounds tests, based on the responses to the annual questionnaires sent by the departments to the speciality college.

Staffing requirements, including standard emergency teams, were multiplied by 1.37 (the ratio between the total number of consultants required for the whole healthcare tasks and for emergency work) to obtain staffing requirements in each public and public-private department. The following adjustments were made, in order to reach an assessment closer to the specific staffing requirements of each department: 1 – a total of eight consultants (one for each day of the week, with one day off) was considered as optimal in departments with less than 1,000 registered births per year or 16 consultants (two for each day of the week, with one day off) in those with 1,000-1,200 births; 2 - the highest level of standard emergency teams was considered in all the most differentiated departments taking care of the greatest number of patients; the departments at the University Hospital Centres of São João, Coimbra and

Lisboa Norte were promoted to this level; 3 – a 5 to 10% increase was considered for the most differentiated departments, corresponding to referral departments for subspecialties.

Current demographic and professional characterisation of OG consultants

The demographic and professional characteristics of the consultants working at public and public-private institutions were based on data available from the INE,⁹ the Ministry of Health-ACSS,²⁶ the OM and those obtained through the questionnaire sent to the heads of department (Tables 3 to 5).

Future staffing requirements and supply

Ratios of 1.56, 0.85 and 0.78, between the average assistance movements in 2017-2018 and 2003-2004 were found (regarding the number of consultations, major surgeries and births, respectively), obtained from the INE^{3,4,8,9} (Table 1). Based on the indicators that were previously described, in line with the predictions of demographic evolution made by the INE for a similar period⁵⁻⁷ regarding a progressive ageing of the population, considering an increased age at the first birth and a reduction in birth rate (with a reduction in the slope of the curve), with an estimated reduction to 72,000 - 75,000 births in 2035,^{6,8} an evolution of the

Table 3 – Number of OG consultants registered with the *Ordem dos Médicos* in 2018, per region, gender (F: female; M: male) and age group

Region and gender	Age groups, years																Total	
	< 40	40 - 44	45 - 49	50 - 54	55 - 59	60 - 64	65 - 69	≥ 70										
National Total																		
F + M	n %	224	13%	126	7%	85	5%	174	10%	279	16%	244	14%	210	12%	430	24%	1,772
Female	n %	189	17%	98	9%	63	6%	131	12%	206	18%	129	11%	114	10%	203	18%	1,133
Male	n %	35	5%	28	4%	22	3%	43	7%	73	11%	115	18%	96	15%	227	36%	639
F ratio		0.84		0.78		0.74		0.75		0.74		0.53		0.54		0.47		0.64
Northern region																		
F + M	n %	84	15%	38	7%	26	5%	57	10%	99	18%	73	13%	60	11%	115	21%	552
Female	n %	68	18%	34	9%	22	6%	47	12%	79	21%	41	11%	35	9%	55	14%	381
Male	n %	16	9%	4	2%	4	2%	10	6%	20	12%	32	19%	25	15%	60	35%	171
F ratio		0.81		0.89		0.85		0.82		0.80		0.56		0.58		0.48		0.69
Central region																		
F + M	n %	45	13%	34	10%	12	4%	26	8%	50	15%	37	11%	45	13%	89	26%	338
Female	n %	39	19%	26	13%	9	4%	23	11%	36	17%	12	6%	22	11%	39	19%	206
Male	n %	6	5%	8	6%	3	2%	3	2%	14	11%	25	19%	23	17%	50	38%	132
F ratio		0.87		0.76		0.75		0.88		0.72		0.32		0.49		0.44		0.61
Southern region and Islands																		
F + M	n %	95	11%	54	6%	47	5%	91	10%	130	15%	134	15%	105	12%	226	26%	882
Female	n %	82	15%	38	7%	32	6%	61	11%	91	17%	76	14%	57	10%	109	20%	546
Male	n %	13	4%	16	5%	15	4%	30	9%	39	12%	58	17%	48	14%	117	35%	336
F ratio		0.86		0.70		0.68		0.67		0.70		0.57		0.54		0.48		0.62

Source: *Ordem dos Médicos*, Portugal.

Table 4 – Number of OG consultants per region and public or public-private hospitals, per age group, according to the responses to the questionnaire sent to the heads of department in 2020.

Hospitals	Consultants	Age groups, years										Percentage of those aged		
		< 50	50 - 54	55 - 59	60	61	62	63	64	65	≥ 65	< 50	50 - 54	≥ 55
Northern region	303	137	25	64	17	14	5	11	6	7	11	45%	8%	45%
Braga	37	21	0	9	1	2	1	1	0	2	0	57%	0%	43%
Bragança														
CMIN	46	12	6	8	6	4	1	4	2	0	3	26%	13%	61%
Famalicão	18	8	0	3	1	3	0	0	1	0	2	44%	0%	56%
Guimarães	25	14	2	2	0	1	2	2	0	0	2	56%	8%	36%
Matosinhos	18	7	1	5	2	2	0	0	0	0	1	39%	6%	56%
São João	40	17	5	11	2	0	0	1	0	2	2	43%	13%	45%
Tâmega e Sousa	22	10	5	3	1	0	1	2	0	0	0	45%	23%	32%
Viana do Castelo	17	8	2	4	1	1	0	0	1	0	0	47%	12%	41%
Vila da Feira	22	10	3	5	1	1	0	0	0	1	1	45%	14%	41%
Vila do Conde-Póvoa														
Vila Nova de Gaia	34	17	1	13	2	0	0	0	1	0	0	50%	3%	47%
Vila Real	15	10	0	1	0	0	0	1	1	2	0	67%	0%	33%
IPO Porto	9	3	2	0	0	1	0	2	0	0	1	33%	22%	44%
Central region	179	74	6	39	9	12	8	8	6	7	10	41%	3%	55%
Aveiro	21	11	0	4	2	4	0	0	0	0	0	52%	0%	48%
Caldas da Rainha	13	7	4	1	0	0	0	1	0	0	0	54%	31%	15%
Castelo Branco	3	0	0	1	0	0	0	1	0	0	1	0%	0%	100%
CHUC	72	25	0	21	4	5	2	3	2	4	6	35%	0%	65%
Covilhã	10	4	1	2	0	0	2	0	1	0	0	40%	10%	50%
Guarda	8	3	0	1	0	1	0	0	1	2	0	38%	0%	63%
Leiria	18	9	0	3	1	1	2	1	1	0	0	50%	0%	50%
Viseu	26	13	0	4	2	1	1	2	0	1	2	50%	0%	50%
IPO Coimbra	8	2	1	2	0	0	1	0	1	0	1	25%	13%	63%
Southern region and Islands	382	194	27	57	9	18	8	8	14	18	29	51%	7%	42%
Abrantes	9	0	1	3	1	1	0	0	1	0	2	0%	11%	89%
Almada	29	19	2	3	0	0	2	2	1	0	0	66%	7%	28%
Amadora	21	6	1	4	2	3	0	0	2	2	1	29%	5%	67%
Beja	5	0	0	1	0	1	0	0	1	0	2	0%	0%	100%
Cascais	24	14	2	3	2	1	0	1	0	1	0	58%	8%	33%
CH Algarve														
Faro	24	14	0	2	0	2	1	3	0	2	0	58%	0%	42%
Portimão	9	4	1	0	1	1	0	0	1	0	1	44%	11%	44%
Évora	12	5	1	1	1	0	0	0	0	1	3	42%	8%	50%
Funchal	31	18	2	5	0	1	0	0	1	1	3	58%	6%	35%
Loures	31	19	4	2	0	1	0	0	0	2	3	61%	13%	26%
MAC	74	40	6	9	2	2	2	1	2	5	5	54%	8%	38%
Ponta Delgada	14	5	3	3	0	1	0	0	0	1	1	36%	21%	43%
Santa Maria	30	14	2	6	0	2	1	0	2	0	3	47%	7%	47%
Santarém	16	4	0	4	0	1	2	0	1	2	2	25%	0%	75%
São Francisco Xavier	14	10	1	3	0	0	0	0	0	0	0	71%	7%	21%
Setúbal	10	2	0	3	0	0	0	1	2	1	1	20%	0%	80%
Vila Franca de Xira	19	13	1	4	0	0	0	0	0	0	1	68%	5%	26%
IPO Lisboa	10	7	0	1	0	1	0	0	0	0	1	70%	0%	30%
National Total	864	405	58	160	35	44	21	27	26	32	50	47%	7%	46%

CMIN: Centro Materno-Infantil do Norte; CHUC: Centro Hospitalar Universitário de Coimbra; CH Algarve: Centro Hospitalar do Algarve; MAC: Maternidade Alfredo da Costa.

Table 5 - Number of OG consultants per region and public or public-private hospitals, per work schedule (hours per week) and working time in emergency, according to the responses to a questionnaire sent to the heads of department in 2020.

Hospitals	Consultants n	Working schedule (Hours per week)						Emergency work							
		40		35		< 35		0%		30%		40% - 75%		100%	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%
Northern region	303	226	75%	57	19%	20	7%	68	22%	96	32%	139	46%	0	0.0%
Braga	37	28	76%	6	16%	3	8%	3	8%	12	32%	22	59%	0	0.0%
Bragança															
CNIM	46	35	76%	6	13%	5	11%	22	48%	6	13%	18	39%	0	0.0%
Famalicão	18	15	83%	2	11%	1	6%	4	22%	1	6%	13	72%	0	0.0%
Guimarães	25	19	76%	5	20%	1	4%	6	24%	3	12%	16	64%	0	0.0%
Matosinhos	18	15	83%	1	6%	2	11%	3	17%	6	33%	9	50%	0	0.0%
São João	40	23	58%	10	25%	7	18%	14	35%	13	33%	13	33%	0	0.0%
Tâmega-Sousa	22	18	82%	4	18%	0	0%	1	5%	20	91%	1	5%	0	0.0%
Viana do Castelo	17	15	88%	1	6%	1	6%	3	18%	4	24%	10	59%	0	0.0%
Vila da Feira	22	14	64%	8	36%	0	0%	5	23%	4	18%	13	59%	0	0.0%
Vila do Conde-Póvoa															
Vila Nova de Gaia	34	28	82%	6	18%	0	0%	7	21%	17	50%	10	29%	0	0.0%
Vila Real	15	14	93%	1	7%	0	0%	0	0%	1	7%	14	93%	0	0.0%
IPO Porto	9	2	22%	7	78%	0	0%	0	0%	9	100%	0	0%	0	0.0%
Central region	179	119	66%	51	28%	9	5%	30	17%	62	35%	87	49%	0	0.0%
Aveiro	21	14	67%	4	19%	3	14%	5	24%	4	19%	12	57%	0	0.0%
Castelo Branco	3	2	67%	1	33%	0	0%	0	0%	3	100%	0	0%	0	0.0%
Caldas da Rainha	13	9	69%	1	8%	3	23%	3	23%	3	23%	7	54%	0	0.0%
CHUC	72	37	51%	35	49%	0	0%	16	22%	32	44%	24	33%	0	0.0%
Covilhã	10	7	70%	1	10%	2	20%	2	20%	1	10%	7	70%	0	0.0%
Guarda	8	8	100%	0	0%	0	0%	0	0%	0	0%	8	100%	0	0.0%
Leiria	18	15	83%	3	17%	0	0%	0	0%	5	28%	13	72%	0	0.0%
Viseu	26	23	88%	2	8%	1	4%	0	0%	10	38%	16	62%	0	0.0%
IPO Coimbra	8	4	50%	4	50%	0	0%	4	50%	4	50%	0	0%	0	0.0%
Southern and Islands	382	224	59%	125	33%	33	9%	56	16%	123	35%	174	49%	1	0.3%
Abrantes	9	6	67%	3	33%	0	0%	0	0%	0	0%	9	100%	0	0.0%
Almada	29	20	69%	6	21%	3	10%								
Amadora	21	8	38%	13	62%	0	0%	3	14%	0	0%	18	86%	0	0.0%
Beja	5	1	20%	2	40%	2	40%	3	60%	1	20%	1	20%	0	0.0%
Cascais	24	8	33%	15	63%	1	4%	5	21%	4	17%	16	67%	0	0.0%
CH Algarve															
Faro	24	14	58%	8	33%	2	8%	4	17%	19	79%	1	4%	0	0.0%
Portimão	9	9	100%	0	0%	0	0%	0	0%	5	56%	4	44%	0	0.0%
Évora	12	10	83%	1	8%	1	8%	2	17%	1	8%	8	67%	1	8.3%
Funchal	31	30	97%	0	0%	1	3%	4	13%	26	84%	1	3%	0	0.0%
Loures	31	3	10%	23	74%	5	16%	6	19%	1	3%	24	77%	0	0.0%
MAC	74	51	69%	20	27%	3	4%	11	15%	29	39%	34	46%	0	0.0%
Ponta Delgada	14	13	93%	0	0%	1	7%	0	0%	4	29%	10	71%	0	0.0%
Santa Maria	30	11	37%	17	57%	2	7%	6	20%	13	43%	11	37%	0	0.0%
Santarém	16	12	75%	4	25%	0	0%	0	0%	6	38%	10	63%	0	0.0%
São Francisco Xavier	14	7	50%	4	29%	3	21%	1	7%	0	0%	13	93%	0	0.0%
Setúbal	10	7	70%	2	20%	1	10%	0	0%	0	0%	10	100%	0	0.0%
Vila Franca de Xira	19	5	26%	6	32%	8	42%	1	5%	14	74%	4	21%	0	0.0%
IPO Lisboa	10	9	90%	1	10%	0	0%	10	100%	0	0%	0	0%	0	0.0%
National Total	864	569	66%	233	27%	62	7%	154	18%	281	34%	400	48%	1	0.1%

CMIN: Centro Materno-Infantil do Norte; CHUC: Centro Hospitalar Universitário de Coimbra; CH Algarve: Centro Hospitalar do Algarve; MAC: Maternidade Alfredo da Costa.

healthcare movement from 2018 to 2035 has been considered by multiplying it by 1.1, 1 and 0.85, respectively (number of consultations, major surgeries and births); a 0.85 ratio has been considered as regards the number of ultrasound tests, obtained according to the methodology described in “Current staffing requirements” section.

The operations described for obtaining staffing requirements in “Current staffing requirements” sections were based on the national healthcare 2035 outlook, considering the future merge/integration of three delivery blocks in the SNS, leading to less staffing requirement (36 consultants). A 2% increase was also considered to compensate for maternity and paternity leaves and temporary disability, with the former being much more significant, not only due to the longer time that it represent, but also because of the increasing feminisation of the specialty, with an expected evolution of the national ratio of female specialists over the total number of consultants from 0.64 to 0.89, and considering the fact that consultants may have to take around two years of maternity leave throughout a 35-year working career.

As regards the supply outlook, based on data from the OM, the Ministry of Health^{1,2,26} and the INE,⁵⁻⁷ the following was considered: 1 - number of available internship positions from 2010 to 2021 for specific training, keeping unchanged the number of positions up to 2035; 2 - number of new consultants who have completed their training up to 2021, followed by a number of positions corresponding to 90% of those that were made available seven years earlier; 3 - number of available internship positions in tenders for NHS consultants up to 2021 (social reports of the Ministry of Health^{1,2} and notices of tenders published in *Diário da República*), followed by the average number of the previous five years; 4 - number of filled positions up to 2018 (social reports of the Ministry of Health)^{1,2} followed by a scenario of 85% filled positions, according to the past history; 5 - number of retirements up to 2018 (social reports of the Ministry of Health)^{1,2} and number of consultants turning 67 thereafter, according to the age distribution of consultants currently working in the SNS; 6 - balance between filled positions and retirements within the SNS; 7 - number of consultants working in the SNS up to 2018 (INE)^{8,9}, number of consultants in 2020 (the questionnaire results were updated with the addition of eight consultants working in Bragança and 16 in Vila do Conde-Póvoa do Varzim, regarding departments from which no data were available, in addition to the number of consultants from the previous year added to the balance of consultants previously calculated); 8 - number of consultants aged under 55 working in the SNS in 2020, based on the questionnaire sent to the heads of department, in this study and then according to the expected retirements for every five years, according to the data obtained with the questionnaire; 9 - number of consultants working in private hospitals up to 2018 (INE)^{8,9}; 10 - number of consultants registered with the OM up to 2020 and then number of consultants from the previous year added to the previously calculated number of new consultants and the number of de-

ceased, according to the records (on average, 15 per year).

RESULTS

Assessment of current staffing requirements

As shown in Table 1 (assistance movement in Portuguese OG departments in 2003 - 04 and 2017 - 18),^{3,4,8,9} a higher number of consultations, instrumental vaginal deliveries and C-section rate were found from 2003 - 04 to 2017 - 18, which was more significant in the private sector. On the other hand, a decrease in the number of major surgeries, deliveries and C-sections has been found in public departments throughout the same period. A total of 1,437,441 specialty consultations, 89,110 major surgeries and 85,604 births were recorded in 2018, including 29,252 C-sections and 15,853 instrumental vaginal deliveries. Additionally, it is estimated that 410,900 differentiated gynaecological and obstetric ultrasounds have been performed. In 2018, 38 public departments, three public-private departments and an undetermined number of private hospital departments existed in Portugal, in which 557,372 consultations, 17,751 major surgeries and 12,366 births were recorded, including 8,198 C-sections and 2,122 instrumental vaginal deliveries.⁹

A total number of 1,065 consultants working on a 40-hour week schedule would have been required to ensure the overall healthcare movement in 2018, including ideally no more than 401 (40%) aged 55 or over (entitled to exemption from emergency work), across public, public-private and private departments.

The births that took place in 2018 are shown in Table 2 (public and public-private departments), including the standard teams and the staffing requirements to ensure the whole workload, with the appropriate adjustments.

Current demographic and professional characteristics

A total of 1,143 consultants were working in 2018 in Portuguese hospitals, according to the INE, from which 234 were working in private hospitals.¹⁰ Among these consultants, 43 had a subspecialty interest in Oncological Gynaecology, 52 in Reproductive Medicine and 67 in Maternal-Foetal Medicine, including 25, 15 and 40 consultants aged over 60, respectively.¹⁰ Within the same year, 1,772 consultants were registered with the OM, including 1,163 (66%) physicians aged 55 and over and 430 (25%) aged 70 and over; 64% of the total number of consultants were female, with an 87% maximum rate of consultants aged under 40 working in the Central region (Table 3). The distribution of consultants registered with the OM and working in public hospitals in 2018, according to the OM records and the ACSS, is shown in Fig. 1.²⁶

Based on the responses to the questionnaire sent by the specialty college regarding 39 of the 41 public and public-private departments, 864 consultants were working in 2020, including 569 (66%) on a 40-hour week work schedule, including 395 (46%) aged 55 and over, with a 55% maximum rate found in the Central region (Tables 4 and 5). Addition-

ally, a total of 247 registrars were estimated, according to the number of internship positions made available within the previous six years.

Future staffing requirements and supply

According to the model described in Material and Methods, it is estimated that 1,724,929 consultations, 89,110 major surgeries, 72,763 deliveries and 369,809 ultrasound tests will take place in 2035. Therefore, a 7% increase in staffing requirements is expected in 2035, with an estimated 1,139 consultants required nationwide (public, public-private and private sector), working on a 40-hour week work schedule, including no more than 510 (47%) consultants aged 55 or over. A total of 33 new consultants would be trained each year to reach this number of consultants.

The 2010 to 2018-2021 data^{1,2} and the estimated staffing supply for 2035 are shown in Table 6, including internship positions, trained consultants, consultant positions and retirements, in addition to the balance between incoming and outgoing consultants. Following a reduction in 2012, the increased number of available internship positions is worth mentioning, up to the current 49 available positions and estimated for the future. The large number of retirements expected for the next 15 years is also worth mentioning, although still below the number of positions made available. Finally, a difference between the number of new consultants trained per year and the number of positions available and filled for consultants has been found, corresponding to an 80-85% retention rate of new consultants.

DISCUSSION

This study was aimed at assessing the current and fu-

ture staffing requirements in Portugal and their demographic and professional characteristics. There is now a shortage scenario, characterised by an imbalance regarding the age and geographical distribution of consultants, showing the relevance of the implementation of the proposals found in previous studies,^{10,25} due to their accurate estimations, at a time when 12 consultant positions were available per year, with no correspondence with the significantly higher numbers recommended by the specialty college.²⁵

Assessment of the current staffing requirements

The estimate of the current global staffing requirements regarding 2018 was based on national indicators of health-care activity objectives⁹ and recommendations from the Government^{17,28} and the OM on the composition of standard medical teams, working time and average performance times of medical procedures.^{18,29} Our conclusions have shown the need for 1,065 consultants working on a 40-hour week work schedule, including no more than 401 (40%) consultants aged 55 or older, working in the public, public-private and private sectors. The results are consistent with the INE data that have shown, in 2018 a total of 1,143 consultants working in Portuguese hospitals, including 234 in private hospitals,⁹ ensuring the national assistance movement. These were above the numbers that we found, due to the presence of a higher number of consultants aged 55 or older, entitled to exemption from emergency work. The results are also globally consistent with the analysis of staffing requirements per department, as shown in Table 2. It is worth mentioning that this calculation was only an attempt to get closer to reality. A department-by-department analysis is required for deciding any reorganisation and contracting,

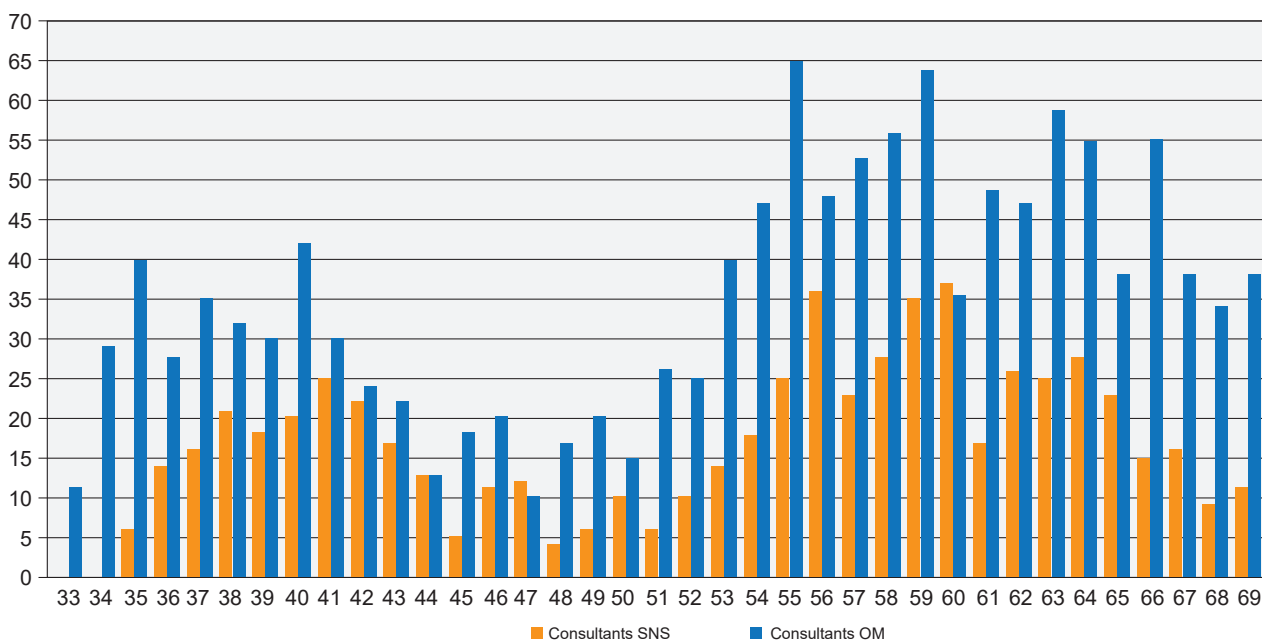


Figure 1 – Distribution of OG consultants per age, in 2018, according to the records of the *Ordem dos Médicos* and the ACSS of the Ministry of Health regarding the public sector departments.²⁶

due to the high variation, namely in work schedules and in the number of consultants with interest in subspecialties, or those aged 55 or older.

A higher number of consultants in 2018 were working in Portugal, when compared to other countries (18 per 100,000 population, vs. 12 in France, 12 in England and 13 in the United States of America).³² However, the different ways in which departments are organised in different countries make comparisons difficult. The Portuguese model is more physician-centred than other professionals, namely specialist nurses in maternal and obstetric healthcare. In Portugal, a minimum of two consultants on duty in smaller delivery blocks is required, and two to three, or three to four in more complex blocks and with a higher volume of births, duly supported by registrars and specialist nurses.¹⁸ The French guidelines, published in 2019,¹⁵ show a similar number of delivery blocks by number of births/year when compared to Portugal, with a 29.8% peak in those with 500 to 999 registered births/year, and that the proposed allocation of consultants is about half of those proposed in Portugal (one consultant in departments with up to 3,000 births, two in those with 3,000 to 5,500 births, three in those with 5,500 to 6,500 and four with a higher number of births per year).¹⁵ In turn, two consultants (“skilled healthcare professionals with surgical experience”) are recommended by the International Federation of Gynecology and Obstetrics (FIGO) guidelines in departments with around 2,000 births/year, three in those with 3,000 births/year and four to six in those with 5,000 to 6,000 births/year.¹⁴ There is no evidence on which model is

more adequate and similar maternal and perinatal mortality rates have been found in countries with different models.^{33,34} Historical data shows that when a more physician-centred model was followed in Portugal, progressing from 63% of out-of-hospital births in 1970, to 26%, 3% and 0.03% in the 1980s, 1990s and 2000s, respectively, the outcomes have improved, from maternal and perinatal mortality rates of 73.4/100,000 and 38.9/1,000 in 1970, to 19/100,000 and 23.8/1,000 in 1980, 10.3/100,000 and 12.4/1,000 in 1990, and 2.5/100,000 and 6.2/1,000, in 2000, respectively.^{35,36} Favourable outcomes have been found in Portugal as regards maternal and perinatal health and these have remained globally similar since 2000 or above those found in countries with the best health indicators in the world,^{33,34} contrasting with the numbers found in the 1980s that placed Portugal with the lowest ranked developed countries.^{35,36}

Current demographic and professional characterisation of OG consultants

The current demographic and professional characteristics of OG consultants in Portugal, obtained from the sources used in this study, have shown regional asymmetries, with a high rate of physicians aged 55 or older, progressive feminisation of the specialty and a significant number of consultants working less than 40 hours a week. These realities exist all over the world,^{12,13,21-25,31} leading to staffing shortage, leaving few alternatives apart from ensuring the emergency work.

The high number of consultants aged 55 or older

Table 6 – Internship positions, new consultants, positions for consultants in the *Serviço Nacional de Saúde* (SNS), positions filled in the SNS, retirements in the SNS, balance in SNS, total number of consultants in the SNS, number of consultants aged under 55, number of consultants working in private hospitals, total number of consultants registered with the *Ordem dos Médicos* (OM), in 2010 to 2019 (in bold) and estimates for 2035, according to the sources described in the study. For further explanations, go to the manuscript. (1st section: 2010 to 2022)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Internship positions ⁽¹⁾	54	50	36	35	34	39	40	40	41	42	45	49	49
New consultants ⁽²⁾	25	39	48	43	37	50	44	54	36	34	38	42	35
Positions for consultants SNS ^(3.1)								51	31	45	38	54	44
Filled positions SNS ^(3.2)	21	33	41	37	31	43		46	26	29	32	36	30
Retirements SNS ⁽⁴⁾	7	10	11	11	11	9	8	11	9	24	24	32	25
Balance SNS (Filled Positions-Retirements)	14	23	30	26	20	34		35	17	5	8	4	5
Number of consultants working in the SNS ⁽⁵⁾		789					871	908	909		888	892	897
Consultants < 55 SNS ⁽⁶⁾											453		
Consultants in private hospitals ⁽⁷⁾							151	164	234				
Consultants registered with the OM ⁽⁸⁾		1,565							1,769	1,824	1,851	1871	

1: Social report of the Ministry of Health up to 2018^{1,2}, and OM records onwards.

2: Social report of the Ministry of Health, up to 2018^{1,2}, and numbers based on the history records onwards.

3.1: Social report of the Ministry of Health 2017 and 2018^{1,2}, tenders published in the *Diário da República* in 2019-2021 and numbers based on the history records onwards.

3.2: Social report of the Ministry of Health, 2017 and 2018^{1,2}, records of the OM in 2019-2021, and numbers based on the history records onwards.

4: Social report of the Ministry of Health, 2017 and 2018^{1,2} and numbers based on the responses to the questionnaire.

5: Santana et al.¹⁰, in 2011, INE, in 2016-2018^{8,9}, and responses to the questionnaire, with correction by adding eight consultants working in Bragança and 16 in Vila do Conde - Póvoa de Varzim.

6: Responses to the questionnaire and numbers based on the number of positions filled by new consultants and retirements.

7: INE, in 2016-2018.^{8,9}

8: Santana et al.¹⁰, in 2011, Record of the *Ordem dos Médicos*, in 2018 and 2020 and numbers based on the new consultants per year and mortality history records.

requires a larger number of consultants to cover the needs in emergency work, from which these consultants may be exempted. This situation has been offset by the hiring of external physicians ('temporary work'), by overtime work^{12,13} and by keeping provision of services in emergency ensured by consultants aged 55 or older who, despite representing only 54% of the consultants, ensure 82% of the emergency work (Tables 4 and 5).

The progressive feminisation of the specialty also leads to the need for a larger number of consultants to cover maternity leave of the growing number of female specialists. Paternity leave may also influence the need for consultants, even though its impact is more difficult to be obtained and obviously much smaller.

The number of consultants with working contracts of less than 40 hours of work per week is also a reason for staffing shortage, leading to the need for hiring more professionals or using overtime work.

Future staffing requirements and supply

The estimated 2035 assistance movement, based on the INE's 2018 data, was consistently based on the evolution of the main indicators of assistance activity between 2003 - 2004 and 2017 - 2018, assessed in this study, which are consistent with the INE's demographic estimates between 2000 and 2020 and with the most recent demographic evolution.⁵⁻⁷

As regards the analysis of the evolution of the assistance movement between 2003 - 2004 and 2017 - 2018, although

not included as an objective of this work, it was required for calculating the staffing requirements. This has shown issues to be highlighted and further developed, including the increase in all activity indicators in private departments as opposed to public and public-private departments, showing a reduction in all the indicators except the total number and rate of instrumental vaginal deliveries (Table 1).

The calculation of future requirements is also consistent with recent publications that have shown an unchanged increase in maternal age at first pregnancy,^{37,38} the number of immigrants^{39,40} and outpatient care to the detriment of inpatient interventions, together with the need for an increasing number of outpatient techniques in obstetrics⁴¹ and gynaecology.⁴²

Finally, we have reached the conclusion that the *Carta-hospitalar* model (the Portuguese defining document issued by the Ministry of Health) will remain reasonably unchanged in 2035,⁴³ with the possible merge of three departments and/or reformulation of physical spaces, associated with the decrease in the number of births. The expected evolution of the feminisation rate of the specialty was also considered, in accordance with the most recent national evolution and with the data published in literature describing this reality worldwide.^{12,13,21,22} On the other hand, it is not expected any significant evolution in work schedules and standard teams at delivery blocks, recently reformulated by the specialty college.¹⁸ For this reason, the same model is expected to be used to calculate the future staffing requirements, with a 7% increase, up to 1,139 consultants by 2035. This estimation

Table 6 – Internship positions, new consultants, positions for consultants in the *Serviço Nacional de Saúde* (SNS), positions filled in the SNS, retirements in the SNS, balance in SNS, total number of consultants in the SNS, number of consultants aged under 55, number of consultants working in private hospitals, total number of consultants registered with the *Ordem dos Médicos* (OM), in 2010 to 2019 (in bold) and estimates for 2035, according to the sources described in the study. For further explanations, go to the manuscript. (2nd. section: 2023 to 2035)

	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Internship positions ⁽¹⁾	49	49	49	49	49	49	49	49	49	49	49	49	49
New consultants ⁽²⁾	36	36	37	38	41	44	44	44	44	44	44	44	44
Positions for consultant SNS ^(3,1)	42	45	45	46	44	44	45	45	45	45	44	44	44
Filled positions SNS ^(3,2)	31	31	31	32	34	37	37	37	37	37	37	37	37
Retirements SNS ⁽⁴⁾	27	20	43	35	31	31	31	31	31	11	22	22	22
Balance SNS (Filled Positions-Retirements)	4	11	-12	-3	3	6	6	6	6	26	15	15	15
Number of consultants working in the SNS ⁽⁵⁾	900	911	899	896	900	906	913	919	926	952	968	983	999
Consultants < 55 SNS ⁽⁶⁾			437					531					593
Consultants in private hospitals ⁽⁷⁾													
Consultants registered with the OM ⁽⁸⁾	1,892	1,913	1,935	1,958	1,983	2,012	2,042	2,071	2,100	2,129	2,158	2,187	2,216

1: Social report of the Ministry of Health up to 2018^{1,2}, and OM records onwards.

2: Social report of the Ministry of Health, up to 2018^{1,2}, and numbers based on the history records onwards.

3.1: Social report of the Ministry of Health 2017 and 2018^{1,2}, tenders published in the *Diário da República* in 2019-2021 and numbers based on the history records onwards.

3.2: Social report of the Ministry of Health, 2017 and 2018^{1,2}, records of the OM in 2019-2021, and numbers based on the history records onwards.

4: Social report of the Ministry of Health, 2017 and 2018^{1,2} and numbers based on the responses to the questionnaire.

5: Santana et al.¹⁰, in 2011, INE, in 2016-2018^{8,9}, and responses to the questionnaire, with correction by adding eight consultants working in Bragança and 16 in Vila do Conde - Póvoa de Varzim.

6: Responses to the questionnaire and numbers based on the number of positions filled by new consultants and retirements.

7: INE, in 2016-2018.^{8,9}

8: Santana et al.¹⁰, in 2011, Record of the *Ordem dos Médicos*, in 2018 and 2020 and numbers based on the new consultants per year and mortality history records.

may be revised downwards, given the pressure to follow more minimalist international standards for the constitution of emergency teams, such as those of FIGO.¹⁴

Considering the stability of the *Carta Hospitalar* there are reliable estimates that the current number of 49 registrars per year will remain unchanged. There are signs showing some public losses, but also indications that these losses may be offset by gains in training capacity of private departments, where the number of consultants increased on average by 1.55 times between 2016 and 2018, compared to an average increase of 1.04 times in public or public-private departments (Table 6). Therefore, it is expected that the supply of training capacities will largely exceed staffing requirements, since it is estimated that a regular, annual hiring of 33 consultants would be enough for allowing a global number of 1,139 consultants considered necessary by 2035.

The retention rate of new specialists in the SNS is more difficult to predict, due to the lack and inconsistency of the historical data made available (Table 6 and Fig. 1). This issue needs further analysis, which will help understanding the discrepancies between the annual numbers of trained consultants, registered with the OM and registered with the SNS hospitals (Fig. 1 and Tables 3 and 4).

However, regional asymmetries, the impact of new professional realities, such as increased burnout, medico-legal issues, overwork and/or administrative and technological changes, with subsequent earlier abandonment of the profession, should also be considered.^{12,13,19-23} Migratory movements of incoming and outgoing consultants from other countries should also be considered. In this study, no reliable data were available on this issue. Any estimates on the migratory movements of the coming years will be even more difficult. According to the Ministry of Health and the SNS 2018 Social Report, considering the global numbers of foreign doctors working in the SNS, we found that their number has remained unchanged from 2010 to 2018 (roughly 6% of the total),¹ corresponding to unchanged immigration movements. As for emigration movements, it is even more difficult to obtain data and make predictions. However, the number of outgoing consultants should be like the incoming (approximately 6% of those who graduate every year), medical migration movements would not have a significant influence on the available staffing in the coming years. This is one of the issues that should be considered in medical demography studies and need clarification. Finally, the increase in the outflow of consultants into subspecialties, which currently represent a reduced number of consultants, should also be taken into consideration,¹⁰ as it will certainly increase until 2035. It is worth mentioning that the estimates of this study towards a 12% increase in the number of consultants between 2020 and 2035 are consistent with the estimated increase between 2011 and 2025, carried out by Santana *et al.*, according to different models of projection (or supply) or prospective (or requirements).¹⁰

The use of data from various sources, such as INE, Min-

istry of Health, *Ordem dos Médicos*, and the questionnaire sent to all the departments in the SNS, with consistent results, was the main strength of the study.

Different constraints have been found, including the absence of a systematised program for data collection and analysis (including the requirements and availability of consultants in Portugal) and the difficulty in predictive data modelling (given the difficulty in predicting, not so much the demographic evolution of the population, but rather the public and private management models of the future, which may correspond to new *Cartas Hospitalares* and new criteria for standard teams).

CONCLUSION

In absolute numbers, there is no staffing shortage of obstetrics-gynaecology consultants in Portugal. However, a high rate of consultants aged 55 and older, entitled for exemption from emergency work and the presence of regional asymmetries contribute to the fact that there are still some staffing shortages in different departments, namely in public hospitals.

The constraints that were found in the study may be solved with the current training capacity, which largely exceeds the needs, even though the situation will be entirely settled with the regular recruitment of new consultants.

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AUTHOR CONTRIBUTION

DPS: Study design, result acquisition, analysis and interpretation; critical revision of the manuscript; final version approval.

CNS: Result analysis and interpretation; critical revision of the manuscript; final version approval.

JL: Result interpretation; critical revision of the manuscript; final version approval.

AB, JS, FA, NNM, SS, JMF, MCA, CG, CV: critical revision of the manuscript; final version approval.

JB: Writing of the manuscript; result analysis and interpretation; final version approval.

HUMAN AND ANIMAL PROTECTION

The authors declare that this project complied with the regulations that were established by the Ethics and Clinical Research Committee, according to the 2013 update of the Helsinki Declaration of the World Medical Association.

DATA CONFIDENTIALITY

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

CONFLICTS OF INTEREST

The authors declare that there were no conflicts of interest in writing this manuscript.

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