



***The 2010
Recommendations for
Medical Specialist
Training***

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Recommendations for
Medical Specialist
Training***

***in medical, dental, clinical technological
and related educational as well as further
training areas***

Statutory objectives:

- a. To draw up requirement estimations on the basis of, amongst others, the anticipated healthcare demands in relation to the various medical and dental specializations;
- b. To provide information for the healthcare sector and for the government regarding those demands and the related capacity requirements for medical and dental initial education and subsequent specializations;
- c. Assess the required capacity level as far as basic medical training at medical schools is concerned and to subsequently advise the government accordingly.

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Summary

This is the fourth unabridged Medical Specialist Training Recommendations Report to be published since the Advisory Committee on Medical Manpower Planning was first established in 1999. The plan presents recommendations pertaining to intake levels for all recognized medical specialization courses whilst simultaneously detailing the intake statistics for basic courses in the fields of medicine, dentistry and mouth hygiene. A number of considerations are also presented concerning course intake in areas that could conceivably be viewed as substitutional.

Each year the volume of information available and validated increases. For that reason it was decided that apart from this comprehensive main report, six sub-reports devoted to specific information would also be compiled. The sub-reports in question focus on: clinical and clinical technological specialist areas (1), general practice medicine (2), oral hygiene (3), social medicine (4), specialists in geriatric medicine (5) and specialists for the mentally disabled (6).

Today's health care provision is better attuned to the demand for care than it has ever been. Such a situation is only, however, possible thanks to the tremendous amount of work done in recent years, notably by professionals in the field and training institutes. Though the capacity for medical specialization courses has been expanded, the situation may not yet be termed stable. In the coming years the number of openings in courses on offer will have to continue to increase if the demand for care is still to be met.

The rise in the number of courses has resulted in an increase in the available capacity. In the last 10 years the number of clinical specialists has risen from 14,484 to 19,703. The number of general practitioners went up from 9,182 to 11,121 in the same period. The increase in the area of social medicine was somewhat more modest (from 3,738 to 4,163) but among specialists in geriatric medicine the relative rise was sharper (from 1,007 to 1,475). The specialism for the mentally disabled (SMD) which did not exist in 2000 numbered 175 registered specialists in 2010. In the year 2000 there were 203 dental surgeons but by 2010 that number had crept up to 234. In 2000 the number of specialists registered as orthodontists was 285 but by 2010 there were an estimated 315 working in that specialist field, 111 of whom had formally had their names removed from the specialist register (in protest of government policies downsizing their income). As far as the clinical technological professions are concerned, the number of clinical chemists barely changed in the space of ten years (going from 264 to 263). With clinical physics, though, there was a rise from 206 to 321 specialists. Finally hospital pharmacy showed a rise, going from 255 to 416 specialists. When the entire group of medical specialists is taken into account it can be seen that there were 28,847 medical specialists on 1st January 2000 but by 1st January 2010 that number had risen by 26% to 36,241 medical specialists.

The growth in terms of FTE in the past 10 years was less dramatic. It is notable that in the space of the last ten years the average FTE both for male and female medical specialists has hardly decreased. The benefits of specialization courses measured in terms of the average FTE percentage per registered specialist remains high. On average it is 0.90 FTE for the men and 0.70 FTE for the women. The fact that the total of available FTEs is rising less fast than the number of medical specialists is attributable to the continuing feminization of the profession in the Netherlands.

It is anticipated that in the coming years the medical specialist capacity will continue to increase. If the recommendations made by the Advisory Committee on Medical Manpower Planning (henceforth alternatively the ACMMP or the Advisory Committee) are adopted by the government, the number of medical specialists will increase to around 46,000 by the year 2028, thus representing a rise of 27% compared to 1st January 2010. In the immediate future the most rapid growth area will also be in the clinical specialist field (+42%). As far as the demand for care goes in conjunction with these specializations, the estimates made by the Advisory Committee reflect also the largest net increase.

In the case of all the other specialist fields the rise in demand for care has been lower. What is noticeable is, for instance, the modest increase in the demand for care in the geriatric specialist sector. Overall that is gradually increasing by 1,0% to 1,3% per annum. At a first glance this is a rise that appears to be completely manageable. However, due to the minimal interest of medical graduates in this particular specialism, the intake numbers for this specialization course have, for a number of years, been below the permitted (and financed) level. The ACMMP has already voiced its concern about this situation. Where medical care for the elderly is concerned the provision of care is not keeping abreast of the demand for care. Nursing specialists are being encouraged to help bridge the medical care gap by acting as substitutes and this is made favourable by the work environment but even for nursing specialists the nursing home setting is less attractive than the hospital setting.

Generally speaking, it may be asserted that the efforts made in the field as a whole in recent years have led to a degree of stability in terms of the various training areas. Of all the medical specialist areas there are two that require particular attention: the fields of general practice and social medicine.

For the general practitioner sector it is recommended that 720, not 600, should be allowed to embark on specialization courses each year. This rise is based on evidence that the numbers of GPs searching for a practice was in fact lower than had been anticipated in 2008. In that year it had been presumed that the intake in this particular specialization course could be reduced by at least 100 per annum for two years in conjunction with the projected rise that would be seen in the numbers of GPs looking for a practice.

Social medicine largely seems to be detached from central governmental control as far as matters of capacity and intake in courses are concerned. In the domains of occupational medicine and insurance medicine, both of which fall under the jurisdiction of the Ministry of Social Affairs and Employment, it is rather the free-market process that seems to be applicable. The Ministry of Public Health, Welfare and Sports regulates only the capacity of four specialist “first phase” courses in the domain of Public Health. The Advisory Committee recommends that both the “first phase” courses and the “second phase” courses for these four specialism in public health should be included in the governmental funding . Where occupational medicine and insurance medicine are concerned, the ACMMP recommends that the specialization course intake should be separated from the free-market mechanisms so that any possibly disruptive effects will not radiate to the rest of the training market. One way of controlling this might be by collaborating between the Ministry of Health, Welfare and Sports and the Ministry of Social Affairs and Employment. As the population of occupational physicians and insurance physicians ages and fewer candidates embark on such specialization courses, the need to intervene becomes more acute.

In the present Medical Training Recommendations Report, the oral hygiene branch will be entirely reviewed for the second time since 2009. The Oral Care Innovation Committee (the Linschoten committee) advised, already in 2006, that the ACMMP should research the potential for capacity development in this sector. The ACMMP has always taken responsibility for making dental surgical and orthodontic projections. In the past, though, initial dentistry training was not included in the estimates. What emerged from the studies carried out was that vertically substituting dentists with colleagues drawn from lower level training courses is, in practice, feasible. In the estimates given in the current report it is argued that 15% vertical substitution in the space of 10 years is a realistic target. Such substitution is not only realized to oral hygienists but also to prevention assistants thus bearing out one of the leading assumptions posited in the report published by the Oral Care Innovation Committee. If vertical substitution with the aid of oral hygienists is to be implemented the annual intake for those courses will have to rise from 300 to 358 persons.

There was a further aspect that emerged from the various studies undertaken concerning the influx of foreign dentists into the Netherlands. Each year there are some 204 dentists who graduate dentistry in the Netherlands but this number is supplemented by a further 180 dentists entering from abroad. In this way the supply and demand for dental care is kept in balance. It is thus undeniable that the Dutch education system in the area of primary oral health care is inadequate as far as initial dental education goes. If the current degree of dependency on foreign dental practitioners is to be decreased in the coming 6-year period, a start will now have to be made by expanding the yearly intake of dentistry students. A modest but realistic step might be to go from the present annual intake of 240 to 374 persons. In that way by the year 2018 the dependency on non-Dutch dentists will have been halved in the space of 10 years.

In the years to come the nursing specialist will become an increasingly familiar phenomenon in the care sector. Despite the fact that in many specialist fields vertical substitution cannot yet be convincingly proven, the field does have confidence in the ultimate outcomes that will be seen with substitution. In virtually all its recommendations the Advisory Committee adheres to estimates that include vertical substitution. However that is only something that can be achieved if the substituting professions see sufficient intake in the relevant education areas. In the case of oral care hygienists such a recommendation has already been given. In the case of the nursing specialist/physician assistant it will be recommended in the present Medical Specialist Training Recommendations Report – on the basis of the available statistics – that the annual intake level should be increased to 650 students.

Finally, on the basis of its statutes, the ACMMP presents recommendations both to the health care sector and to the government concerning the numbers of medical students that should be admitted to universities/ medical schools each year. Once again the ACMMP recommends that the basic medical training intake level should be raised from 2,850 to 3,100 students per annum. Preferably the option of allowing a portion of those extra 250 students to be drawn from bachelors in related fields of study should also be utilized. Such an increase in the basic education intake should ensure that after 7 years an upturn starts in the currently diminishing pool of “basic” doctors of medicine from which suitable candidates can be selected for specializations courses. It is conceivable that in the not too distant future further measures will be required to ensure that the reserves do not become further depleted.

1. Introduction

The Advisory Committee on Medical Manpower Planning (i.e. the ACMMP) was established in 1999 by various health care stakeholders. The statutory objectives of the ACMMP are to:

- a. Draw up requirement estimations on the basis of, amongst others, the anticipated demands for health care, demand projections in relation to the various medical and dental health specializations;
- b. Meet both the health care sector and the government's demand for information in conjunction with the perceived need and the related capacity for basic medical and dental education and subsequent specialization;
- c. Assess the required capacity level as far as basic medical training at medical schools is concerned and to subsequently advise the government accordingly.

Since 2000 the Advisory Committee has been releasing periodical projections pertaining, amongst other matters, to the desired intake level for the various recognized medical and dental specialization courses. Recommendations are simultaneously made concerning the intake level viewed as necessary for the medical schools. The main aim behind such recommendations is to reduce undesired discrepancies between the demand for care and the provision of care and to ultimately abolish any such discrepancy. The ACMMP furthermore furnishes both the government and stakeholders in the field with information so that the relevant parties can create policies surrounding issues such as the numerus clausus, foreign influx, substitution and new training courses.

Since the Advisory Committee on Medical Manpower Planning was founded in 1999 much experience and expertise has been gained that is also applicable to policy advice and estimates in relation to the required intake level for various 'new' professional areas.

- In 2008, at the instigation of the Ministry for Public Health, Welfare and Sports, the ACMMP started monitoring capacity developments in primary oral care. The Oral Care Innovation Committee (the Linschoten Committee) advised in 2006 that as of 2008 the ACMMP should begin monitoring the oral care professional group. It was a logical step in view of the fact that since 2000 the Advisory Committee has been recording all developments within the dental surgical and orthodontic areas and providing intake recommendations for these particular specializations, which are also subject to vertical substitution by dentists and oral hygienists;
- In 2009, also at the instigation of the Ministry for Public Health, Welfare and Sports, the ACMMP embarked upon research into the desired and actual capacity developments within the Registered Healthcare Professionals branch (hereafter RHP) in the mental healthcare sector. In 2011 preliminary recommendations in conjunction with the required intake for the relevant specialization courses will be presented to the Ministry for Public Health, Welfare and Sports for the purposes of financing this intake.

After this introductory chapter it will be capacity developments in the field between 2000 and 2010 that will be examined in Chapter 2. Facts will be presented that were not previously considered in relation to each other. Chapter 3 will then reflect on the recommended and realised intake of specialization courses during the past 10 years. This will round off all the reflection done in the second and third chapters. Chapter 4 will then go on to outline the future health care demand in the different specialist areas for a number of scenarios. Inevitably it is this future demand that forms the basis to all the ACMMP projections for the immediate future. It is future demand that determines precisely how calculations are made for future provision estimates. There are adjustments anticipated for factors that may well potentially influence the actual provision aspect such as efficiency matters, non-patient determined demands and computerization. One important factor in all these calculations has to do with the substituting of activities by a workforce drawn from lower trained disciplines. As far as the Advisory Committee is concerned the related on-going professional debate on matters of task delegation and/ or task redeployment is of less relevance. What really matters is the question of precisely how much capacity can be replaced in one professional group by introducing capacity from a lower trained professional group while maintaining or even improving the experienced level of care.

Once the future relevant provision has been estimated upon the basis of the anticipated healthcare demand, it is possible to calculate the required intake level and the various scenarios for the different specialization courses. Chapter 5 reveals the recommended annual intake figures. There it may be seen that there is a degree of choice for the clinical specializations and for dentists. Chapter 6 deals with the reverse side of the vertical substitution story by detailing the required capacity in the substituting professional groups together with the relevant intake flow. Chapter 7 presents the intake calculations for medical schools and finally Chapter 8 summarizes all the main points made in the rest of the report.

Appendix 1 gives a schematic overview of the conceptual model adhered to by the Advisory Committee on Medical Manpower Planning since the year 2000 when estimating the different intake flows. Appendices 2 and 3 show the composition of the Board alias the Plenary Body and of the supporting Bureau. Finally Appendix 4 provides an initial list of the Advisory Committee's terms and definitions. In the near future this list will be further refined, extended and finally made digitally accessible.

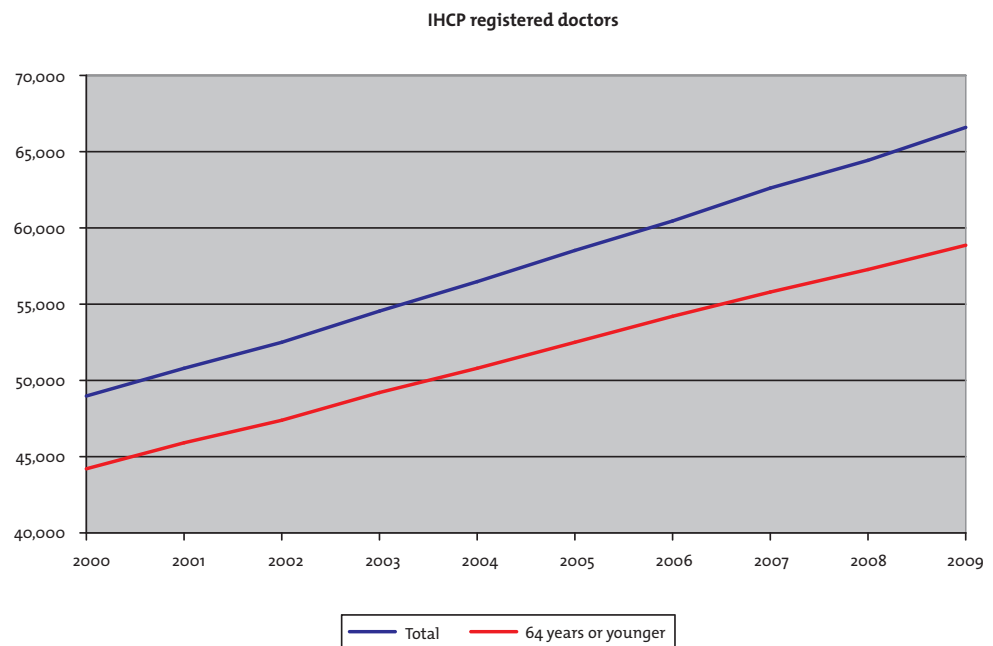
2. The 2000 to 2010 period

The first recommendations made by the ACMMP date from the year 2000. The following sections give an overview of the situation within the various professional areas since 2000.

2.1 Sharp increase in the number of doctors of medicine in the Netherlands since 2000

In the Netherlands all doctors of medicine have to submit to central registration by the CIHCP in The Hague. A number of data for each doctor of medicine (MDs) first have to be entered into the national IHCP (i.e. Individual Healthcare Professions) register before the title doctor can be used and before the person in question can practice as a doctor or can apply for any possible further specialization course. The data concerning the numbers of doctors registered as of 1st January 2010 are not yet complete. Figure 1 reflects the trend for IHCP registered doctors between 2000 and 2009. It can be seen that in that particular period the number rose from 48,948 to 66,624, thus representing a 36% increase in comparison with the year 2000.

Figure 1: The number of IHCP registered doctors as of January 1st for the 2000- 2009 period



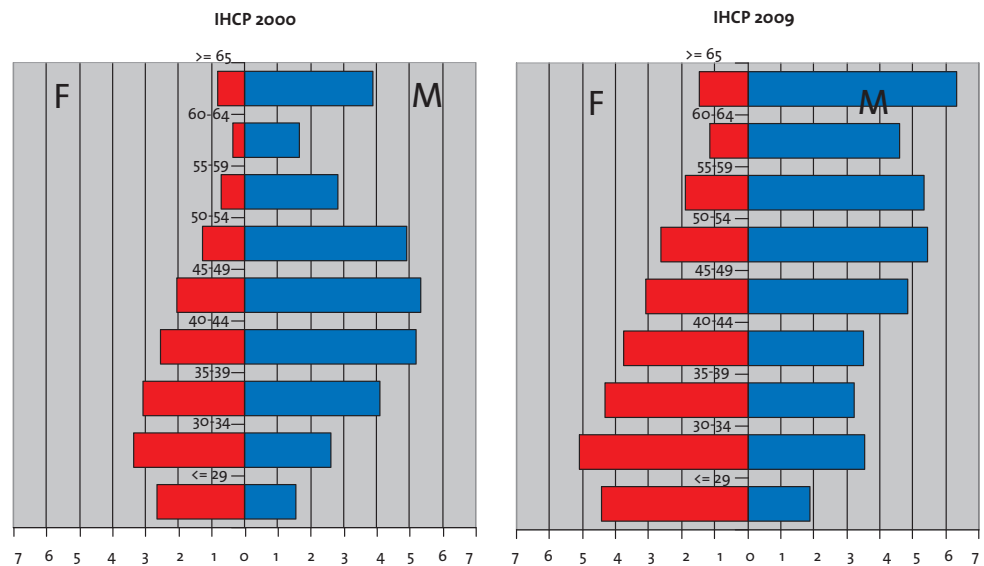
Source: CHCP; IHCP registry

Up until now IHCP registration for doctors of medicine has always been done on a one time-only basis. The data on doctors of medicine may only be removed from the register at the individual in question's own request, if the registered person has died or upon the request of the Health Care Inspectorate. That means that doctors of medicine who are no longer in practice can also be found in the IHCP register. Hence the reason that the figure given above also shows the numbers of doctors of medicine who are younger than 65 years of age, just to give a rough indication of how many

still might practice. The level has risen from 44,236 in 2000 to 58,821 in 2009, which therefore means that there has been a rise of 33% in the space of 9 years. In absolute terms, the increase in the number of IHCP registered doctors of medicine hovers around the 1,600 mark each year.

Apart from the fact that number of doctors of medicine continues to rise, there are also modifications in the age and gender composition. Figure 2 serves to indicate the age and gender changes that have been manifested in the IHCP records in the 9 years under review.

Figure 2: IHCP records breakdown according to age and gender for January 1st 2000 and January 1st 2009; in terms of thousands



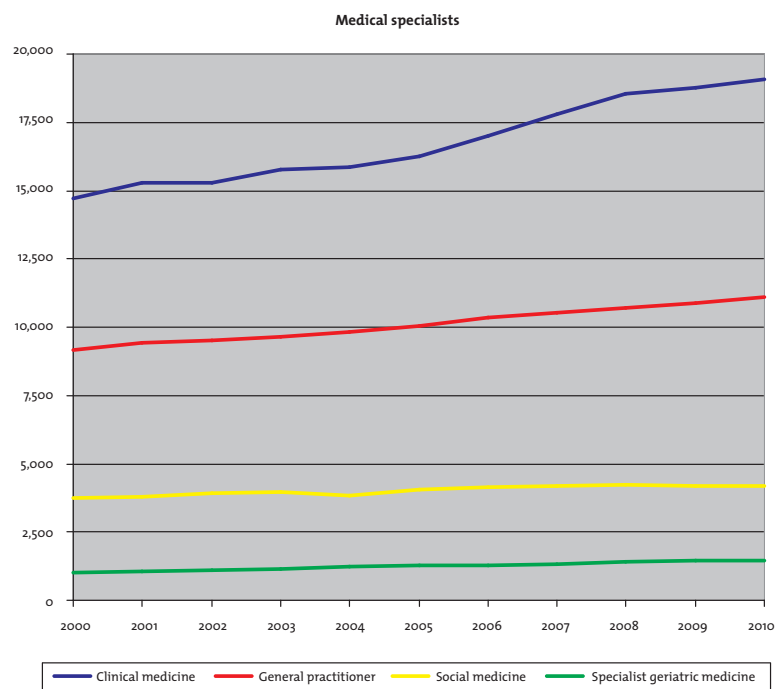
Source: CHCP; IHCP registry

The IHCP register details for 2009 demonstrate that in all age categories the number of female doctors has increased in comparison with 2000. The number of male doctors found in the under 45 years of age category has slightly decreased but the urn-shape clearly detectable in 2000 for male doctors had become rather less prominent by 2009. In the space of 10 years the number of IHCP registered female doctors has risen dramatically. In the year 2000, 37% of the doctors of medicine younger than 65 were women and by 2009 that level had gone up to 45%.

After their basic medical training, doctors of medicine can then go on to specialize in a particular area. Many such specialization courses are legally recognized and therefore culminate in protected titles. Two main choices are between, a two to three year-long “first phase” course with a specific profile leading to a given Royal Dutch Medical Society (RDMS) title, e.g. recognized profile public health doctor for 0 to 19 year olds, an RDMS recognized profile public health doctor specialized in infectious diseases, a recognized profile doctor in Emergency Services etc. or else a 3 to 6-year specialization course leading to one of the status of medical science specialist (clinical specialist, general practitioner, social medicine specialist, specialist in geriatric medicine ,

specialist for the mentally disabled, orthodontist or dental surgeon). After having completed his or her course the medical specialist can then have his or her name entered into the specialist register of the relevant Medical Specialist Registration Committee, which are maintained by the RDMS. After having initially been placed in such a register the medical specialist in question subsequently has to meet a number of conditions in order not to lose his or her speciality registration, for instance fulfilling a minimum number of 2 working days a week as a medical specialist, following a minimum of 200 hours of accredited in-service courses or refresher courses per 5 years, and a number of peer review hours. All medical specialists are tested once every 5 years by the relevant registration committee to determine whether or not they still meet the stipulated conditions. The development of a number of groups of medical specialists listed in the above-mentioned registers since the year 2000 is represented in Figure 3.

Figure 3: Number of medical specialists as of 1/1/2000 and 1/1/2010



Source: RDMS registration committees

The figure above demonstrates that in the last 10 years it is among the clinical specialists and general practitioners that considerable expansion has been seen. In the case of general practitioners the growth curve has been steady. In the case of the various clinical specialist areas, however, the growth line has been less consistent. In the last 10 years the social medicine branch hardly saw any growth at all. In the case of the specialists in geriatric medicine, only a slight rise in numbers is detectable in the figure given above. Nevertheless, in absolute terms their numbers did reflect a sharp growth, rising from 1,007 to 1,475. In all the specialist fields, with the exception of social medicine, there is noticeable rejuvenation as well as feminization. These trends are highlighted in the various sub-reports. In the different specialist areas feminization is perpetuated to varying degrees (Table 1).

Table 1: The total number of registered medical specialists and the percentage of registered female specialists as of 1/1/2000 and 1/1/2010

Specialization	2000		2010	
	Total number	% women	Total number	% women
Clinical specializations in total	14,4717	30,1	19,073	34,0
Anaesthesiology	1,088	22.2	1,605	27.9
Cardiology	654	9.5	912	15.2
Cardio-thoracic surgery	108	4.6	136	11.8
Dermatology and venereology	387	27.4	472	43.0
Surgery	1,035	5.2	1,218	16.5
Internal medicine	1,725	21.6	2,006	15.2
Ear, nose and throat (ENT)	452	7.5	489	11.8
Paediatrics	1,009	41.8	1,401	57.7
Clinical genetics	66	59.1	110	73.6
Clinical geriatrics	83	47.0	174	64.4
Pulmonary diseases and TB	385	15.6	524	26.1
Gastroenterology	163	8.0	364	22.5
Medical Microbiology	206	30.6	249	37.3
Neurosurgery	109	5.5	136	9.6
Neurology	665	18.2	826	30.8
Nuclear medicine	85	22.4	152	34.9
Obstetrics and gynaecology	820	23.8	978	45.6
Ophthalmology	626	28.6	671	38.3
Orthopaedics	473	2.5	633	8.1
Pathology	337	21.7	391	36.8
Plastic surgery	178	11.2	270	20.0
Psychiatry	2,254	28.7	2,966	42.0
Radiology	870	12.3	1,059	21.0
Radiotherapy	165	29.1	256	44.9
Rheumatology	165	27.3	248	44.4
Rehabilitation medicine	299	35.8	455	54.9
Urology	310	1.3	372	13.2
Clinical chemistry	264	---	263	28.9
Clinical physics	206	---	321	16.2
Hospital pharmacy	255	---	416	48.3
General practitioners	9,182	28.0	11,121	41.9
Dentists*	7,284	---	8,357	31.0
Social medicine	3,738	33.8	4,163	40.2
Specialists in geriatric medicine	1,007	50.0	1,475	61.0
Specialists for the Mentally disabled (SMD)	0	---	175	65.0
Dental surgeons	203	5.0	234	7.0
Orthodontists	285	22.0	315	33.0
Oral hygienists			2,425	97.0
Total excluding clinical technological professions/dentists/orthodontists/oral hygienists	28,847	25.8	36,241	38.3

*practising dentists according to Netherlands Dental Society; figures for 2000 and 2009

From this table it is clearly apparent that in the space of the 10 years under consideration the number of registered specialists has increased by an average of 25.6%. In the case of the clinical specialisms the average growth was 29.6%, for general practitioners it was 21.1%, for the social medicine group 11.4% and for those specialized in geriatric medicine 46.5%. Finally the rise in the number of registered dental surgeons was 15%, which was lower than the average for clinical specialists affiliated to hospitals. In the case of dentistry there are no reliable figures on the number of registered dentists for the year 2000 nor on their gender. It was not until the year 2002 that the field of specialist for the mentally disabled was actually recognized as a specialism.

Feminization is something that has been evident right across the board but the degree of feminization in different specialisms differs substantially. Within medical specialist fields as a whole it can be established that in 2000 the percentage of women accounted for 25.8% of the entire workforce but by the year 2010 that level had risen to 38.3%.

Detailed tables of this type can be found in all 6 of the different sub-reports. From this point onwards it will only be tables with aggregated data that will be presented for the following 9 different professional groups: clinical specialists, clinical technological specialists, general practitioners, dentists, social medicine specialists, specialists in geriatric medicine, specialists for the mentally disabled, dental surgeons and orthodontists. Naturally there are also statistics available for the supporting professional areas such as nursing specialist, general practice assistant (GPA) and the oral hygienist group. The latter areas will be dealt with in Chapter 6.

2.2 Relatively sharper rise in the number of active clinical specialists and dentists

It is especially important to note that alongside a portion of the 36,241 RMDs registered medical specialists there are at least a further 19,500 IHCP registered doctors of medicine degrees who are active in the healthcare sector. The various activities of such basically qualified medical doctors, almost half of whom are being trained in specialization courses, will be further expanded on in Chapter 7.

A certain percentage of the registered medical specialists work abroad. Yet a further segment is exclusively active in research or education. There is then another group of doctors who have stopped working in the healthcare sector altogether, have not proactively taken steps to remove their names from the relevant specialist register but are simply waiting until the next invitation to re-register is issued by the relevant registration committee. From questionnaires and data analysis it is, however, possible to establish the following percentages.

Table 2: Numbers of practising professionals: the percentage that is included in specialist registers and the absolute total; 1/1/2000 and 1/1/2010

Professional group	1/1/2000		1/1/2010	
	%	Number	%	Number
Clinical specialists	86.8	12,800	91.0	17,350
Clinical technological specialists	---	---	92.5	925
General practitioners	83.9	7,706	93.3	10,371
Dentists	---	---	74.7	8,881
Social Medicine	94.0	3,515	91.5	3,815
Specialists in geriatric medicine*	94.5	952	92.8	1,443
SMD**	---	---	91.7	192
Dental surgeons	88.2	179	99.6	233
Orthodontists	93.7	267	87.3	275
Total**	87.3	25,152	90.5	33,404

* the numbers practising in 2010 include 72 community geriatric doctors

** the numbers employed in 2012 include 32 active GPs

*** excluding clinical technological specialists, dentists and orthodontists

What can generally be asserted is that in the space of 10 years' time the registration committees appear to have improved as far as the matter of being up to date is concerned. Naturally there will never ever be a situation in which 100% of the registered specialists will all actually be involved in working with patients. There are those whose attention is directed towards education and research, there are those who are engaged abroad, either on a permanent or temporary bases and those who have recently stopped working. The most noticeable statistic is the relatively low percentage of practising dentists. The main explanation for this is that the main source for dentists is the ICHP register and ICHP re-registration has not yet been introduced. Pensioned dentists and those who have (re-)emigrated have therefore remained in the register. In the case of all the other professional groups it is the RMDS registration committee group records that are used. Of the 36,241 medical specialists registered in 2010, some 33,404 are employed in patient care work.

2.3 Average FTE for men and women has hardly decreased

In the final section of this chapter the number of active professionals will be converted into the number of available FTEs per specialism. What has emerged from research is that there is a difference between men and women as far as the amount of part-time work done is concerned. Hence the reason that the percentages for men and women are separately displayed. These gender-specific figures are also adhered to the projections because the gender balance remains variable.

All the detailed breakdowns are given in the separate sub-reports. Where possible, the statistics given in Table 3 for 2010 are compared with those from the year 2000. Unfortunately, for some groups, there is little historical material for comparison. What is at least evident is that the average FTE worked by male specialists is constantly higher than the average FTE worked by female specialists. In the case of the clinical

specialist areas what is also very apparent is that on balance there is no marked decrease in comparison with 2000. In the past 10 years the average number of FTEs has not changed. It can be concluded that the men have started doing slightly fewer hours and the women slightly more.

In the general practitioner group there has been a drop in the average FTE worked during the last 10 years, both among the men (-0.12 FTE) and the women (- 0.11 FTE). One important explanation for this is the fact that all the locums have been included in these calculations. In 2000 the number of locums was much lower than in 2010. By virtue of the very nature of their job description, locums work fewer FTEs than general practitioners or general practitioners employed by another general practitioner (GPEAGP). If the hours of work done by locums are omitted from the calculations then it can be seen that male doctors work on average 0.88 FTE and their female counterparts 0.62 FTE. It is therefore especially in the female group that we see a considerable amount of unused capacity.

Among the specialists in geriatric medicine there is evidence of a rise in the average FTE level, both among male and female specialists. Incidentally, that not only applies to the average FTE but also to the average number of patient-involved hours. The changes seen in the average number of dental surgery FTE is marginal.

Table 3: Average number of FTEs for men and women; 1/1/2000 and 1/1/2010

Professional group	Average FTE for those working in 2000		Average FTE for those working in 2010	
	Male	Female	Male	Female
Clinical specialists	0.96	0.80	0.94	0.82
Clinical technological specializations	---	---	0.97	0.89
General practitioners	0.94	0.66	0.82	0.55
Dentists	---	---	0.86	0.77
Specialists in social medicine	---	---	0.88	0.66
Specialists in geriatric medicine	0.87	0.68	0.91	0.74
SMD	---	---	0.91	0.80
Dental surgeons	0.90	0.70	0.89	0.69
Orthodontists	0.93	0.82	0.93	0.82
Total average FTE known in 2000 and 2010	0.95	0.77	0.90	0.71
Total average FTE, dentists excluded			0.90	0.70

The data totals do not really supply good reference material. What does emerge is that in the year 2010 male specialists worked an average of 0.90 FTE while the hours worked by female specialists estimated to 0.70 FTE. In the space of the 10 years under consideration these averages had dropped by 0.05 FTE and 0.07 FTE respectively. In the case of the female group there is a considerable discrepancy in the specialist fields, the female general practitioners having the smallest FTE and the female clinical specialists the largest FTE.

3. Projected and realized intake levels for specialization courses

It was in the year 2000 that the Advisory Committee first brought out recommendations for those working in healthcare and for the government. Those recommendations concerned the intake level required to create and maintain a balance between the demand in the healthcare sector for medical expertise and healthcare provision. It is only in the case of those with a doctor of medicine degree that the ACMMP steers the intake into the various subsequent areas of specialization. Regarding all other relevant factors, it is on the basis of literature studies, spontaneous or requested research, expert opinions, and monitoring that further estimates are made concerning the projected developments both in demand and provision. It should be emphasized that the ACMMP itself conducts no research. In order to guarantee the independence of the ACMMP, all research carried out at the request of the Advisory Committee is done by external research agencies.

Between 2000 and 2010 the ACMMP produced unabridged recommendations on four separate occasions: in 2000, in 2003, in 2005 and in 2008. In addition several partial recommendation reports and three interim reports with recommendations were brought out. Partial report recommendations are usually compiled in response to requests from sectors in the field or the government. Interim recommendations are published by the Advisory Committee itself if, on the basis of the perpetual monitoring of developments surrounding healthcare demand and provision, it becomes apparent that some form of interim adjustment is required.

3.1 Recommendations for medical specialization courses becoming more stringent

In the 2000 to 2006 period only the specialization courses for general practitioners were centrally organized by the Dutch Ministry of Health, Welfare and Sports. The specialization courses in the fields of clinical medicine, social medicine, geriatric medicine, medicine for the mentally disabled and dental surgery were not centrally controlled. Training institutes in the field simply made numerical and financial agreements in conjunction with the health insurance companies. Certainly at first, there was no evidence of centralized coordination. As of 2003, for the clinical specialist courses, it was the Flexible Administrative Deliberation Network (FADN) that came to serve as the regulatory body.

Since 2007 the financing of specialization courses has been transferred from the health insurance companies to the Ministry of Health, Welfare and Sports. It was in conjunction with the introduction of the new Medical Insurance Act and the anticipated free market mechanism that this was perceived to be necessary. From then onwards, the organization of specialization courses has been predominantly¹ in the hands of the above-mentioned ministry.

¹ The recognized medical specialist trainings such as occupational medicine specialist, insurance medicine specialist, forensic medicine profile doctor, medical evaluation and advice profile doctor, policy and recommendations profile doctor as well as the second phase of the training as a Public Health doctor are not subsidized by the Ministry of Health, Welfare and Sports.

The initial academic medical and dental training courses were, and still are, centrally organized by ECAS, the Ministry of Education, Cultural Affairs and Science. In view of the fact that the medical specialist areas depend for their intake flows on the available reservoir of doctors of medicine, there is some degree of coordination between the HWS and ECAS ministries as far as the relevant educational Capacity Planning is concerned. Table 4 shows us what the realized intake for specialization courses has been since the year 2000. The figures for 2010 are, insofar as they have been given, not as yet final.

Table 4: The realized intake numbers of doctors in training as a specialist (dits) in the various specialist areas

Specialist area	Year: (20..)	00	01	02	03	04	05	06	07	08	09	10
Clinical specialist		820	898	1,120	1,172	1,095	1,084	1,107	1,068	1,051	1,061	1,150
Clin. techn. spec.		27	25	63	66	44	59	64	78	60	85	
Gen. practitioner		360	420	468	501	512	533	524	519	537	594	589
Social medicine		227	339	220	160	114	47	82	81	102	161	
Spec. geriatric med		85	84	82	97	99	96	91	88	86	85	72
SMD		10	9	0	13	15	13	10	13	16	19	
Dental surgeon		7	6	11	12	11	13	9	15	11	13	13
Orthodontist		5	6	6	12	6	13	6	13	6	13	5
Total		1,541	1,787	1,970	2,033	1,896	1,858	1,893	1,857	1,869	2,031	

Bron: Registration committees

3.1.1 Clinical specialists

It is clearly evident that the realized intake as far as the various specialization courses are concerned had risen markedly in 2002 in comparison to the years before. What one can also see is that changes are occurring in the various medical areas. In the clinical specialist category, the number of 'dits' reflected a sharp rise in 2002 which has been sustained ever since. All the recommendations made by the Advisory Committee on Medical Manpower Planning have been instrumental in effecting this change. The recommendations made for the various specialist fields have not all, however, been literally adopted. In broad outline though, the recommendations made by the ACMMP have been followed but with a 2 year lag due to financial constraints.

In 2010 the intake level rose even further due to the implementation of the Committee's preferred variant, vertical substitution excluded, in line with the maximum recommendations made in the 2008 Medical Training Recommendations Report. The average duration of a clinical specialist training is at least 5 years. This means that the effect of the intake increase in clinical specialization courses since 2002 has been, since 2008, an outflow of 'young qualified' clinical specialists, leading to an additional 200 to 300 in this category per annum. It is a trend that will remain visible for at least 6 more years.

3.1.2 General practitioners

What can clearly be seen in the general practitioner group is that at the instigation of the Advisory Committee the training intake level rose from 360 places in 2000 to just over 500 in 2003. Since 2009 the level has risen again, to around 600. The ACMMP

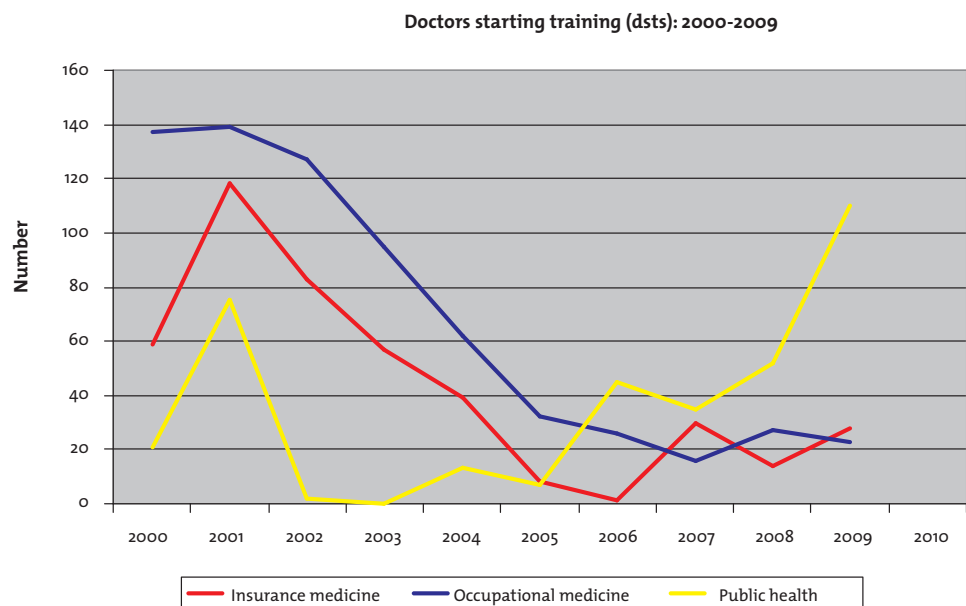
estimated that it would be necessary to admit 730 'dits' to general practitioner specialization courses but made a one-time adjustment to this estimation, to 500, in conjunction with the anticipated (but in retrospect not perceived) increase in the number of general practitioners seeking a practice in 2009. In an interim report brought out at the end of 2009, the estimate of 730 intake places was again confirmed and it was urged that, starting in 2011, this should be the level adhered to for doctors in training as general practitioners.

3.1.3 Social medicine specialists

Since the year 2003, intake numbers for social medicine specialization courses as a whole have halved. Indeed, since 2003 the ACMMP has not made any further recommendations for the social medicine sector for the simple reason that the future relevant policy uncertainties were just too great. However, in 2007 and 2008 two sub-reports were brought out concerning recommendations for two first-phase specialization trainings known as profile trainings in public health: preventive youth medicine and infectious diseases medicine. These trainings were subsequently financed by the HWS ministry.

The changes being seen in the various specialist fields within the Social medicine sector are even more dramatic. Figure 4 demonstrates what the intake developments have been like for the main areas within social medicine. The intake levels for doctors in training as a specialist (dits) for the two courses in the main category of Employment and Health, occupational health and insurance medicine, show parallel development. The number of doctors enrolling in the specialization courses for occupational health or insurance medicine has plummeted since 2002. It can be concluded that since 2005 neither of these areas has seen significant intake numbers.

Figure 4: Doctors in training as a specialist (dits) in the area of social medicine for the 2000-2009 period.



Source: registration committee

As far as the intake rate is concerned, with the courses followed in the global area of Public Health, it can be seen that since 2007 the intake numbers have gradually been picking up. It should, however, be noted that this only applies to four profile trainings subsidized by the Ministry of Health, Welfare and Sports from then onwards.

The great fluctuation in the specialization course intake statistics is caused by a combination of, on the one hand, the rapidly changing demands for social medicine which are largely driven by government policies and, on the other hand, the care provision aspect which, with the exception of the above-mentioned profile trainings, is completely exposed to market forces. Thus social medicine healthcare provision is regulated by a large, dynamic group of specialist training course financers, who ultimately allow care provision to be dictated by specialization course intake.

This portion of the training market is the only aspect to be largely exposed to market forces. The disadvantage of such a system is that in the event of a possibly sudden increase in the demand for social medicine healthcare there will always be at least a 2 to 4-year delay before the education market can respond by producing new specialists. Whenever there is a drop in the healthcare demand the market reacts promptly by instantly halting the expensive course intake. This means that the education market lacks the stability that is seen in other education markets and is therefore less attractive in a number of ways, like from the point of view of long-term investments, than other education markets.

Another market effect consideration in this corner of the education market is the fluctuating competition thus created among doctors of medicine throughout the entire education market. Between 2005 and 2009 fewer than 100 MDs were annually required to meet all the vacancies in the social medicine sector. If the healthcare demand for occupational medicine doctors and insurance medicine doctors increases in the next few years then the required number of MDs for such follow-up specializations would substantially increase in a short space of time, both in absolute and relative terms. This was an important argument used in the research conducted both by NZa and Tilec in favour of continuing to lobby for complete regulation of all medical specialization courses and profile trainings².

3.1.4 Specialists in geriatric medicine

In recent years the actual numbers of medical doctors embarking on the courses leading to a specialization in geriatric medicine have deviated from the recommendations made by the ACMMP. In the last projections published in 2008 it was advised that 112 trainee places should be utilized. In line with those recommendations the Ministry of HWS created the required budgetary space. The realized intake remains considerably below the level recommended. At the same time, the ACMMP has ascertained that the course's internal output is decreasing. In effect this means that the total number of training (dits) actually being able to register as specialist in geriatric medicine during the next

² Postgraduate medical education regulation (2009). Nza/Tilec

few years will be lower than had been anticipated on the basis of the previously realized intake rate. In conjunction with employers and training institutes the scientific society of specialists in geriatric medicine is now working on a series of measures that are designed to modify the image surrounding geriatric medicine. Such measures are invariably only effective in the long term. The Advisory Committee predicts that the current healthcare demand that is not being met will only be magnified in years to come. Hence the reason that the ACMMP is keen to recommend that in the short-term especially the vertical substitution instrument (nurse specialists and physician assistants) should be employed and implemented to give a new impetus to this sector.

3.1.5 Specialists for the Mentally disabled (SMDs), oral surgeons and orthodontists

In recent times the various intake curves for the supplementary courses leading to specializations in the area of medical care for the mentally disabled, oral surgery and orthodontics have developed in accordance with the recommendations made by the Advisory Committee on Medical Manpower Planning. The SMD intake saw a peak in 2009 thanks to the 2008 recommendations that the meeting of existing unaccounted demand should be accelerated by catering for an intake of 20 to 24 doctors in training starting in 2009.

3.2 Initial medical training

Since its commencement in 1999 the Advisory Committee on Medical Manpower Planning has perpetually provided recommendations concerning the desired number of students admitted to basic medical science degree courses in the 8 medical faculties. In Table 5 these recommendations are compared with the decisions made by the HWS and/or ECAS ministries concerning the yearly volume of students admitted to universities to read medicine. In formal terms this relates simply to the Education, Cultural Affairs and Science ministry's resolutions concerning the number of subsidized places allowed for initial courses in medical faculties. On the grounds of the Higher Education and Scientific Research (HESR) Act it is possible to lay down what is termed an employment market limit. In that way the Minister of Education is able to fix an intake limit based upon a predicted surplus in a certain professional area. In addition there is also what is termed a capacity limit or cap which empowers universities or higher education colleges to determine, in line with a number of legally laid down procedures, their own intake limits on the basis of projected educational capacity (or quality) problems for certain courses. The capacity cap or numerus clausus is adhered to by universities for a certain number of professions, or fields of study, that may vary from year to year. For many decades, it has been traditional to limit the numbers of initial degree course entrants in faculties of medicine and dentistry. Although the Advisory Committee has given recommendations for the intake of medicine students it was not until 2009 that intake recommendations were given for dentistry (and oral hygiene).

The recommendations made by the Advisory Committee in relation to the desired intake for those planning to study medicine were only partially abided by in the past. The first

Table 5: ACMMP recommendations and actual first year intake rates for basic degree courses

Year: (20..)	00	01	02	03	04	05	06	07	08	09	10
Medicine Recommendations		2,900/ 3,200	2,850	2,850	2,850	2,540	2,540	2,540	2,700	2,700	3,100
Actual intake	1,961	2,149	2,516	2,860	2,892	2,867	2,797	2,742	2,737	2,665	
Dentistry Recommendations										314/ 466	374
Actual intake	260	300	300	300	300	300	300	270	240	240	240
Oral hygiene Recommendations										333/ 416	358
Actual intake	210	210	210	300	300	300	300	300	300	300	300

recommendations issued in 2001 did cause basic degree course intake numbers to rise from 1,900 to 2,850 in the space of three years. On two different occasions both the subsequent recommendations, to slightly decrease the intake level were not adopted by the government. The decrease in the actual intake rate seen since 2006 is attributable to the involving of and the adjustments made for those entering medicine from other areas in later course years. In effect, the intake level has remained 2,850, a portion of which is represented by students who do not commence in the first year but register in the fourth year. Such horizontal feeding into the system is realized at three different medical schools. The annual intake for training in dentistry has been regulated by the Ministry of Education, Cultural Affairs and Science and had stabilized at 300. In 2006 the Oral Healthcare Innovation Committee (henceforth: the committee) reported that theoretically far-reaching oral hygienist substitution for the dentist was feasible without having to worry about quality loss. The committee recommended that the dental training intake numbers should be diminished whilst the oral hygienist training rate should be expanded. The ministry of ECAS decided to implement part of the advice. Since 2007 the annual intake rate for dentistry students has dropped from 300 to 240 places in the space of just two years. At the same time the degree course has been extended by a year. The committee also recommended that after 2008 the ACMMP should investigate the actual extent of the intended effects. The ministry of HWS consequently asked the Advisory Committee to obtain all relevant data on dental hygiene and to advise the ministry on the matter.

In 2009 the ACMMP carried out its first exploratory study. It emerged that there is indeed vertical substitution occurring between oral hygienists and dentists. The speed of such substitution is probably lower than the committee had presumed. Simultaneously it emerged that there was also vertical substitution between dentists and dental prevention assistants. In its recommendations concerning the desired intake level for initial dental trainings the Advisory Committee presumed, on the basis of research material, that the vertical substitution rate that could be viewed as realistic would be 15% in 10 years equally distributed between oral hygienists and dental problem prevention assistants. Furthermore, in the first recommendations made in the partial recommendation report of 2009 and in the present recommendations the continuing annual influx of 90 foreign dentists is also taken into account. Despite the ongoing vertical substitution and the dental workforce support provided by foreign dentists, it emerges that the recommended annual intake for initial dentistry training should rise to 374 first-year students.

4. Future healthcare demands

The anticipated healthcare demand developments leading up to 2022 and 2028 are what forms the basis for the intake recommendations made by the ACMMP. This anticipated demand for healthcare is expressed in terms of the required specialist FTEs. As a rule of thumb, the general precept is that when the estimates are made there is a certain equilibrium between the demand for and provision of healthcare services. If, in the preparatory phase, there are indications of present imbalance between supply and demand (for instance, in conjunction with long waiting lists or specialist vacancies that are not being filled) then the healthcare demand will be topped up with the estimated number of FTEs that are lacking and it will be these adjusted demand figures that will be viewed as the reference point. The projected demand is the cumulative result of demographic, epidemiological and socio-cultural developments, projections and prognoses for the coming period. The required data is drawn from numerous registration sources. If, however, matters are still not absolutely clear or ranges have to be used in most instances supplementary research is undertaken. The issuing healthcare demand, in terms of FTEs, is then 'corrected' to account for developments in the work process such as efficiency considerations, computerization, intrinsic professional developments, changes in working hours, horizontal substitution and vertical substitution. It is particularly this latter factor that is inclined to affect the actually required number of FTEs. Ultimately the actually required number of FTEs is translated into the required number of medical specialists and this is the figure that then forms the basis of the health care demand to all the subsequent intake recommendations.

The Advisory Committee on Medical Manpower Planning plots and pursues a range of possible scenarios, mainly in order to create an idea of the significance of certain assumptions in terms of the actually required capacity. The ACMMP usually comes to one or two preference scenarios in the final advice. In the ensuing sections a summary will be given, for each of the listed sectors, of the results that came to be used in the final recommendations.

4.1 Clinical specialists

On the basis of the current healthcare requirements, the demand that fails to be met is routinely set at 2% of the available capacity in order to compensate for the average vacancy level in the various clinical specialist areas. In the different calculations a 1% to 3% margin is observed. In the case of the following four specialist fields, there was evidence of an even higher unmet demand: clinical geriatrics (15%), gastroenterology (15%), plastic surgery (15%) and rheumatology (7.5%). The demographic, epidemiological and socio-cultural developments in the demand for healthcare obviously differ per specialist area and are not further specified in this report. Generically it is anticipated that the demand in clinical specialist areas will rise by 2.5% per annum.

The vertical substitution factor is also a matter of interest in the present projections. In its final recommendations on the 27 different clinical specialisms, the Advisory Committee presented two scenarios, one with and one without vertical substitution. The reason for doing this was because up until now only limited research has been

done into the substitution effects of deploying nursing specialists and physician assistants. So far the studies undertaken have only revealed a quality improving effect. The two substituting professions are young and will continue to expand whilst the healthcare sector simultaneously gets more and more used to these new professions. In these areas quantitative studies will be more feasible in the longer term.

Guided by indications from the professionals working in the field, the ACMMP expects that in most specialist areas vertical substitution will eventually be possible. Hence the reason that one of the two possible options proposed here is the variant that includes vertical substitution. For 13 different clinical specialisms this factor is fixed at -0.6% per annum, for yet a further 9 specialisms at -0.3% per year and for the remaining 5 specialisms (ear, nose and throat (ENT) medicine, medical microbiology, nuclear medicine, pathology and plastic surgery) at 0.0% per year. This estimated percentages may seem rather conservative but their long-term effects will be instantly evident from Table 6. There the healthcare demand in terms of FTEs and the required number of clinical specialists is interpreted according to the ACMMP's preferred scenarios including and excluding vertical substitution. By way of illustration, the available capacity as of January 1st 2010 is given both in numbers and FTEs.

Table 6: Present capacity and projected healthcare demand in 2022 and 2028 including and excluding vertical substitution provided by nursing specialists and physician assistants

	Available in 2010	Estimated for 2022		Estimated for 2028	
		Excl.	Incl.	Excl.	Incl.
Number of clinical specialists	17,350	24,258	22,893	27,660	25,337
Clinical specialist FTEs	15,525	21,280	20,099	24,131	22,121
Number change in terms of percentage	100 %	+ 41 %	+ 32 %	+ 59 %	+ 46 %
FTE change in terms of percentage	100 %	+ 37 %	+29 %	+ 55 %	+ 42 %

The differences in terms of FTEs between the estimates including and excluding vertical substitution will have to be compensated by nursing specialists and physician assistants. According to these projections it will amount to a difference by 2028 of 2,010 clinical specialist FTEs. At present there are no reliable facts concerning the 'substitution ratio' of 1 nursing specialist FTE in relation to 1 clinical specialist FTE. The only indicative study³, carried out in a nursing home situation, abided by an average value of 0.58. That means to say that 1 nursing specialist FTE replaces 0.58 FTEs of a specialist in geriatric medicine.

The consequences of adhering to this substitution value and to an average FTE percentage of 0.7 FTE in the case of nursing specialists and physician assistants will mean that in total, by the year 2028, 3,465 vertical substitution FTEs will have to have been phased in by 4,950 nursing specialists and physician assistants.

³ Bloemendaal, I. & Albers, D. & de Kroon, S. & Dekker, A. (2009). Medical healthcare task transfer as seen in the nursing home situation. Prismant

4.2 General practitioners

Within the group of general practitioners there is a substantial number of locums. In part this group comprises general practitioners who, having retired from practice, continue to offer their services in the region for a number of months or even years. Yet another portion consists of recently registered general practitioners who are looking for a suitable practice and who view locum work as a welcome way of tiding themselves over and/or orienting themselves. In short, there are no signs from the labour market that there is either a present or an anticipated shortage or, for that matter, abundance of general practitioners.

Sub-report 2 provides regional analysis that relate to the volume of data on this professional group. On the whole, in relation to elsewhere in the country it will remain harder to fill vacancies arising in solo practices in rural areas than elsewhere. Apparently only 5% of the general practitioners seeking a practice are interested in that type of work situation. There, the unmet demand parameter is set at 1%.

Up until the year 2020 the demographic rise in the demand for healthcare provided by general practitioners is fixed at 6%, until 2025 that is 8.4%, and 10.4% until the year 2030. Regarding the epidemiological and socio-cultural developments surrounding the demand for general practitioners there are no available unanimous values. That is why a range of variants has been thought through. In the finally selected scenario it is presumed, due to epidemiological and socio-cultural factors, that there will be a additional sustained increase in the demand for healthcare of 0.8% per year.

In the general practitioner work process substitution plays a dual role. In the predictions it is, on the one hand, presumed that within practices the general physician assistants within the practices (GPAs) will be able to take over 6% of the doctor's extra work load in the space of 10 years. This is what is called vertical substitution. On the other hand, it is expected that in the space of the same 10-year period the GPs will be able to take over 2.5% of the work currently done by clinical specialists. This is called horizontal substitution. A good example of this is the "chain healthcare" offered to the chronically ill. Another such example is the transfer of care emanating from the increasingly shorter average space of time that patients spend in hospital.

Alongside substitution, the other matters looked at in the work process are moves to augment efficiency, such as having more effective patient logistics and filtering out duties that are not so relevant. On the other hand, the actual professional content side of things triggers developments that can occupy more of the doctor's time (but can save the patient travelling and waiting time). The net effect of all of this, for the work process, is that it mutates the demographically determined growth in healthcare demand by 0.2% per annum.

The overall demand for general practitioner care therefore rises in the adopted projections by approximately 1.6% per year in the vertical substitution model and by about 2.2% per year in the scenario without vertical substitution. When made analogous to the structure for clinical specialists this leads to the following estimates, again with and without vertical substitution:

Table 7: The present capacity and the projected demand for GPs in 2022 and 2028

	Available in 2010	Estimated for 2022		Estimated for 2028	
		Excl.	Incl.	Excl.	Incl.
Numbers of general practitioners	11,121	14,435	13,151	16,281	14,483
General practitioner FTEs	7,358	9,461	8,655	10,476	9,344
Number change in terms of percentage	100%	+ 30%	+ 18%	+ 46%	+ 30%
FTE change in terms of percentage	100%	+ 29%	+ 18%	+ 42%	+ 27%

The demand for general practitioners will rise by 27% to 42% in the subsequent 18 years, depending on the degree to which the vertical substitution effect is adopted in relation to 2010. The Advisory Committee recommends that in the case of general practitioners it should be presumed that the vertical substitution effect will be felt and that thus the required number of GPs by the year 2028 will be 14,483.

4.3 Dentists/oral hygienists/dental surgeons/orthodontists

In 2009 the ACMMP produced its first partial recommendations on oral hygiene. In 2010 studies were carried out (on the effect of the inflow of foreign dentists and the vertical substitution trend occurring between dentists and oral hygienists) in order to minimize the remaining uncertainties surrounding estimates and to therefore reduce the bandwidth of these first recommendations.

The first question to be dealt with here is the problem of unmet demand. In the case of dentists it is only at regional level that there are some indications of scarcity. On the whole, most dental practices accept new patients seeking treatment. The conclusion is that there is therefore a 1% shortage of dentists. In the case of oral hygienists, though, there are indications that the labour market is rather stressed. Hence the reason that in the case of oral hygienists it is estimated that the shortfall is closer to 2%. When it comes to dental surgery the waiting lists for initial ambulatory visits are longer than average. For that reason the ACMMP adhered to the level in 2008, which was 4%. The demand for orthodontist treatment has not particularly escalated in recent times. In 2008 this sector of the market was virtually in equilibrium. The level of unmet demand in that profession has therefore remained at 1%.

For dentists the projected demographic rise will be around 0.3% per year. Much the same will in fact apply to oral hygienists. The demographic development in the demand for dental surgical care, based on the population growth rate, stands at 3% until 2020 and at 4% until 2028. In the case of the orthodontist sector, the falling numbers of younger people will represent a decrease in demand of -6% by 2022 and -7% by 2028.

Epidemiological signs are always difficult to pinpoint. On the one hand the statistics indicate that amongst young people oral hygiene is getting worse whilst at the same time it is improving in the older age group. Here socio-economic status may be said to have a considerably great predictive value. For these reasons it was decided that in 2009 the implemented value of 0.3% per annum, both for dentists and oral hygienists should be continued. Where dental surgery is concerned, it is expected that the demand for treatment will only increase because of the rise in the numbers of people with their own

complete or partial sets of teeth. The rise in this area has been fixed at 0.2% per year. For orthodontists no epidemiological changes in the demand for care are envisaged.

Socio-cultural development is more heavily weighted. It is anticipated that especially within the older segment of the population the demand for complex dental care will rise. In the Advisory Committee's preferred scenario this will lead to a 0.5% rising of the healthcare demand per year where dentists are concerned. Oral hygienists will face an even greater rise in the demand for healthcare, the estimate being an increase of 2.5% per year. In the case of dental surgeons the growth is fixed at 0.8% per annum and for orthodontists 0.6% per annum. All these statistics are given in Table 8.

Table 8: Healthcare demand developments in the oral hygiene professions branch in line with the variants of preference

	Unmet demand	Yearly change in demand
Dentist	+1 %	+ 1,1 %
Oral hygienist	+ 2 %	+ 3,1 %
Dental surgeon	+ 4 %	+ 1,3 %
Orthodontist	+ 1 %	0,0 %

On the basis of the demand for healthcare it is possible to calculate just how many professionals will be required in the 4 different job areas. There are, however, a number of work process factors that can potentially influence these statistics. The intrinsic professional developments are predominantly linked to new technologies. For dentists and oral hygienists this will lead to an upward adjusting of the healthcare demand of 0.3%. In the case of dental surgeons and orthodontists this factor is fixed at 0.0%. Where all 4 professions are concerned, the factors patient-related time and efficiency have no bearing on the demand for healthcare. The most important factor within the work process is vertical substitution. In conjunction with the lack of firm data, the Oral Healthcare Innovation Committee has made a number of presumptions in relation to the possible vertical substitution situation between dentists and oral hygienists. Studies carried out at the instigation of the ACMMP in 2009 and 2010 demonstrate that in the case of the dentist group a substitution level of 15% in 10 years is feasible. According to the preferred scenario of vertical substitution it will be partly in the direction of oral hygienists that substitution occurs (+7.5% in the space of 10 years) but there will also be implications for prevention assistants (those numbers will rise steeply). For a more extensive description of the situation and for the background research reports the reader is advised to consult Chapter 6 in sub-report 3. In the cases of orthodontics and dental surgery, since no new facts are available in relation to the vertical substitution parameter, it is presumed that the 2008 level of 0.0% will remain applicable.

On the basis of these statistics, calculations have been made concerning the projected healthcare demand for these four professional groups for 2022 and 2028 in line with the ACMMP's scenario of preference whilst both including and excluding the vertical substituting of dentists with oral hygienists and prevention assistants. In contrast to other calculations, in the estimations made for dentists and oral hygienists (which are

based on the findings) it has not been presumed that there will be trends that will continue for more than 10 years. The results are presented in Table 9.

Table 9: The present capacity and the estimated demand within the oral healthcare professions for 2022 and 2028 including and excluding vertical substitution scenarios

	Available in 2010	Estimated for 2022		Estimated for 2028	
		Excl.	Incl.	Excl.	Incl.
Number of dentists	8,881	10,518	8,873	10,528	8,935
Dentist FTEs	7,378	8,510	7,233	8,521	7,243
Number of oral hygienists	2,425	3,214	4,356	3,202	4,344
Oral hygienist FTEs	1,736	2,328	3,166	2,328	3,166
Number of dental surgeons	233	299	299	327	327
Dental surgeon FTEs	196	252	252	272	272
Number of orthodontists	275	283	283	294	294
Orthodontist FTEs	246	249	249	257	257

What is evident from this table is that if there is no vertical substitution the number of practising dentists will have to rise from 8,881 in 2010 to 10,528 by the year 2028. If the vertical substitution model is adhered to then the number of practising dentists may drop to 8,935 by 2028. In the case of oral healthcare it is this second scenario that is supported by the ACMMP. The accompanying required growth in the number of oral hygienists is considerable. According to this scenario almost 4,344 oral hygienists will be required. This large increase will actually only be partly linked to the vertical substituting of dentists. The dimension of the socio-cultural parameter will also be partly responsible for the perceptible increase.

The increased demand for dental surgeons and orthodontists may be termed modest in comparison with the development in demand seen among oral hygienists. The accompanying expansion in healthcare provision in terms of FTEs stands at 39% for dental surgeons and 4% for orthodontists.

4.4 Social medicine

The demand for social medicine physicians is extensively outlined in sub-report 4. In this report we shall therefore merely present the broad outlines of the developments foreseen in this area.

The shortfall within the Employment and Health division is set at 0% for occupational specialists and 3.0% for insurance specialists. As far as demographic growth goes, the presumption for both specialist fields is that a growth of 0.8% per annum will be seen. This would appear to contradict the fact that the number of 20 to 65-year-olds is going to decrease by 0.2% per annum in the coming years. The rising participation of women in the employment process and the anticipated rise in the average age of retirement will culminate in a larger workforce. No socio-cultural healthcare demand repercussions are expected within the Employment and Health division. However, where an increase in the healthcare demand instigated by epidemiological changes is

concerned there will be visible repercussions. The higher average age of employees will lead to more complex health evaluations and to more consultations. Furthermore, underlying the causes of employment disability there is evidence of a shift from physical and mobility complaints to psychological disorders. With regard to the epidemiology parameter the demand for care will increase by 0.3% per year.

Within the other major division known as Public Health, the parameters outlined above are rather more subtle because of the different age categories with which the various specialists and profile doctors are required to work. There is much divergence in the unmet demand. In the preventive youth medicine area there is currently a small surplus of specialists but a large shortage of profile doctors. This is predominantly traceable to a number of training courses having lain dormant for some years and to the ageing professional group of profile doctors that is fast retiring.

It is generically presumed that there will be a demographic influence of -0.5% per annum. It is only the infectious disease specialization that positively deviates from this norm due to the relative increase in the number of elderly and vulnerable elderly persons. The epidemiology parameter has been generically adjusted to +1.1% per year. Regarding the socio-cultural developments in the care demand, it may be said that the percentages used in the different scenarios vary from 0% per year to 6% per year (medical environmentology).

The work process developments run parallel in the two main social medicine divisions. Intrinsic professional developments will lead to an expected healthcare demand increase of 0.5% to 1.0% per annum. Technological advances play an insignificant part in the social medicine sector. The efficiency parameter displays conflicting movements and is thus fixed at 0.0% except for the case of insurance medicine. Due to the anticipated reduction in administrative duties for insurance physicians an efficiency gain of 1.5% per year is expected in this area.

Substitution plays a modest part in the field of social medicine. This is partly due to the fact that there are legal constraints (insurance medicine) but it is also attributable to the fact that substitution has already been rigorously introduced in this field (for instance in the combating of infectious diseases and in medical environmentology). In the adolescent healthcare sector slight horizontal substitution, via GPs (-0.2% per year), is being taken into account. In the division of Employment and Health, it is estimated that vertical substitution will amount to -1.0% per year in the Advisory Committee's preferred scenario. In the case of the other division, Public Health, there are different percentages that are adhered to in relation to different specialisms.

A combination of the variants of preference with (but also without) vertical substitution leads to the healthcare overview demand for the various relevant groups given below.

Table 10: The present capacity and the estimated healthcare demand for social medicine in 2022 and 2028

	Available in 2010	Estimated for 2022 Excl.	Estimated for 2022 Incl.	Estimated for 2028 Excl.	Estimated for 2028 Incl.
Number of occupational physicians	1,968	2,244	1,973	2,294	1,881
Occupational doctor FTEs	1,671	1,869	1,645	1,902	1,560
Number of insurance physicians	933	839	839	732	732
Insurance doctor FTEs	809	716	716	624	624
Number of public health physicians	914	1,068	1,062	1,182	1,174
Public health doctor FTEs	639	761	735	820	813
Number of profile physicians	612	1,554	1,553	1,624	1,621
Profile doctor FTEs	302	715	714	748	746

In its recommendations the Advisory Committee on Medical Manpower Planning also abides by a preferred scenario for this professional group, including vertical substitution. This scenario shows a decrease in the demand for occupational doctors and insurance doctors and a rise in the demand for the number of doctors deployed in the Public Health division.

4.5 Specialists in geriatric medicine

The demand for specialists in geriatric medicine will only increase in the years to come. This particular healthcare demand is determined on the basis of patient numbers subdivided into age group and gender who are currently benefitting from healthcare provided by doctors trained to deal with the geriatric sector, predominantly in nursing homes and rehabilitation homes for the elderly. This demand was traced by research bureaux and subsequently linked to demographic projections.

Prior to making such a connection efforts are made to establish whether supply and demand are in balance. In the case of specialists in geriatric medicine it was found that there was a certain imbalance. Research recently conducted into vacancies in nursing homes revealed that there are currently 140 vacancies for registered specialists in geriatric medicine. On top of that a vast number of places for doctors in training as a specialist (dits) remained unfilled. This points to great incongruence between the demand for healthcare and the provision of expertise in this area. In part this is attributable to the lengthening of the training from 2 to 3 years in 2007 and in part it is due to an intake shortfall. It is anticipated that in 2010 the number of vacancies will continue to rise. The overall healthcare shortfall is therefore calculated to be between 5% and 10% of the current care provision level.

In conjunction with demographic developments the healthcare demand will continue to increase in the next few years. On the basis of a combination of the most recent, central variant, population prognoses produced by the Dutch CSO (Central Statistical Office) from the production figures of nursing homes it is expected that the demographic healthcare development will amount to +2.3% per year. This rise in the demand for healthcare is somewhat reinforced by epidemiological developments which, on the basis of the existing literature overview, are estimated to be 0.0% to +0.2% per year. What

then remains is the socio-cultural parameter estimates. What is crucial in this particular case is research produced by the NIPH&EP⁴ (i.e. National Institute for Public Health & Environmental Protection) to the effect that the healthy/unhealthy years of life ratio is improving. Since the costs of care remain concentrated in the last year of life, the NIPH&EP asserts that through the rise in the number of healthy years, healthcare costs will increase by 17% less than was originally predicted. This lower rise will be especially noticeable in the 2007-2020 period. From previous international research it has already emerged that the changing domestic situation (the rise in two-person households due to the improved life expectancy of men) is leading to a higher level of informal healthcare. Already the Socio-Cultural Planning Agency (SCPA) had predicted that the improved general education level among the elderly would culminate in a lower consumption healthcare. On the grounds of these observations and expectations the socio-cultural development parameter has been adjusted to -1.0% to -1.5% per year.

The combination of demographic, epidemiological and socio-cultural developments leads to a healthcare demand rise of +1.0% to +1.3% per annum. The Medical Training Recommendations Report's 2010 preferred scenario accounted for a +1.3% annual increase. This cannot be viewed as an unusual or excessive increase in the demand for healthcare. As has been mentioned, the only irregularity is the high healthcare shortfall emanating on the one hand from the extended training course and on the other hand from the minimal interest from medical doctors in embarking on this particular specialization course.

There are 4 main developments that have an influence on the work process. Within the profession a slight increase will be expected in the healthcare demand (+0.2% per year) in conjunction with the intensification of the activities connected with rehabilitation. In 2008 the geriatric specialist saw an average of 77 patients per week. In the year 2004 that number was 63 patients per week. In the years to come efficiency is going to become even greater and the time devoted to each patient will drop. In the ACMMP's scenario of preference the healthcare demand will see a drop of -0.5% per year due to efficiency. What is crucial to the future of the healthcare demand is the development of horizontal and vertical substitution. Horizontal substitution comes as a result of the actual increase in the consultancy/co-treating practices of specialists in geriatric medicine. The uncertainty surrounding the work terrain agreements between GPs and geriatric doctors has led to the horizontal work division parameter being maintained at 0.5% per annum.

The vertical division of labour is fixed at -0.5% per year. In the past two years extensive research has been done into the possibilities offered by vertical substitution. In conjunction with the shortage of specialists in geriatric medicine, nursing homes have gradually started to make more use of lower trained personnel in the form of nursing specialists and practice nurses. At present 61% of all nursing homes are implementing vertical substitution or are in the process of preparing to do so. The biggest problem for nursing homes in the coming years will be the lack of on-site potential and impetus for nursing specialists.

⁴ Wong, A & Kommer, G.J. & Polder, J.J. (2009). Levensloop en zorgkosten: Zorg voor Eur 's – 7. RIVM.

Nursing staff with level 5 training are few and far between in nursing homes. That is why the supply of nursing specialists for nursing homes will be sparse when compared to hospitals. This is, for example, backed up by the fact that at present more than 30 vacancies for nursing specialists in nursing homes simply cannot be filled. In short, in this medical specialism there is a slight rise in the demand for specialists in geriatric medicine. Because of the lack of healthcare provision this demand cannot be satisfied. At present substituting specialists in geriatric medicine with nursing specialists and/or nursing auxiliaries is not an option because of the scarcity of such professionals.

Table 11 provides a summary of the Advisory Committee's preferred scenario.

Table 11: The present capacity and the estimated demand for specialists in geriatric medicine for 2022 and 2028 including and excluding vertical substitution scenarios

	Available in 2010	Estimated for 2022 Excl.	Estimated for 2022 Incl.	Estimated for 2028 Excl.	Estimated for 2028 Incl.
Number of specialists in geriatric medicine	1,443	1,812	1,702	1,987	1,808
Geriatric medicine specialist FTEs	1,120	1,434	1,348	1,561	1,421

If predictions are based on the variant of preference including substitution the number of active specialists in geriatric medicine for the next 18 years will have to rise from 1,369 to 1,808. This 439 increase in the number of specialists really ought to occur in the next 12 years. What can be seen is that the number of specialists in geriatric medicine will afterwards not increase and that, according to the estimates, the number of required FTEs will even drop slightly. The necessary increase in the coming 12 years is partly attributable to the specialist training intake levels having fallen behind in the last couple of years.

4.6 Specialists for the mentally disabled (SMD)

The healthcare demand for the most recently recognized medical specialist area discipline (2002) is expected, according to most estimates, to rise by +0.9% per year for the coming years. It is expected that the demographic development in the coming years will be 0.0% per year. In the Netherlands there are approximately 113,000 mentally disabled persons, a figure that will probably change little in the near future. The rising life expectancy of the mentally disabled group will lead to more complex healthcare demands in connection with conditions such as diabetes and cancer. The epidemiology factor is estimated to be +0.1% per year. The increase in the healthcare demand arising from socio-cultural developments is estimated to be +0.8% per year. This latter situation is mainly attributable to the fact that children with mild mental limitations combined with behavioural problems are more and more frequently also receiving consultation and treatment from SMDs. Finally, the unmet healthcare demand is a fact that is difficult to quantify. When questioned on the matter the organizations working in the domain of care for the mentally disabled indicate that there are around 30 job vacancies

for SMDs that are currently difficult to fill. This idea of the situation is confirmed by the Employment Market monitor. On the basis of the available details, the shortfall in the ACMMP's preferred scenario for this sector is thought to be 8%.

The SMD specialization is relatively young. In the work process intrinsic professional developments (+0.6% per year) and efficiency developments (0.0%) are not yet playing a major role. The substitution developments are more important, in particular horizontal substitution between SMDs and GPs. There is evidence here of two opposing directional flows. The first involves the flow from general practitioners to SMDs where GPs engage the SMDs to conduct specialist ambulatory/outpatient consultations for mentally disabled individuals who live at home. The other flow is from SMDs to general practitioners which means that primary healthcare for intramural mentally disabled persons is no longer provided by the SMD but by the GP. The net result of these two conflicting movements, partly because of the large number of SMD vacancies, is extremely uncertain. It is for this reason that the horizontal task reorganization is still, for the time being, fixed at 0.0% per year. At the moment there is no vertical reshuffling of tasks within the mentally disabled care sector. Recent research has revealed that the deployment of nursing specialists has not yet been introduced in this sector. Just as with the nursing homes, the low number of level 5 nursing staff employees in this branch is undoubtedly one of the contributory factors.

In Table 12 the present and future capacity requirements within the SMD field are expressed in terms of the number of active SMDs and the number of FTEs for all those specialists providing care for the mentally disabled. As one might expect, there is no difference between the variants with and without substitution.

Table 12: The present capacity and the estimated demand for SMD for 2022 and 2028 including and excluding vertical substitution scenarios

	Available in 2010	Estimated for 2022		Estimated for 2028	
		Excl.	Incl.	Excl.	Incl.
Number of SMDs	192	251	251	272	272
SMD FTEs	150	205	205	221	221

5. Recommended intake for the various specialization and profile courses

In Chapter 4 some of the various possible scenarios were given and each time it was the Advisory Committee's preferred scenario that was chosen, with or without vertical substitution. In this chapter recommendations will be made per professional group concerning the intake required to maintain a long-term balance between healthcare demand and healthcare provision. The scenario with integrated vertical substitution calculations amounts to the minimum recommendation for doctors in training as a specialist (dits) in the specialism while the scenario without the integral vertical substitution factor represents the maximum recommendation for dits in the specialism. In each of the various tables the intake level recommended by the ACMMP is given in the shaded column. All other variants are included in the specific sub-reports and/or in a separate publication produced by NIVEL/Kiwa Prismant.

5.1 Clinical specialists

The intake advice issued by the ACMMP for the different clinical specialist fields and for the clinical technological courses is presented in Table 13.

Table 13: Recommendations concerning the annual intake for clinical specialization courses and for the clinical technological professions

Specialization	Recommendation	
	Minimum	Maximum
Anaesthesiology	96	122
Cardiology	50	60
Cardio-thoracic surgery	8	10
Dermatology and venereology	34	36
Surgery	68	75
Internal medicine	144	170
Ear, nose and throat (ENT)	25	27
Paediatrics	62	77
Clinical genetics	7	9
Clinical geriatrics	27	31
Pulmonary diseases and TB	35	42
Gastroenterology	33	37
Medical microbiology	18	20
Neurosurgery	9	12
Neurology	49	63
Nuclear medicine	7	10
Obstetrics and gynaecology	58	66
Ophthalmology	41	51
Orthopaedics	44	46
Pathology	25	27
Plastic surgery	20	23
Psychiatry	172	216
Radiology	73	77
Radiotherapy	19	22
Rheumatology	18	23
Rehabilitation medicine	32	33
Urology	23	30
All medical specializations	1,197	1,415
<i>excl. psychiatry</i>	1,025	1,199
KliClinical chemistry	12	14
Clinical physics	20	22
Hospital pharmacy	24	27
All Clin. Techn. Specializations	56	63

For all the various professions, the estimated number of FTEs and the number of specialists is given that will be required to ensure that the anticipated demand for healthcare remains in equilibrium with the provision of healthcare. The necessary intake of course participants for the different trainings is only estimated in terms of doctors in training as a specialist (dits). Since individuals are being trained it is irrelevant to make estimations in terms of FTEs. The two columns on the right describe the Advisory Committee's final recommendations. As much consideration as possible is given to the specific situation surrounding the specialist field in question. The most important, but not the only difference between the two columns, is created by the utilized vertical substitution parameter. If a fictitious value of -0.3% or -0.6% per year is adhered to then

this will lead to a lower need for clinical specialists and therefore also to a lower need for new doctors in training as a specialist (dits). In the case of clinical specialists the ACMMP has no distinct preference for either of the two variants presented.

5.2 General Practitioners

Table 14 provides the intake recommendations for medical doctors embarking on specialization courses as general practitioners.

Table 14: Recommendations for the annual intake for general practitioner courses of study

Specialization	Recommendation	
	minimum	maximum
General practitioners	673	720

The ACMMP recommends opting for an as early as possible balance by allowing 720 doctors in training as a specialist (dits) to stream into the courses given to train medical doctors as GPs. It is hoped that in this way the backlog created in recent years by the limits placed on the intake level will be cleared as quickly as possible. Despite the planned capacity increase for the immediate future there will, however, be a temporary relative shortage of general practitioners in the next 4 years. Furthermore, for the next 10 years it will remain necessary to continue substituting the work of GPs by enlisting the help of practice assistants in general practice, practice nurses for mental health and nursing specialists if the demand for healthcare is to be balanced with the provision of healthcare and if that balance is to be sustained.

5.3 Dentists/oral hygienists/dental surgeons/orthodontists

Table 15 gives the intake recommendations for the four above-mentioned oral healthcare professional areas. What should furthermore be noted is that in these recommendations, unlike all the other projections, there is a further factor that is accounted for because of the extra variant in the form of a substantial inflow (90 per annum) of dentists coming in from abroad. In addition it has been decided not to implement a continuing trend in the case of dentists and oral hygienists. All trends stop as of 2020.

Table 15: Annual intake recommendations for the oral healthcare professional sector

Specialization	Recommendation	
	minimum	maximum
Dentists	374	891
Oral hygienists	358	538
Dental surgeons	16	18
Orthodontists	7	9

It has been recommended that the intake for the 4 professions in this category should be based upon the Advisory Committee's preferred scenario, including vertical substitution. In the case of dentists, the advice is to allow half of the foreign immigration to be taken into account for the Dutch dental training intake level. In the next 10 years a considerably number of dentists will leave the work process. If the

desired equilibrium between demand and provision for the next 12 years is going to be achieved and/or maintained then the annual student intake, within the present education structure, would demand that an unattainably high number of students (891 excluding vertical substitution; 414 including vertical substitution) have to embark on dentistry courses. By striving to achieve more of a long term situation of balance (2028) it will be sufficient to have an annual intake of 374 students provided that vertical substitution by oral hygienists and preventive assistants is fully realized.

The recommended intake level for training courses in dental surgery has risen in comparison to the 2008 recommendations. The main reason for this is the ACMMP policy change that occurred in 2009 because of the expected diminishing inflow of professionals from neighbouring countries due to national shortages which resulted in projections no longer being corrected for the inflow of dental surgeons professionally registered abroad.

5.4 Social medicine

The intake recommendations for the various groups that fall into the specialization known as social medicine are given below in Table 16.

Table 16: Annual intake recommendations for the social medicine sector; specialization courses and profile courses

Specialization	Recommendation	
	minimum	maximum
Employment and Health division total	193	256
Occupational health doctors	114	145
Insurance medicine doctors	79	111
Public Health division; specialists total	91	114
Not specifically registered	21	25
Preventive youth medicine*	22	24
Infectious disease management*	10	14
Tuberculosis treatment*	2	2
Policy and recommendations	16	21
Forensic medicine	15	21
Medical environmentology	3	4
Medical evaluation and advice*	2	3
Public Health division; profile doctors total	100	133
Preventive youth medicine*	70	94
Infectious diseases management*	0	0
Tuberculosis treatment*	0	0
Policy and recommendations	3	4
Forensic medicine	24	33
Medical environmentology *	0	0
Medical evaluation and advice	2	2

* financed by the ministry of HWS

In conjunction with the considerable backlogs in the intake levels for the specialization and profile courses and the unbalanced age dispersal within the

Employment and Health branch it has been recommended that the early year of equilibrium of 2022 should be chosen. The disadvantage of this situation is the fact that after the year 2022 the training intake level will decrease fairly sharply. Such educational instability will be seen as part and parcel of the arrangement. What should also be realized is that the training institutes within the field of social medicine will have to do the necessary preparatory work if the yearly intake is really to be raised to somewhere between 250 and 300 dits.

What this amounts to for the financing by the ministry of HWS through the Educational Fund, second tranche A, is that each year 138 dits will have to embark on the 4 financed profile and/or pre-stage of specialization trainings. The other courses are not within the scope of the Educational Fund's second tranche A. In view of the instability that these commercially financed courses could potentially create within the initial MD training pool, the Advisory Committee defends the notion that the organization and financing of the intake for these courses should also be in the hands of the Ministry of Health, Welfare and Sports. Finally, after two years, the ACMMP still maintains that the current reduction in the split in the subsidising of public health training is both illogical and undesirable.

5.5 Specialists in geriatric medicine.

Table 17 reflects the intake recommendations for the specialization known as geriatric medicine that are also outlined in sub-report 5.

Table 17: Annual intake recommendations for specialists in geriatric medicine

Specialization	Recommendation	
	minimum	maximum
Specialists in geriatric medicine	109	135

For pragmatic reasons the ACMMP recommends that what should be opted for is an annual intake of 109 dits as specialists in geriatric medicine. The 112 dits intake norm advised in 2008 for recent years was not realized. Just as in most other professional groups the vertical substitution option is being completely upheld. One remark that should be made is that in the nursing home setting putting vertical substitution into practice is proving to be a laborious process. At present there are still some 30 vacancies for nursing specialists working in nursing homes that are proving difficult to fill. It is therefore being recommended that the intake for the nursing specialist training for chronic conditions should be selectively stimulated and that 36 places should be specifically set aside for this specialist area in various nursing homes.

5.6 Specialists for the mentally disabled (SMD)

Table 18 depicts the intake recommendations for SMDs as outlined in sub-report 6.

Table 18: Annual SMD intake recommendations

Specialization	Recommendation	
	minimum	maximum
SMD	15	16

The intake recommendations to have 16 doctors in training as a specialist (dits) is based upon the decision to endeavour to achieve a degree of balance by the year 2022. To that end, it will initially be necessary to achieve an annual intake of 15 dits. After 2022 the intake (which is not displayed in the table) will have to rise to 16 per year. At the same time the ACMMP will focus on getting rid of the existing shortage of SMD's.

6. Vertical substitution

In Chapter 5 a preference was shown, in almost all cases, for an intake variant in which the possibility of vertical substitution from lower-level training disciplines was borne in mind. In the present chapter more attention will be devoted to these disciplines by considering: research that serves to reinforce the phenomenon of substitution, the extent to which it is being deployed and phased in and, the number of professional practitioners required to realize substitution in the desired (or proposed) numbers.

When it comes to the matter of implementing substitution there are intrinsic aspects that play an important part for the relevant professional groups, such as the matters of task reshuffling, task differentiation, task shifting or task delegation. Vertical substitution is only of significance to the Advisory Committee if it concerns the way in which a specialist's or dentist's time is actually allocated to the work in hand. As soon as, on balance, extra time is made available by making use of the services of someone drawn from a lower-trained sector there is, in the eyes of the ACMMP, evidence of vertical substitution.

Vertical substitution is not always something that is easy to prove. In the healthcare sector treatment methods are perpetually evolving. This also extends to the frequently newly emerging professional areas where, in the early phases, quantitative research carries insufficient weight because of the still low numbers of professionals in that particular field. Since the year 2005, the ACMMP has been carrying out research into the opportunities offered by vertical substitution.

6.1 Nursing specialists/physician assistants

The Master's degree in Advanced Nursing Practice (MANP) was established in 2004, together with the Physician's Assistant Master's degree course. Both are training courses that are followed by people who simultaneously hold down paid jobs in those particular areas. The Ministry of Education, Culture and Science reimburses the related educational costs incurred by the higher education college in question. It is the Ministry of Health, Welfare and Sports that reimburses the employers for the salary expenses. For both master's degree courses put together there were 250 places available in 2004, 325 in the years 2005, 2006 and 2007 and as of 2008 some 400 places.

The MANP course leads to the qualification of Nursing Practitioner (NP). All the students need to have first completed a Dutch level 5 nursing training course. After rounding off their studies, these professionals operate on the interface between applied sciences universities (e.g. level 5 nursing professionals) and academically schooled medical specialists. On the grounds of an amendment to the IHCP Act (an amendment still to be passed in the Dutch Lower House) they are allowed to take a number of medical responsibilities which, up until now, have been the sole preserve of medical specialists. This means that in a number of areas NPs will be fully qualified to substitute medical specialists. In that way the future required capacity for medical specialists can be reduced. That, in turn, will lead to a lowering of the required intake in the various recognised medical specialist courses. At present there are more than

1,000 nursing practitioners. Since mid-2009 the group has gained its own legal status as nursing specialists. In the relevant register for nursing specialists it is now possible to register in one of the following 5 different areas of specialization: in the area of somatic healthcare as a nursing specialist for acute care, chronic care, intensive care, or preventive healthcare and, finally, in the area of mental healthcare. The idea is that ultimately all NPs will come to be known as nursing specialists. Henceforth the Advisory Committee will adhere exclusively to the term nursing specialist.

The Physician's Assistant Master's degree course will lead to the title Physician's Assistant (PA). This professional group can include individuals who have followed a range of paramedical courses or preliminary training courses prior to embarking on their MPA training. Their duties chiefly entail providing support for medical specialists but they retain a high degree of autonomy. In terms of numbers the group is still small. Most PAs work in general hospitals and university medical centres (UMCs).

6.1.1 Substitution effects for nursing specialists/physician assistants

In recent years various studies have already been carried out into the possible substitution effects of nursing specialists in hospitals. In most cases, due to their structure or because of the low numbers of professionals involved, these studies were not weighty enough to prove that there is actually evidence of substitution. What these studies did demonstrate is that the deployment of nursing specialists leads to qualitative improvements in the level of healthcare offered. The ACMMP anticipates that in the long term it will be possible to demonstrate the effects of vertical substitution in hospitals. Up until now vertical substitution which has been perceived to be somewhat fictitious has been included in the "minimum" scenario for clinical specialists. Indeed, in the present recommendations, the number of medical specializations for which substitution effects are deemed to be possible has risen when compared to the 2008 recommendations.

The vertical substitution effects of introducing nursing specialists to the world of medicine outside hospitals is also being researched. Here again, in these cases, it revolves around small numbers which means that the possible substitution effects are difficult to substantiate. Research done into the deployment of nursing specialists in the areas of youth healthcare and general practice showed that in both cases their presence leads to gains in terms of experience and quality. Substitution was, however, harder to prove. In 2009 and 2010 the Advisory Committee requested a number of studies to be carried out into task substitution in nursing homes. What emerged was that in nursing homes vertical substitution is a realistic instrument for compensating for the present capacity shortage of specialists in geriatric medicine. Increasingly more nursing homes are beginning to recruit nursing specialists. At the same time it also has to be recognized that the interest shown by nursing specialists in work in the chronic healthcare sector is insufficient to fill all the vacancies still open. If the training courses for nursing specialists in this sector are not directly subsidized then many nurses (just as with the medical graduate group) will opt for careers outside the chronic healthcare realm.

6.1.2 Required numbers of nursing specialists/physician assistants

The fictitious presumptions regarding all the possibilities attached to vertical substitution can be used to calculate just how many nursing specialists will be required to meet the demand. In this section it will be assumed that in the next 10 years vertical substitution provided by nursing specialists will be realized on quite a scale where clinical specialists, social medicine doctors and specialists in geriatric medicine are concerned. In so doing all the presumptions surrounding vertical substitution will be abided by in line with the minimum recommendations that have been given. The results are provided in Table 19.

Table 19: The clinical specialist FTEs to be substituted per category in accordance with the Medical Training Recommendations Report's 2010 vertical substitution specifications.

	2022	2028
Clinical specialists (- 0.0 to - 0.6% per year)	1,181	2,010
Social medicine (- 0.5% per year)	229	349
Specialists in geriatric medicine/SMD (- 0.5% per year)	86	110
Total	1,496	2,469

If the line adhered to is that of the minimum recommendations incorporating vertical substitution then by the year 2028 2,469 clinical specialist FTEs will have to be filled by nursing specialists/ physician assistants. The filling of such vacancies will not be a one-to-one operation. In sub-report 4 it is explained that for a specialist in geriatric medicine the substitution equivalent of a nursing specialist is estimated to be 0.58. In other words, 1 nursing specialist FTE replaces 0.58 FTE of a specialist in geriatric medicine. In the 2008 Medical Training Recommendations Report a generic substitution value of 0.50 was taken as the guideline. If, in the interests of caution, this generic substitution value remains the norm then some 4,938 FTEs in terms of nursing specialists/physician assistants will be required in 2028 to substitute 2,469 medical specialist FTEs.

If an average FTE percentage of 70% is taken, then 4,938 nursing specialist FTEs will translate to 7,054 individual nursing specialists. For the greater part these nursing specialists physician assistants still need to be trained. Many of the figures required to create reliable intake calculations are still largely lacking. On the basis of a number of the statistics that are available to us, what is currently advised is that the annual nursing specialist/physician assistant intake should increase to 650 students per year. Further research into just how the careers of these professionals unfolds remains necessary.

6.1.3 Policy developments

In its present policy, the Dutch Association of Nursing Practitioners clearly devotes attention to introducing the phenomenon of the nursing specialist to primary healthcare. Nevertheless, the integration of such specialists into the general practice structure is hesitant. This is partly attributable to the uncertainty that has existed for a long time about the financing of nursing specialists, the financial and practical 'competition' emanating from the already existing – and frequently present – GP assistants (GPAs) in

combination with reservations, at national level, expressed by the National Association of General Practitioners (NAGP) and the Dutch Family Doctor Society (FDS) on the wisdom of introducing yet another new layer of support to the general practice system.

In the nursing home sector, however, the nursing specialist is slowly becoming a familiar phenomenon. The shortage of specialists in geriatric medicine experienced in this particular sector indicates that there is definitely a need for vertical substitution but a number of the limiting conditions show that the hurried phasing in of nursing specialists to nursing homes would not be desirable. The pool from which nursing specialist trainees, comprising level 5 trained nurses, can be fished is barely filled in nursing homes. For level 5 trained nurses it is not an area of their potential work terrain that has a popular image. As has been mentioned, the professional association gives higher priority to further filling up the empty hospitals spaces and exploring primary healthcare with qualified primary nursing staff. Apart from anything else, there is competition in the form of the GPAs. The positive side to this is that the geriatric specialist field provides a reasonably good basis for the introduction of nursing specialists; at the same time nursing homes are currently considering researching the advantages of introducing large-scale substitution.

In the hospital sector the precursor to the nursing specialist, the Nurse Practitioner, has by now become a common phenomenon. The sector is not totally satisfied with the differentiations within the new profession which are perceived to be somewhat blurred. The extent to which the position of the nursing specialist is further implemented and extended within the hospital world will depend very much on the confidence that the sector has in this new profession and the speed at which all the laws and legislation as well as the financing of the profession of nursing specialist is regulated for hospitals.

6.2 General Practice assistants (GPAs) for the general practice sector

Within the space of a mere 10 years the general practice assistant (GPA) has become an indispensable aspect of the whole general practice picture. In 2001 only 6% of all practices had such an assistant but by 2007 that level had risen to 60% and in 2008 it was above 80%. GPAs have different preliminary education, a portion have had intermediate vocational training (having been doctor's assistants) whilst others possess higher vocational qualifications (in the nursing sector). The rapid rise of the GPA was partly facilitated by the separate financing of this professional group. It is currently the case that per FTE general practitioner, 0.3 FTEs GPA is financed by the health insurance companies, all other arrangements not considered. In the future it is thinkable that the present restriction of 1 GPA for three average practices could be dispensed with.

6.2.1 The GPA substitution effects

Up until now research has not proven that the existing work carried out by GPAs serves to substitute the work carried out by general practitioners. What has been revealed a number of times is an improvement in the quality of the healthcare provided. There is confidence, among the parties concerned, in the assumption that the GPA will be able to dispel a portion of the new extra demand for healthcare to be placed upon doctors.

Furthermore it is thinkable that the GPA will take over part of the secondary healthcare workload if capacity shifts from the secondary to the primary level (in conjunction with the earlier-mentioned horizontal substitution of general practitioners). The rise of chain healthcare together with chain diagnosis-treatment financing for a number of chronic complaints is something that is already largely the work responsibility of GPAs. It is assumed that a 6% vertical substitution rate should be attainable within a 10 year period.

6.2.2 The required number of GPAs

The 6% substitution level of the general practitioner healthcare capacity within a 10 year period will mean that by the year 2028 1,133 FTEs in the GP sector will have been substituted by GPAs. Alongside that there will still be a 9,358 FTE capacity for general practitioners. If, in the coming years, the financing of GPAs remains the same then approximately 3,000 GPA FTEs will be financed by 2028. What is unclear is the extent to which the switching (of charges per patient and per declaration of the consultations/visits) to the new financing method for GPAs in 2011 will lead to adjustments to this FTE figure. So far it would appear that the market machinations will not create any specific problems for this professional group.

6.2.3 General practice policy developments

The last 10 years have seen many changes in the average general practice set up. The total number of solo practices up and down the country continues to fall as such practices are superseded by group practices. At present there are still some 1,600 GPs who are running solo practices. The after office hours general practitioners posts, started up in 1999, have now become a country-wide fact of life. More and more one is seeing that doctors' practices are coming to resemble small to medium-sized companies in which a number of residing general practitioners employ locums, general practitioners without permanent practices as well as dits and also a growing number of people from other disciplines. Of that latter group, it is the doctor's assistant and the GPA who are the most familiar fixture. However, the GPA specialized in mental healthcare (MH) is also becoming a part of the scene. Slowly but surely the nursing specialist is also starting to put in an appearance. In the future the personnel composition of general practices will partly depend on the views that are currently being developed by the NAGP and the FDS and partly on the financial arrangements to be made in the future. At any rate it would seem that the GPA has secured a permanent position in the general practice structure.

6.3 Oral hygienists

In Chapter 5 it was recommended that the annual intake of students interested in completing a basic degree course leading to a career as a fully-fledged dentist should be increased from 240 to 374 students. In those calculations what was also taken into account was the continuing of the 50% yearly inflow of dentists coming from abroad and the further implementation of a 15% vertical substitution level within the space of 10 years. Vertical substitution of dentists created by the rise of oral hygienists and prevention assistants was first laid down in policy terms by the Oral Healthcare Innovation Committee in 2006. This committee also recommended that as of 2008 the ACMMP should ensure that the situation be researched.

6.3.1 The oral hygienist substitution effects

In 2009 and 2010 the Advisory Committee on Medical Manpower Planning carried out extensive research into substitution effects in dental practices. What emerged from those investigations is that it would appear that vertical substitution by oral hygienists is stagnating. This is most probably attributable to the modest increase in the numbers of dentists which, in turn, is probably due to the influx of foreign dentists. In this projection it is presumed that oral hygienists will be able to account for approximately 7,5% of this extra vertical substitution in the next 10 years. In addition there is a certain degree of competition because of the great anticipated increase in the demand for traditional oral hygienist healthcare services.

6.3.2 The required numbers of oral hygienists

In the case of dentists vertical substitution can only be realized if the FTE capacity of oral hygienists is expanded. Table 20 shows how high the annual intake for oral hygienist training will have to be if vertical substitution is to be made possible.

Table 20: The annual intake for oral hygienist training giving two different possible scenarios in line with the 2010 Medical Training Recommendations Report

Required annual intake	recommendation	
	minimum	maximum
Oral hygienists excluding vertical substitution	175	181
Oral hygienists including vertical substitution	358	538

If, in the case of the dental sector, an annual intake of 374 students is fixed then this implies that there will be a targeted vertical substitution level of 15% in 10 years. If half of this substitution is to be effected by oral hygienists then it will be necessary to achieve an annual intake of 358 oral hygienists. What should also be noted in the case of the second intake recommendations, both for oral hygienists and for dentists, is that the balance achieved in 2028 will be preceded by a period of relative scarcity in these two disciplines. The inflow of foreign dentists therefore needs to be sustained if the Dutch demand for healthcare treatment is to be met.

6.3.3 Policy developments

The most important policy developments are connected with the possibility that in the future educational institutes will have the opportunity to lay down admission criteria for admission to the oral hygienists training courses⁵. The yield from this four-year period of education currently lies at around 60%. An improvement in this output level would instantly lead to a lowering of the required intake level.

⁵ The Permanent Future Higher Education System Committee (2010). Differentiating in triplicate.

7. Initial education in the medical sector

7.1 Introduction

In Chapter 5 recommendations were given concerning the required intake levels for virtually all medical follow-up training courses as of 2012. This relates to:

- 1,197 or 1,415 doctors in training as a specialist (dits) in the clinical specializations;
- 720 dsts in general practitioner specialization;
- 16 dsts in dental surgery specialization;
- 256 dsts in social medicine, division Employment & Health specialization;
- 247 dsts in social medicine, division Public Health, some 138 of whom will be subsidized by the HWS ministry, in either specialization courses or profile courses;
- 109 dsts in the specialist in geriatric medicine specialization;
- 16 dsts in the specialist for mentally disabled (SMD) specialization;
- 53 dsts in Emergency Services (ES) profile doctor courses, the sole group not further considered in the 2010 Medical Training Recommendations Report.

If all these totals are added up together one can see that, as of 2012, provided that the recommendations produced by the ACMMP are adhered to, it will be necessary for 2,614 or 2,832 doctors of medicine to feed into the various recognized follow-up training areas and specializations. In the past few years, experience has shown that the recommendations that formed a part of the first or second tranches of the education fund did, on the whole, tend to be followed up. If both the field and the government have confidence in the possibilities opened up to clinical specialists by the introduction of vertical specialization and if the annual intake concerning the nursing specialist training grows to 650 students then an annual intake of 1,197 trainee doctors (dits) in the clinical specialist areas will suffice.

At present the greatest degree of uncertainty in relation to the annual intake levels in the various follow-up medical fields lies in the area of social medicine. Of the 503 recommended annual intake places the HWS Ministry, by means of the Education Fund, controls 138 places. It is realistic to surmise that in the coming years a large number of the present insurance medicine doctors and occupational medicine doctors will stop working. In the case of insurance medicine doctors (recommended annual intake of 111) it will be the UWV (a governmental benefits, mediation and claim assessment organization for all employed personnel) which, as the biggest employer (with at least 70% of the market), will probably take control and soon bring in new measures. The occupational medicine market is very fragmented and not at all regulated. It is therefore thinkable that in the near future no efforts will be made to train new occupational medicine doctors and that – in the face of increasing vertical substitution – competition for the present occupational medicine doctors will increase.

It is conceivable that the occupational medicine doctor course intake will continue to hover around 30 doctors starting per year. The annual intake where training as an insurance medicine doctor is concerned will probably increase to 79. If the annual intake for the profile trainings in the public health division remains at around 138

doctors in training then the total intake in the social medicine area will be 247 doctors in training. The intake for all the recognized specialist courses put together will then amount to 2,358 to 2,576 doctors starting training, depending on the governmental choice made for the clinical specializations. After 2017 it is possible that the intake level will rise again, all depending on how matters unfold in occupational medicine and insurance medicine.

7.2 The doctor of medicine group

In 2009, the Advisory Committee requested that a study be carried out among doctor of medicine graduates in order to map out their various backgrounds. The main relevant findings ensuing from that particular study are summarized below.

On 1st January 2009 there were some 20,344 people in the Netherlands who were in possession of a doctor of medicine degree and who were still under 65 years of age. Of that number, 8,473 were engaged in a recognized medical specialization or profile course and 134 with a non-recognized course (in burn injuries, fertility enhancement, tropical diseases etc.) A further 1,187 were focussing on PhD research whilst waiting to gain acceptance to different courses and 3,723 doctors of medicine were still looking for a suitable specialization course to follow. The remaining 6,827 doctors of medicine had no desire to further their medical studies in any way, partly because they had already retired from their specialization and so only remained registered as graduates with a degree in medicine, partly because they were registered as profile doctor, partly because they had not been allowed to pursue the specialization courses of their choice or had given up those same courses and in some cases because they had no interest in pursuing any medical study.

The group of doctors who consciously choose not to do any recognized medical training whatsoever gave as their main reason the fact that they have a preference for a profession/job requiring no specialist skills (31.0%), the fact that specializing would be difficult to combine with their family obligations (30.8%) or that there were other private reasons for this choice (29.9%). Not being able to secure a place in the selected course (18.3%) was the final frequently mentioned reason for not being able to with a recognized follow-up course in the field of medicine. There was no evidence to show that doctors who take longer to complete their initial university studies in medicine are inclined to more frequently abandon a later specialization course.

The paragraphs above provide us with two relevant parameters. The first is that the number of individuals with a degree in medicine currently seeking positions in specialization courses is 3,723. The group of 1,187 doctors of medicine currently engaged in PhD research cannot be de facto viewed as currently available. The second parameter relates to the group of doctors of medicine who have no interest in pursuing either recognized or non-recognized medical training courses. It is a group that is added to each year as 10.8% of the graduating doctors join it. The graduating doctors with no intention to again/still embark on any further medical training are employed in a wide range of establishments. The top four such areas being curative

healthcare (18%), preventive healthcare for 0-4 year olds (13%), universities (8%) and Mental Healthcare organizations (8%).

What also emerges from the research is that 7 years of study is the average length of time that undergraduates require to complete their degrees in medicine. That means that the first batch of 2,850 medical students commencing their studies in 2003 will graduate in 2010. This amounts to 2,309 doctors of medicine (81% of the students who began studying in the year 2003). In the field of medicine, the university degree intake level of 2,850 candidates per annum has remained stable for the last 8 years. What should be taken into account is the fact that the number just quoted includes at least 100 students feeding into 3 different universities who, in the fourth year of the course, filter in from other areas of study. It is undoubtedly the case that this group displays a higher output level. Across the board, they account for some 15 extra doctor of medicine on top of the expected 81. Of those who graduate in the field of medicine, some 2,060 (89.2%) will most probably go on to start recognized courses in specialist areas. Each year these numbers will first swell the 2011 to 2018 reserve of Dutch medical doctors.

As of 2012, a minimum of 2,358 to 2,576 MD graduates will be drawn from this pool each year. This means that the pool of doctors of medicine wishing to embark on a specialist course of some sort will, in the coming years, drop by at least 300 to 400 per annum. If the social medicine market begins to pick up then the inflow into this recognized area of medical specialization could possibly rise by an additional 200 to 300 per year.

On January 1st 2009 the doctors of medicine numbers totalled 3,723 and since that date the numbers have probably risen just slightly. That means that in the years to come there will be a buffer in that reserve to compensate the plundering of the pool for an extra 300 to 400 MDs on an annual basis. In effect, this means that up until 2019 the volume will shrink by 2,100 to 2,800 medical doctors before the first effects of any possible adjustments made to the intake level of medical schools on the basis of these recommendations are felt.

7.3 The required basic training intake level

In 2009 the Advisory Committee on Medical Manpower Planning produced interim capacity calculations to demonstrate the precise effect that ignoring the influx of foreign doctors of medicine (MDs) and specialists would have upon the 2008 Medical Specialist Training Recommendations. In such a case the required annual intake in medical schools would have to be 3,100 medical students. Since the Advisory Committee anticipates that in the coming years the inflow of foreign doctors will slow down the advice that 3,100 places should be created in 2009 was, in the end, the actual recommendation passed on to the government. The government has not yet adopted these recommendations. The universities have already indicated that with such a scenario they would have a preference for an extra inflow of 250 medical students filtering in from other related fields of study.

It is really only for the area of social medicine that the present estimates create uncertainties. This particular field is largely dependent upon governmental policies and market developments and could, in the next few years, see a considerable rise in demand. If the expected inflow is to be created of 2,358 doctors of medicine who are prepared to subsequently embark on further recognized medical specialist courses then, in line with the classical approach, an intake of 3,264 first-year students is what is required. In conjunction with the uncertainties in the field of social medicine, it is recommended that for the next three years the basic MD course of study should be fixed at an intake level of 3,100 students per annum. In practice the field will undoubtedly opt for a combination based on an intake of first-year medical students (2,700) and students switching from related study areas (400). If this prediction is followed through then it can be asserted that as of 2019 there should, theoretically, be 2,290 doctors graduating each year to filter into subsequent medical courses. With a yield of 81% the 2,700 medical students lead to a net result of 2,187 graduating MDs, the 400 switching from other studies, with a net yield of 95%, generate 380 newly graduating doctors of medicine. Of the annual pool of, in total, 2,567 freshly graduating MDs, some 89.2% are then available to fill places in follow-up medical specialist courses.

Because of this, it would appear that in the 2019 to 2022 period a further modest drop in the reserve of newly trained doctors might be noticeable. The question which therefore needs to be answered is this: to what extent will the inflow into all the listed possible follow-up areas of specialization actually be realized? In recent years there were certain specializations where the intake level was below minimal limits. What also needs to be researched in years to come is whether, and if so, how, the output of doctors leaving university with a basic degree in medicine can be further improved. Finally, further research needs to be done into the group of doctors consciously not wishing to do further courses and pursue a traditional career in medicine. Of this group, approximately 50% fail to continue their medical career, by moving on into recognized fields, for family or private reasons.

The adjusting of medical student intake figures and the adopting of new values will probably only be possible when new data concerning education output levels, the interest shown by MDs in specialization courses and the developments taking place in the social medicine sector become available. In the years to come, the pool of newly graduating doctors will be monitored more closely than in the past. Nevertheless, the advice to raise the intake level from 2,850 to 3,100 medical students per annum as quickly as possible still remains the emphatic recommendation.

8. Points of Consideration

In Chapters 5, 6 and 7 the main recommendations made by the Advisory Committee on Medical Manpower Planning were outlined. In this chapter a number of further considerations will be highlighted, all of which are discussed in more detail in the various sub-reports.

8.1 Clinical specializations

In the last 10 years the number of clinical specialists has grown very fast. Since the end of the last century the sector has allowed the course intake numbers to increase. It was a step that had to be taken to meet the expanding demand for healthcare. At present, in the case of most clinical specialist fields, there is a balance between supply and demand. Since 2009 the average waiting time for a first ambulatory clinic appointment has, in the case of most specializations, been shorter than 4 weeks. As far as healthcare provision goes, there is still a modest shortage of professionals in the fields of clinical geriatrics, plastic surgery, gastroenterology, rheumatology and, to a lesser extent, in clinical physics.

In the years to come the training course inflow will remain high. The Advisory Committee on Medical Manpower Planning anticipates that in the next 6 years the inflow of clinical specialists from other countries will slowly fall which is why the course intake levels have been adjusted accordingly. Naturally, it is a trend that will have to be carefully monitored. In the next Report on Recommendations for Medical Specialist Training report the situation will be carefully reviewed.

An annual intake of 1,197 doctors starting training will be sufficient to ensure that by 2028 a balance is achieved between the supply of and demand for healthcare. This scenario relies heavily on the additional achieving of 4,938 FTEs in terms of nursing specialists and/or physician assistants so that the required vertical substitution can come into effect. In these areas of study the annual intake rate will have to rise from 400 to 650. What also needs to be examined is the matter of whether sufficient interest in this educational path exists among nurses. In the years to come a considerable replacement demand for specialized nursing staff will also be seen. That will also bring with it renewed elements of competition within the various relevant education areas.

Vertically substituting the medical specialist by introducing nursing specialists will also be supplemented by horizontal substitution on the part of general practitioners. At present financial means are being deployed to stimulate horizontal substitution. This is being done to increase the likelihood of achieving the desired degree of substitution in the field of medical specialization. Simultaneously this increases the likelihood of the Advisory Committee's minimum recommendations being sufficient. Again, this is an important development that will continue to be carefully monitored in the next few years.

8.2 General practitioner medicine

Starting in the year 2012, the intake numbers of GPs in general practitioner medicine will have to rise from 600 to 720 if, in the long term, a degree of supply and demand stability and equilibrium is to be achieved. It is expected that the next three years will see a slight discrepancy between the demand on the one hand and the provision of healthcare on the other hand. Especially in parts of the country with a rural character, GPs running solo practices will find it harder to find doctors willing to take over their practices. In the urbanized west of the Netherlands (i.e. the Randstad) such problems will probably not arise.

The vertical substitution in general practice facilitated by GPAs, the GPAs Mental Health and the nursing specialists will be further examined in the years to come in order to get an idea of the potential size and scope of this sector. It should be noted that in the Netherlands substitution is being phased in at a time when there is not actually a generic shortage of specialists or a projected shortage. In this way, the implementation strategy for substitution can be planned in a more structured fashion. At the same time, however, the professional groups concerned feel that the need for substitution is less urgent.

The switching of general practitioners between roles such as being GPs without a own practice who either temporarily work in other practices (GPWGP) or who serve as locums (i.e. fill in for absent colleagues) and between searching for a practice and not being in search of a practice, will remain points of discussion, just like the trends linked to why GPs stop working.

8.3 Dentistry/oral hygiene/dental surgery/orthodontistry

In the field of oral healthcare, the matter of greatest current concern is that of the staffing developments in the primary healthcare sector. In 2006 the Oral Healthcare Innovation Committee was still uncertain about the direction to be taken where the vertical substitution of dentists was concerned. Meanwhile, the following matters have at least become clear:

- that vertical substitution of dentists is possible;
- that both the oral hygienist and the prevention assistant will be instrumental in providing certain aspects of this substitution;
- that it is still feasible, in the next 10 years, to achieve a 15% vertical substitution level.

What has emerged from research is that the yearly inflow of foreign dentists into the Netherlands stands at approximately 180. That is just slightly lower than the number of dentists coming out of the Dutch education system, which stands at 204 per year. In the last two years extensive research has been done into the group of dentists coming in from abroad. Ultimately it was decided that in future an inflow of 90 foreign dentists per year should be borne in mind (as of 2019). Because of this the annual intake of dental students will have to rise sharply though this intake total will, of course, be curtailed by the above-mentioned vertical substitution process. In the years to come it

will remain necessary to continue to monitor both the trends seen in the numbers of dentists entering from abroad and the opportunities provided by vertical substitution. In the field of dental surgery it will be important to research the actual substitution movements occurring between the primary and secondary healthcare strata if the above-mentioned hypotheses are to be tested.

8.4 Social medicine

This is a sector that is largely exposed to market processes. This means that fluctuations in the intake levels will continue to be seen in the years to come, unless the government decides to intervene with various measures. The Advisory Committee does maintain that intervention would be wise. For the first time since 2003 the ACMMP has once again carried out an integral investigation into these specializations. The blank areas discovered will, in the coming years, be filled.

8.5 Specialists in geriatric medicine

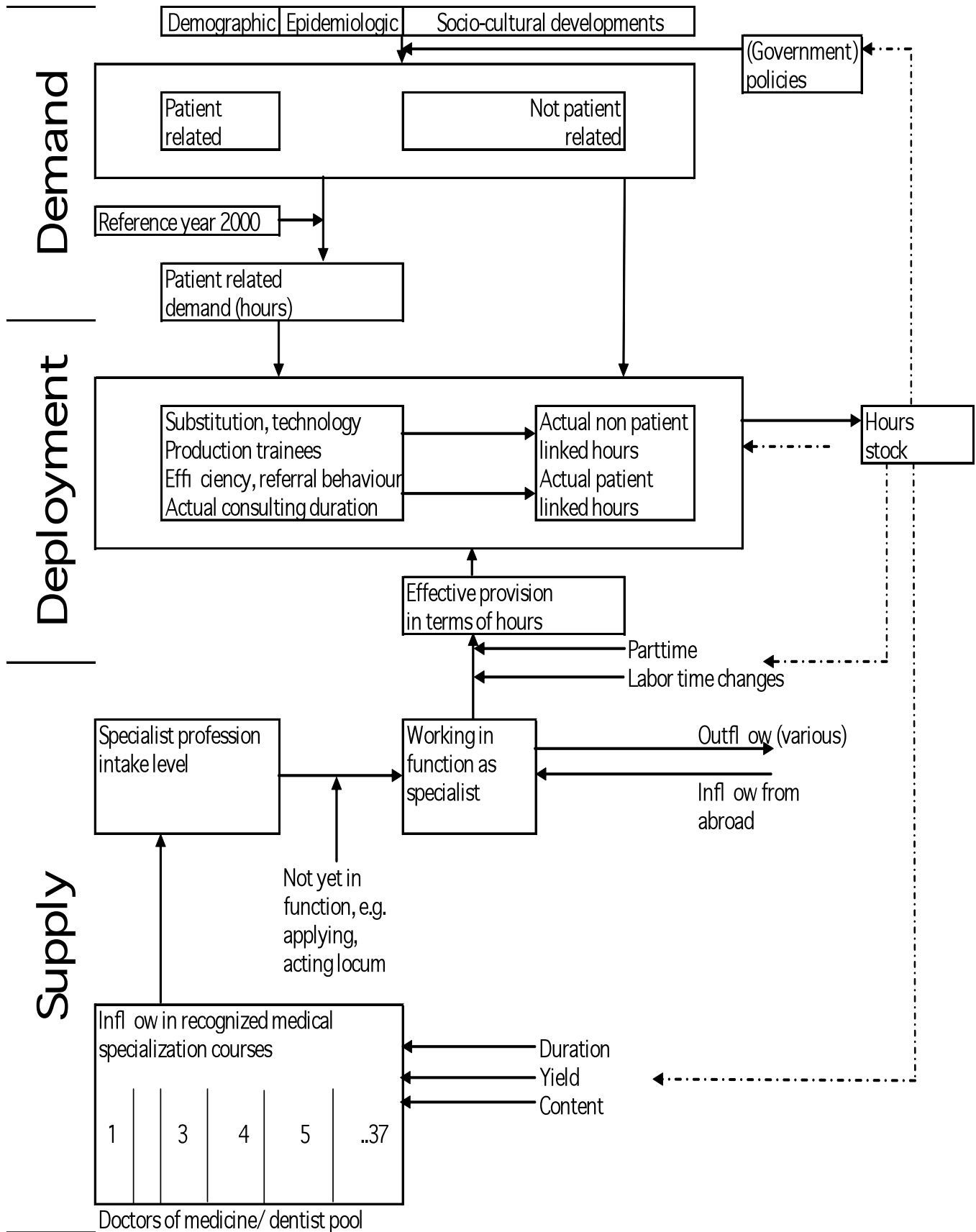
Since 2009, the stipulated intake level for courses in the specialization of geriatric medicine has not been reached. If one also bears in mind that the extending of the course duration as of 2007 has led to a halving of the annual “production” of specialists in the years 2009 and 2010 then the conclusion can only be that the shortfall in the workforce will carry on rising in years to come. Indeed, in this particular area the provision of healthcare is increasingly falling behind the actual demand for healthcare.

In other words, in this area of specialization there is an extremely good case for arguing in favour of vertical substitution facilitated by the nursing specialist and the physician assistant. Both research and various conclusions drawn by panels of experts point in this direction. Nevertheless it still remains difficult to encourage sufficient numbers of suitable nursing specialists to take an interest in this area of the profession. At present there are more than 30 nursing specialist vacancies in various nursing homes which are proving to be very hard to fill. It is for that reason that the Advisory Committee on Medical Manpower Planning recommends that there should be a special campaign to stimulate people to train as nursing specialists, notably in the field of chronic healthcare for people in nursing homes.

8.6 Specialists for the mentally disabled

The main spearhead of attention in the years to come will continue to be SMD developments in relation to the interface with general practitioners. On the one hand the SMD is receiving increasing numbers of ambulatory clinical consultations and referrals from GPs in conjunction with the 50,000 mentally disabled persons who are cared for in their own homes. There is also a rise in the numbers of slightly handicapped youngsters with behavioural problems. On the other hand, in the intramural sector, public opinion is increasingly pushing for uncomplicated primary healthcare in that particular sector to be provided by the general practitioner. In the next few years it will be the task of the Advisory Committee to examine and determine just what is the net effect of these two conflicting pressures.

Appendix 1. Model of the Advisory Committee



Appendix 2. The Plenary Body: the relevant experts and procedures

The Plenary Body discussed, in its meetings of October 13th 2010 and December 8th 2010, all the various recommendations put forward by the Chamber of Clinical Specialisms, the Chamber of General Practitioners, the Chamber of Dental Specialists, the Primary Oral Healthcare workgroup, the Chamber of Social Medicine, the Chamber of Specialists in geriatric medicine and the Specialists for the Mentally disabled workgroup. The final recommendations were adopted on December 8th 2010.

On 8th December 2010 the composition of the Plenary Body was as follows:

Professionals

Dhr. mr. A.W.J.M. van Bolderen
Mw. dr. J. Bont
Dhr. dr. L.H. van Hulsteijn (chairman of the Executive Committee/Plenary Body)
Mw. dr. M.J. Kaljouw
Dhr. C.J.G. Theewes
Dhr. A.M.J. Veer
Dhr. dr. L. Wigersma
Dhr. H.W. Zijlstra

Universities/training institutes

Dhr. drs. G. de Beij
Dhr. prof. dr. F.C. Breedveld
Dhr. drs. P.J.L. van Heugten
Dhr. drs. P. de Jonge
Dhr. dr. S.J. Noorda
Dhr. drs. H.J. Pijlman
Dhr. prof. dr. H.A.P. Pols
Dhr. P.M.L. Smits, arts. MBA (member of the Executive Committee)

Healthcare insurance organizations

Dhr. drs. M.W.L. Hoppenbrouwers (member of the Executive Committee)
Dhr. drs. A.J. Lamping

Appendix 3. Bureau composition

The Bureau supports the Chambers and the Plenary Body by compiling recommendations in relation to the required intake levels for initial training and degree courses and follow-up training. To that end the Bureau prepares a whole range of documents, plans research assignments and supervises research. The Bureau itself is not responsible for any research thus guaranteeing the independence of its staff under all circumstances. On December 8th, 2010 the Bureau consisted of the following employees:

Name	Function	Field of expertise
M. van den Biezenbos	Secretariat	
A.R. Esch	Policy advisor	General practice medicine
M.A. Hosemans	Junior policy officer	Medical support professions
Nursing specialists/PAs		
IHCPs and mental healthcare		
H.J. Leliefeld	Senior policy advisor	Oral healthcare
J.G. Meegdes	Senior advisor	Clinical specialists
Clinical technological specializations		
V.A.J. Slenter	Director	Social medicine
Specialists in geriatric medicine		
Specialists for the mentally disabled		
T. Vertooren	Policy advisor	IHCPs and mental healthcare
A.E. Zandbergen	Policy advisor	Oral healthcare

Appendix 4. Terms/abbreviations

Terms and abbreviations	Definition
adjustment year	The first year when course intake can actually be adjusted by the relevant policy. The beginning of an adjustment period set to extend over a number of years when healthcare provision can be influenced by regulating the intake level. The adjustment year and the adjustment period depend upon the year in which, according to prognoses, an ideal balance between supply and demand should be achieved and also upon the length of the course in question.
AHC	Area Healthcare Service, Shared Health Service or Regional Healthcare Service.
Balance	The status of the employment market reflecting just how provision and demand are in equilibrium; within the requirement estimates, the difference that exists between the available capacity and the required capacity.
Balance year	Also sometimes termed the prognosis year, the year when – with regard to the requirement estimates – a certain equilibrium between supply and demand (i.e. the available and required capacity) needs to be achieved.
Basic year	The year in the estimate model for which calculations and supply and demand estimates are determined for the relevant period and from which extrapolations are made for the future. The year and date (1-1 of the basic year) upon which the estimation is based. Usually the most recent year for which as many as possible details can be reliably assessed. Regarding the supply, it is often the situation on 1st January of the basic year that is the standard reference date.
BGPNM	The Board for General Practice, Nursing Home care and medical care for the Mentally Handicapped. It is through this board and its executive decisions that regulations are enforced for courses and for registration or re-registration.
BGPNM executive decision	Any executive decision made by the Board for General Practice, Nursing Home medicine and the medical care provided for the mentally disabled in relation to the general requirements stipulated in GP courses, courses for specialists in geriatric medicine and specialists for the mentally disabled, recognition as a trainer, curricula or institutions designed to train GPs, specialists in geriatric medicine or specialists for the mentally disabled and also for the registration and re-registration of GPs, specialists in geriatric medicine and specialists for the mentally disabled.
Capacity	The total number of FTEs within the area of healthcare provision for the group of professionals actually practising in the various domains (or intending to practice) who are, to that end, fully qualified and registered.
CBPTMS	The Central Board for Professions and Training in the Medical Sector (CBPTMS) is responsible for the coordination between the structure of the groups and all the training in the healthcare sector. The Board serves as a contact point in the areas of innovation, allocation and in the field of creating prognoses for professions and courses in the healthcare sector.
change in working hours	Changing of the working hours, usually specified for a given period and/or for a particular professional group.
citizenship paradigm	The paradigm by which means mentally handicapped persons come to be viewed as fellow citizens in need of special support, the kind of support not normally provided by the different everyday social facilities. The basic notion is that those with a mental disability and those without such a disability should be viewed as social equals, all with the same rights and obligations.
cohort	1. A group of persons who, within a certain stipulated period, like for instance a calendar year, have experienced a similar (possibly demographic) occurrence. 2. In the sense of a birth cohort: those born in the same year or stipulated period.
combination scenario	The policy-oriented variant of the estimation model in which, alongside all the parameters for the basic variant, a number of non-demographic factors are included in order to be able to predict the required capacity in terms of the professional workforce needed up until the given trend year.

Terms and abbreviations	Definition
commercial healthcare providers	Healthcare providers with profit-making motives.
course intake	Within the framework of the requirement estimations, the total number of individuals admitted in a certain year or on a certain date to courses that enable them to further their medical studies; invariably expressed as the number of dits accepted in a given year.
course outflow	The number of students completing a course of study; often calculated as the student portion no longer registered (as of a given basic year) in conjunction with having rounded off their studies, having embarked on a further course or having entered the employment market.
CRL region	The region for which the Common Ruling Law holds, a law that determines how local authorities organize shared resources such as ambulances services, waste disposal and healthcare.
CSO	The Dutch equivalent to the British Central Statistical Office
Demand shortfall	The parameter in the estimation model that indicates to what extent demand and provision correspond in the basic year and which is furthermore used to determine by what percentage the demand for a certain professional group will have to either increase or decrease in the first adjustment year if the actual gap between the required and available capacity is to be bridged. This difference and this correspondence is indexed by the size of the waiting lists and by the number of vacancies which, in a relative sense, give an indication of the degree to which the real demand for healthcare is not being met due to a lack of capacity.
Demography	The demographic demand parameter is the estimation model that is used to calculate by what percentage the demand for a given professional group will rise or fall on a year-to-year basis depending on changes in the size of the population and its composition according to age and gender in relation to the need for healthcare.
demography factor	See demography.
Dits	Doctor in Training as a Specialist; i.e. all those with a basic degree in medicine who train to become GPs, clinical specialists, social medicine specialists, doctors for the mentally disabled or specialists in geriatric medicine.
dropout percentage	The dropout rate in relation to the size of the student population and the size of the professional group on a given review date or during a particular period which is then subsequently expressed as a percentage. See also in this connection 'internal output' and/or 'external output'.
Dropping out	The number of students terminating a course of study or the number of working professionals who give up their jobs for unforeseen reasons or for reasons not in accordance with the desire of the individual in question or the relevant organization. See also in this connection 'internal output' and/or 'external output'.
DTC chain	The payment basis for integrated healthcare and care providers that is linked to the various patient groups and/or complaints in line with the diagnosis-treatment-combination (DTC) system which, since 2005, forms the basis for the funding and financing of any healthcare that is provided.
Dual practice	A practice location manned by two general practitioners in which one of the doctors as well as being an independently established GP can also be a GPWGP, regardless of the size of that person's work commitment.
Efficiency	One of the five non-demographic demand parameters in the estimation model that is used to calculate by what percentage the need for a given professional group will rise or fall on an annual basis in conjunction with scaling-up, cooperating, commercializing and changes made to the process organization, administration or ICT in the work process.
Empirical	Anything that is based upon experience or experimentation.
Employed	<ol style="list-style-type: none"> 1. The status of a working professional on a given review date or in a certain period who, on the basis of registration data, can be ascertained to be registered and recognized as a professional practitioner not employed abroad, not engaged in studies and not above the conventionally accepted retirement age (which is usually 65 to 70). 2. The status of a working professional on a given review date or in a certain period who, on the basis of questionnaire data, can be ascertained to be affirmatively determined to be employed in a certain field (at least on a certain review date).

Terms and abbreviations	Definition
enw shifts	Evening, Night and Weekend shifts as opposed to normal daytime shifts and working hours.
epidemiological	One of the five non-demographic demand parameters in the estimation model that is used to calculate by what percentage the need for a given professional group will rise or fall on an annual basis in conjunction with changes pertaining to the spreading of disease throughout the population in relation to age, gender, infection sources, nutrition, etcetera.
epidemiological development factor	See under epidemiological.
CW	Casualty Ward; the department where urgent medical help is provided in emergencies.
external yield	The percentage of graduates from a graduating cohort (also: certified individuals) who, after having gained their qualifications, go on to work for a specific period (often 1, 5, 10 or 15 years) in the Netherlands in the field in question.
extramuralization	The transferring of intramural healthcare to lighter types of care outside the walls of the institution in question, such as in the case of nursing home care being switched to the home situation or projects that facilitate supervised living situations for the mentally disabled who are transferred from institutions to housing units within the community.
feminization	An indication of the increasing way in which 'the feminine' nature of society, in terms of role patterns and cultural-political values, is having an influence. As far as the requirement estimates go, this relates specifically to the increase in the numbers of women working in certain sectors and to professional healthcare groups. In conjunction with, for instance, the fewer hours worked, the lower retirement age or different work process requirements, feminization can affect the requirement estimates.
FTE	Full Time Equivalent; the standard unit of measurement used to gauge a person's total work activities which can, if necessary, be laid down in employment contracts and stipulated in job vacancy advertisements. One FTE generally represents a full working week consisting of 5 days and 10 day parts. It should, of course, be borne in mind that the subjective and objective activities and workloads linked to 1 FTE (in terms of hours or work quality) may vary between professional groups and/or sectors within the healthcare organization.
fully qualified GP	Somebody who has followed and completed the general practitioner training course (established in the Netherlands in 1974).
gatekeeper	The term used to indicate that within the Dutch healthcare system the GP, as gatekeeper for clearly defined primary healthcare needs, remains the first and central contact point for all citizens and their various health issues. In his/her role as gatekeeper the GP deals with as many as possible health-related matters and is the first person to, where necessary, refer patients to specialists.
general practice	1. Organization forms in which one or more GPs work together (here the term GP is understood to mean both independently established GPs and GPWGs). 2. The actual physical practice or location where a single doctor or a number of doctors work.
GP density	The average number of inhabitants per GP FTE (here the term GP is understood to mean both independently established GPs and GPWGs).
GP-UOR	GPs accommodated 'Under One Roof', a cooperative union of two or more general practices operating together in one building.
GP practice assistants	Special Higher Education Course trained nurses and doctor's assistants (also known as GPAs) whose primary duty is to support the GP by doing such things as providing information and carrying out routine medical checks, especially when it comes to caring for the chronically ill such as those with asthma, copd or diabetes.
GPP	GeneralPracticePost, a doctors' collective post designed to provide after office hours general practice medical services, which is often situated within or near to a hospital.
group practice	A practice location manned by three or more GPs where, as well as the independently established GPs, there may also be GPWGs in the team, regardless of the volume of such a doctor's workload.

Terms and abbreviations	Definition
healthcare chain	Healthcare provision that embraces a wide range of segments and which is provided by different care providers all of which, like links in a chain, are inextricably intertwined and attuned to each other. Such a healthcare chain evolves from a working relationship between parties working both in cooperation with each other and independently.
Healthcare demand	<ol style="list-style-type: none"> 1. Within the requirement estimates, the total capacity required for a given professional group on a certain review date which is usually based upon the healthcare provision at that point in time plus the unfilled vacancies which may well be corrected to accommodate the future demand parameters as estimated within the projection model. 2. The sum total of the entire reserve of patients with a certain requirement for healthcare, together with an indication of the average amount of time that a given professional devotes to each patient in order to satisfy that demand expressed in terms of hours or FTEs as of a particular reference date or stipulated period.
Healthcare Group	Organizations with a legal corporate identity within which healthcare providers are united for the purposes of coordinating and providing care for a further defined patient population (in a certain geographical region) with chronic conditions which makes use of a dtc chain type contract. The healthcare group either provides the contracted care itself or signs contracts with other separate healthcare providers or establishments.
healthcare provision	Within the requirement estimates the total amount of capacity of a particular professional group that is available at a certain point in time. Invariably this is based upon the sum total of the number of active professionals, together with their average working hours/activity areas expressed in terms of FTEs.
GPWGP	A general practitioner who is no longer in training but who, for a considerable period of time (at least six months), works for and is officially employed by an independently established GP.
Horizontal substitution	One of the non-demographic demand parameters in the estimation model by which means it is possible to calculate by what percentage the demand in a given professional group will rise or fall on an annual basis as a result of intrinsic job shifts between two similarly highly educated professional groups. Examples include switching between the first and second lines of healthcare or within the second line going from an umbrella to a specific specialization or from a hands-on to a more theoretical specialization.
HVRC	The GPs, Nursing Home specialists and specialists for the mentally disabled Registration Commission is an administrative body with a public law function whose task it is to execute the different laws and legislation pertaining to the education and registration of GPs, specialists in geriatric medicine (previously known as nursing home doctors) and specialists for the mentally disabled.
HWS	The Ministry for Public Health, Welfare and Sport.
IHCP register	<p>The national Individual Healthcare Professionals register for the different medical fields in which chemists, doctors, physiotherapists, healthcare psychologists, psychotherapists, dentists, midwives and nurses all have to be officially registered. With IHCP registration:</p> <ul style="list-style-type: none"> - the legally protected professional title may be used; - the relevant profession can be independently practised; - doctors, dentists and midwives may independently practice the protected procedures; - the practising of the profession automatically becomes subject to special legal disciplinary ruling; - medically trained individuals may embark on specialist training.
independently established GPs	<ol style="list-style-type: none"> 1. Registered GPs who indicate in the annual NIVEL questionnaires that they are working as general practitioners or who otherwise indicate this status via the registration checks carried out by NIVEL. 2. A doctor engaged in general practice who has patients listed either under his name or under the name of the practitioners' group.
intake	Within the framework of the requirement estimations, the total number of new persons employed in a given year or on a certain date in a particular professional group, either immediately after having rounded off their studies within the Netherlands or elsewhere, or some time later, on the basis of the intake and registration requirements of that particular professional group.

Terms and abbreviations	Definition
intake recommendations	The recommendations made on the basis of the requirement estimations with respect to the number of course places that need to be filled in the future if a degree of equilibrium is to be achieved between market demand and supply within the employment market.
internal yield	The percentage of students from a particular intake cohort in a given field of study that successfully manages to round off the course and qualify. This is determined either during or after a number years after the formal or nominal course duration period.
job duration/length of stay	The space of time, within the requirement estimations, that a professional is actually active within that particular professional group or otherwise the duration of a student's registration for a specific course of study.
job market monitor	Research aimed at tracing the supply and demand developments, over a period of time, within the employment market. This can occur within different professional areas, sectors and regions.
job-specific	One of the five non-demographic demand parameters of the estimation or projection model that is used to calculate by what percentage the annual need for a certain professional group will either increase or decrease in line with developments specific to the technical/scientific content and development of the field in question.
Locum	A registered professional practitioner who takes over duties (often work shifts) from other (usually established or permanently contracted) professionals in the field. In the area of GP work locums are registered GPs who are not independently established and who are not active as GPWGs but who stand in for GPs during evening, night and weekend shifts but also sometimes during normal office hours.
MEQTE	The directorate for Macro-Economic Questions and Terms of Employment affiliated to the Ministry of Public Health, Welfare and Sport (HWS). The MEQTE directorate advises the political and administrative top echelons on such matters as reciprocal relations between socio-economic, budgetary and fiscal government policy and on policy terrains linked to the Ministry.
The directorate is furthermore	more responsible for the coordination of policy surrounding professions and education, ICT in the health sector, knowledge policy and the inter-departmental regulating of terms of employment and employment market policy in the Health Ministry's various terrains.
MHC	The Mental Healthcare department; a division within the healthcare sector that offers treatment, support and care to people with psychological problems whilst also tackling prevention.
SMD	Specialist for the Mentally Disabled.
Middle scenario	A variant within projection studies that relates to demand parameters that lie between the highest and lowest estimates.
NIPH&EP	National Institute for Public Health & Environmental Protection
NVAG	The professional Dutch Association of Specialists for the Mentally Disabled organization (formerly the NVAZ).
normalization of working hours	Adjusting the working hours and the profession-specific norm for work times per FTE, originally developed to reduce the actual hours worked and thus also tension in the employment market and on the work floor, to improve the quality of work and to augment the work/private life situation.
numerus clausus	Literally (from the Latin) the determined number; i.e. the legally laid down maximum number of students admitted to a particular clinical specialization. If the established limit is exceeded, places are assigned by means of a lot-drawing system. For secondary school leavers, having a high average final exam grade increases their chances of gaining admission to a school of medicine.
Nurse practitioner	Specially trained nurses who are able to take over various doctors' duties by, for instance, carrying out physical examinations, inserting infusions, performing punctures or supervising the chronically ill and who also coordinate the relevant medical care (also sometimes abbreviated to NPs). See also in this connection Nursing Specialist (NS).
nursing specialist	An experienced nurse who has subsequently studied for and gained a recognized master's degree as a nursing specialist. The nursing specialist possesses the expertise to independently treat and monitor individual patients but, in addition to actually providing healthcare, is also involved in – for instance – policy development, the diffusion of knowledge and innovations and the setting up of practically-oriented research (also sometimes abbreviated to NS).

Terms and abbreviations	Definition
NZa	The Dutch Healthcare Authority; watchdog for the health sector which is also responsible for establishing the tariffs and budgets for institutions and professionals operating in the healthcare sector. The NZa follows and stimulates market developments in the healthcare sector and monitors the adherence to healthcare insurance legislation.
other field of study inflow	Within the requirement framework, the total number of people who, in a certain year or on a certain evaluation date, have been admitted to courses of study but whose preliminary “feed-in” courses or education diverges from the norm.
outflow chance	The chance that an individual will leave his or her professional group within a certain period of time, invariably expressed in terms of a percentage that is no longer professionally active in relation to a given basic year, and based upon historical cohort data on professional practitioners.
Outflow	The number of professional practitioners leaving a certain professional group; often calculated in terms of the portion of working professionals no longer active as of a specific basic year in conjunction with retirement or with having switched to another profession.
outflow age	The average age when professional practitioners are inclined to retire from their work.
outflow motives	The reasons given by professionals for desiring to leave their particular professional field, often categorized as motives linked to age, disability, the incapacity to work or to moving to other positions or areas of specialization.
WHP	WeightedHealthcarePackage – this pertains to a special combination of healthcare provisions (e.g. nursing and care provision) possibly even extending to living facilities, people’s daily activities, treatment and supplementary services.
Parameter	The factor or variable which, within the requirement framework, is presumed to influence the development of the demand for, or the provision of, professional employees. Parameters can relate to the present available and required capacity (in the basic year) as well as to the future available and required capacity (i.e. the period between the first year of adjustment and the prognosis year).
part-time factor	The factor used to indicate the full extent of a part-time job. Generally given as a full-time job fraction so that, for instance, 1.0 FTE represents a full-time job whilst 0.5 FTE represents a 50% employment contract. Alternatively the part-time percentage can be alluded to, taking 100% as the guideline for full-time employment.
Physician Assistant	A specially trained Higher Education (but not university level) employee who is able to take over routine medical tasks from GPs or other medical specialists and who works under their supervision (also sometimes abbreviated to PA).
points estimates	The points estimate approach is just one category of methods that makes use of statistics in order to obtain information. An unknown population parameter (or division) is estimated by taking a quantity calculated from the random sample: the estimate. The precept that determines how the random sample must be calculated is called the estimator.
Policy realm/scope	A specific type of requirement estimating that takes into consideration the non-demographic factors that determine the future demands in a certain professional area, such as changes in the work process, in policy and in society.
Practice	An organizational form or partnership created by one or more primary healthcare professionals (GPs, physiotherapists) that is actually physically established in an independent or communal practice location.
practice seeker	A fully qualified general practitioner who is actively seeking a practice or other GPWGP position but who has not yet been successful. It is often the case that GPs looking for a practice temporarily hold positions as locums or as locums on an GPWGP basis.
practice size	The number of patients on a given inspection date that are registered in a particular practice and/or are registered on the basis of home visits or consultations.
preferred variant	A version of the estimation model in which, in conjunction with preference, all kinds of non-demographic demand parameters (combination variants) are taken into account, specifically the low estimates and where it is presumed that the non-demographic demand parameters will follow what is termed a continuing trend.

Terms and abbreviations	Definition
present consumption	All the goods and services that are already purchased by consumers to satisfy their needs. Within the requirements estimates it is all about the healthcare provided by and/or prescribed by the healthcare providers in the basic year, i.e. the current capacity in FTEs among healthcare providers.
profile registrations	Registrations that can be rightly made after having completed a study profile for the 0 to 19 years of age public health sector, infectious diseases management, forensic medicine, tuberculosis prevention and treatment, medical environmentology, medical evaluation and advice medicine, policy and advice medicine.
profile training	Any course enabling a doctor of medicine to go ahead and obtain a profile within the medical follow-up field to become a Public Health profile officer or an Emergency Room profile officer. The “first phase” courses are characterized by practice-oriented and assignment-steered education and offer the opportunity to gain further registration alongside being a Public Health specialist by focussing on programmes in: 0 to 19 years of age healthcare, infectious diseases management, forensic medicine, tuberculosis prevention and treatment, medical environmentology, medical evaluation and advice medicine, policy and advice medicine.
prognosis year	The year in which, within the requirements estimations, the demands and provisions should be fulfilled and the estimated future available and required capacity should be in balance with each other. All depending on the duration of the course and thus the adjustment period, it is often a date 12 to 15 years after the basic year that is taken. Sometimes also referred to as the balance year.
projection model	<p>1. The conceptual model that is applied in order to execute the requirement estimations in which the factors are identified that determine the demand and provision of professional practitioners (now and in the future), the correspondence between demand and provision and the inter-relations surrounding these factors. The conceptual estimation model is included in the appendices of all the Medical Specialist Training Recommendations as of 2000.</p> <p>2. The calculation model that is implemented to execute the requirement estimations, i.e. the functional and technical interpretation of the conceptual estimation model in a software application. The calculation model for the requirements estimations for the medical and dental specialization courses that fall under the responsibility of the Advisory Committee on Medical Manpower Planning have been developed, maintained and updated by NIVEL and KIWA Prismant.</p>
projection period	The period to which the requirement estimations or projections relate which extends from the basic year to the year of prognosis.
Providers	Organizations and/or professional practitioners who provide healthcare and/or medical assistance.
recognition period	The total span of time for which a person or institution is recognized. Generally adhered to so that after doctors have entered into a specialist field of work the period in question can be determined by registration committees responsible for issuing specialization recognition, renewing it and terminating it.
recognition status	The public law indication that power has been granted to an administrative body to establish whether a particular individual or institution satisfies certain stipulations. In this way the intake of doctors into a certain specialist area can be recorded by the registration commissions responsible for issuing specialization recognition, for renewing that and for terminating it. Recognition status is also, for instance, given to general practices in the sense that they can then become registered or recognized as cooperative organizations, group practices or primary healthcare centres in conjunction with the financing of a particular healthcare programme or activity package.
reduction of working hours	Structural reducing of the total number of days that an employee works per year, invariably as laid down in collective labour agreements with a view to combating unemployment and/or so as to disperse the available work over a larger number of people.
Reference date	The precise date when the value of a certain parameter, variable or factor was laid down; within the requirement estimations the reference date is especially important for the determining of the available and required capacity in the basic year.

Terms and abbreviations	Definition
regional address density	A typology of the municipalities for which the level of urbanization is indicated on the basis of the number of addresses per square kilometre.
Reintegration	A person who re-integrates is somebody who returns to the employment market for which he or she was originally educated/trained after a period of absence due to employment incapacitation, unemployment or after having temporarily worked in a different sector or professional group.
related disciplines	1. Disciplines that are closely related in terms of their level and the nature of the work involved. 2. Regarding the estimations made by the ACMMP, this concerns the various supporting disciplines that are able to take over certain activities from those same disciplines (e.g. GPs and GPs or oral hygienists and dentists).
related professions	Professions which, as regards their level and content, are closely related to each other.
replacement demand	The demand for practising professionals which complements the number of professional practitioners who have left the professional group on a certain special reference date or in a given period, provided that no change in demand will arise that is attributable to other factors.
requirement estimates	Research which, on the basis of a simulation model, makes it possible to calculate how developments in the demand for and provision of manpower in a certain professional area will develop over a given period. The outcome is an estimation of the difference between the required and available manpower within a specific professional group starting from the basic year, the adjustment year and the prognosis year in which the balance between supply and demand must be realized.
re-registration	The extending of the recognition status after the recognition period has expired; in the case of medical specialists they are required to renew their IHCP registration after five years.
Reserve capacity	Within the requirement estimations, the group of active professionals who do not actually operate in their own professional domains but who could and would like to do that and who are also fully qualified and even registered to do such work.
RSS region	A region within which a Regional Support Structure (RSS) has been created so that, as a social enterprise, the integration and cooperation within the primary healthcare branch can be stimulated and support can at the same time be offered to GPs, physiotherapists and exercise therapists, midwives, speech therapists and the primary Mental Healthcare departments.
SEWP	Self-Employed and Without Personnel. Entrepreneurs who have no employees or freelancers who work without terms of employment but still provide services and/or products to customers or to contracting parties. There is no kind of hierarchy which means that he/she cannot be viewed as an employee and is not therefore subject to the legislation that applies to employees.
SOCGS	Society of Specialists in geriatric medicine (resulting from a merger between the Dutch Society of Nursing Home Doctors (DSNHD) and the Dutch Association for Social Geriatrics (DASG).
socio-cultural	One of the five non-demographic demand parameters in the estimation model that is used to determine by exactly what percentage the demand in a given professional group will either rise or fall on a yearly basis in connection with social and cultural developments such as the increasing assertivity of patients or the differences between social groups in relation to healthcare use.
socio-cultural factor	See socio-cultural.
Solo practice	A practice in which only one general practitioner works.
SPN	Social-Psychiatric Nurse; nursing staff that provide help, supervision or treatment for individuals in psychiatric need and who make recommendations in relation to admission to psychiatric centres or refer their patients to other healthcare professionals. SPN-ers are responsible for the drawing up of treatment plans in conjunction with psychologists or psychiatrists and they are involved in prevention campaigns; they work, for example, in regional institutes for mental welfare, crisis centres and GP practices.
IPTGP	The Institute for Professional Training as a General Practitioner. The employer for GPs in training and for specialists in geriatric medicine in training: the society is responsible for financing all GP training courses as well as courses provided for those wishing to become specialists in geriatric medicine.

Terms and abbreviations	Definition
Standard	Within requirement estimating a standard is the recognized or most frequently occurring status for a given sub-domain, section or parameter (e.g. the standard clinical specialist course, the standard intake level for a certain course).
Substitution	The general term used when talking about the complete or partial replacing of existing healthcare facilities with other types of healthcare provision in order to produce made-to-measure healthcare for the client while possibly also saving money: within the requirement estimations a distinction is made between vertical and horizontal substitution.
Substitution percentage	The percentage by which the need for a particular professional group will either increase or decrease on an annual basis as a result of substitution.
Suppletion	The term used to refer to the supplementing of existing care provision by introducing other types of healthcare so that specific healthcare attuned to the demands of the party seeking help and possibly a cost reduction can be achieved. Suppletion is sometimes viewed as a 'side-effect' of vertical substitution without any changes being made to the tasks and duties of doctors.
task changing	As intended in connection with the estimation model: see vertical substitution.
task delegation	As intended in connection with the estimation model: see vertical substitution.
task reorganization	<ol style="list-style-type: none"> 1. As intended in connection with the estimation model. 2. General term applied to the entire or partial replacing of existing healthcare with another type of care so that the healthcare provided will be tailored to the needs of the inquirer and possibly also amounts to a saving of costs. 3. The structural reorganizing of tasks between different professional groups within the healthcare sector, partly in response to the capacity shortages in 10r more professional groups and because of structural changes in the future patient healthcare system. 4. Tasks that structurally shift from a doctor to someone who is not a doctor (such as a nurse practitioner or specialized nurse) or from a specialized to a generalist doctor (e.g. going from a specialist for the mentally disabled to an ordinary general practitioner). 5. The transferring of competencies or simply task switching and the delegating of competencies.
technological	One of the non-demographic demand parameters of the estimation model which is used to calculate by what percentage the requirements for a given professional group will either increase or decrease on an annual basis as a result of 'hard' technology (new equipment) and the 'soft' technology used to influence the work production and organizational efficiency of the professional group.
time allocation	A specification of the working hours of active professionals expressed within the requirement estimations as the hours or FTEs spent on patient-linked and non-patient-linked tasks and inside and outside (for the professional group) the regular working times such as enw shifts. Sometimes it is also necessary to specify the hours worked as residential or ambulant employees or to perhaps indicate that the work has a recreational or therapeutic character.
training capacity	Within the estimation studies made for medical specialist courses, the number of dits who, on 31st December of the year in question, are still in training.
training duration	The duration of a course of study expressed in terms of years which, in the case of all the clinical specializations, is determined by the Central Boards and the academic association for the relevant specialization and is published on the RDMA's website. In the case of course duration it is usually the formal or nominal educational duration that is mentioned, not the average number of years that students take to obtain their qualifications.
training output	See internal yield.
Trend year	The year for which the non-demographic demand parameters in the estimation model are calculated or estimated. The trend year tends to generally lie 10 years behind the basic year.
vacancy level	The number of job vacancies (represented as a percentage of the number of working persons) that still remain open on a given review date or during a specific period in time. This level can be expressed in terms of percentages of persons or FTE percentages and partly depends on the definition and upon whether both replacement and expansion vacancies are included in the calculations and upon when a vacancy is perceived to be filled.

Terms and abbreviations	Definition
Variant	A version of the substitution model that is used to systematically review the effect of considering various factors such as changes in working times (the working time variant) or a combination of non-demographic demand parameters (the combination variant).
vertical substitution	One of the non-demographic demand parameters in the estimation model by which means it is possible to calculate by what percentage the demand in a given professional group will rise or fall on an annual basis as a result of intrinsic job shifts involving the passing on of tasks to lower educated professional groups. Examples include the switching of tasks from doctors to NPs, PAs, GPAs or specialized nurses.
work process	An estimation model term that is used to allude to the non-demographic demand parameters that determine how the work process of a professional group develops itself in terms of patient and non-patient linked capacity as a result of substitution, efficiency, technological and actual subject-related developments.
working GPs	Registered GPs who, in the annual NIVEL questionnaire, indicate that they are still actively employed as general practitioners or who otherwise emerge as still being active when NIVEL checks are carried out. Each year it is standard practice to count and report on the number of GPs who indicate that they are either independently established or employed as GPWGs. In addition, the number of active GPs is listed who indicate that they primarily operate as locums or have a function elsewhere, which also means that it must be borne in mind that this group is harder to contact via questionnaires and routine checks.
Working hours	<ol style="list-style-type: none"> 1. The hours of work agreed to in the employment contract, including the evening, night and weekend shifts. 2. The number of FTEs or hours per week which, on average, people work.
working hours variant	A variant in the projection model which accounts for changes in the working hours of active professionals, often in terms of working hour reductions or working hour normalizations.
Year of reference	See basic year.
Yield/output	A general umbrella term used to indicate the relationship between the output and input in any given process. In the context of requirement estimations it is usually taken to refer to the internal and external yield of any course of study.

Advisory Committee on Medical Manpower Planning

PO box 20051
3502 LB Utrecht
The Netherlands

visiting address
Domus Medica
Mercatorlaan 1200
3528 BL Utrecht
The Netherlands

telephone
+31 30 282 38 40

e-mail
info@capaciteitsorgaan.nl
www.capaciteitsorgaan.nl