

## Flexibility in Postgraduate Medical Training in the Netherlands

Reinier G. Hoff, MD, PhD, Joost Frenkel, MD, PhD, Saskia M. Imhof, MD, PhD, and Olle ten Cate, PhD

### Abstract

Postgraduate medical training in the Netherlands has become increasingly individualized. In this article, the authors describe current practices for three residency programs at the University Medical Center Utrecht: anesthesiology, pediatrics, and ophthalmology. These programs are diverse yet share characteristics allowing for individualized residency training. New residents enter each program throughout the year, avoiding a large simultaneous influx of inexperienced doctors. The usual duration of each is five years. However, the actual duration of rotations or of the program as a whole can be reduced

because of residents' previous medical experience or demonstration of early mastery of relevant competencies. If necessary, the duration of training can also increase.

Although working hours are already restricted by the European Working Time Directive, most residents choose to train on a part-time basis. The length of their program then is extended proportionally. The extension period added for those residents training part-time can be used to develop specific competencies, complete an elective rotation or research, or explore a focus area. If the resident meets all training

objectives before the extension period is completed, the program director can choose to shorten the program length. Recently, entrustable professional activities have been introduced to strengthen workplace-based assessment. The effects on program duration have yet to be demonstrated.

Flexible postgraduate training is feasible. Although improving work-life balance for residents is a necessity, attention must be paid to ensuring that they gain the necessary experience and competencies and maintain continuity of care to ensure that high-quality patient care is provided.

**P**ostgraduate medical training in the Netherlands is fully financed by the Dutch government. Training hospitals receive funding to cover the costs of residents' salaries, training efforts, and organizational adjustments made for academic patient care. The number of residency positions is also determined by the government. The annual number of new residents in all programs is based on long-term predictions of health care workforce needs. These needs are assessed by a semigovernmental body on the basis of predetermined parameters and stakeholder consultations.<sup>1</sup> Adjustments to this prediction model and the resulting decisions about the number of new residents needed are made every three years. All residency programs are

modular, comprising mandatory and elective rotations.

Since January 1, 2006, all postgraduate medical training programs in the Netherlands have implemented curricula based on a Dutch version of the CanMEDS competency framework.<sup>2</sup> Objectives regarding knowledge, skills, attitudes, and their assessment, pertinent to each specialty, have been formulated. The Dutch competency-based philosophy includes a cyclical training process: (i) Based on in-training assessment and observed practices, trainees gather evidence of their development in a portfolio; (ii) this process encourages regular reflection on their development and performance of specific tasks; and (iii) a personal development plan guides their future learning goals and strategies.<sup>3</sup> This process mirrors similar developments that are unfolding in Canada and the United States.

Unlike postgraduate medical training in North America, however, the training of physicians in the Netherlands is highly individualized. This flexibility starts with varying residency program entry dates and is preceded by varying medical school graduation dates. Dutch

medical schools offer six-year programs, consisting of a bachelor phase and a master phase of three years each. Students are scheduled into clinical rotations in years four through six. However, only a small minority of students complete the full program within six years. Reasons for this variation include exams or rotations that have to be repeated, extra vacation time, extracurricular electives, or other content-related activities. On average, medical students take six and a half to seven years to graduate. Graduation ceremonies are held multiple times during the year to accommodate for the personalized curriculum. Students then apply in an open-market system for a position in the residency program of their choice; these positions commence at different times throughout the year.<sup>4</sup>

After graduation, before they apply for a residency position, most medical graduates interrupt their formal training (spending six months to a year or more) to work in a health care setting, do a research project (including PhD training), assist with an educational project, or do something different. As residencies can start and conclude at various times throughout the year and residency positions can be filled from an

Please see the end of this article for information about the authors.

Correspondence should be addressed to Reinier G. Hoff, Department of Anesthesiology, University Medical Center Utrecht, Mailstop Q 04.2.313, PO Box 85500, 3508 GA Utrecht, The Netherlands; telephone: (+31) 88-75-53027; e-mail: rhoff@umcutrecht.nl.

Acad Med. 2018;93:S32-S36.

doi: 10.1097/ACM.0000000000002078

Copyright © 2018 by the Association of American Medical Colleges

existing pool of graduates whenever they are vacant, these flexible individualized workplace curricula usually do not create workforce problems.

Using three existing training programs at the University Medical Center Utrecht (UMC Utrecht)—a medical discipline (pediatrics), a surgical discipline (ophthalmology), and a supportive discipline (anesthesiology)—we will illustrate how this time-variable system works.

### **Influx of New Residents**

The anesthesiology program at UMC Utrecht now admits 10 to 12 residents per year and supports a total of approximately 60 residents in training. The pediatrics program admits 7 to 9 new residents per year, whereas in ophthalmology it is 4 to 5 residents. This intake is planned and distributed evenly throughout the year. In anesthesiology, for example, one new resident can start the program each month or so. In this way, a large simultaneous influx of relatively inexperienced doctors is avoided and the department can provide an individualized introduction program lasting two to four weeks for each new resident. At the start of this introduction program, the resident is provided with a resident-mentor, a senior colleague in the fourth or fifth year of training, who can assist the newcomer with adjusting to the working environment. Within the first six months, the resident chooses one faculty member who will serve as a personal mentor for the entire program. This procedure is used in most postgraduate medical programs in the Netherlands, with local deviations in content and timing. A result of this staggered influx of residents is an outflow that is also distributed throughout the year.

### **Duration of the Training Program**

The stated duration of all three programs (pediatrics, ophthalmology, and anesthesiology) is five years on a full-time basis, complying with the conditions for accreditation by the Registration Committee for Medical Specialists (or Registratiecommissie Geneeskundig Specialisten, abbreviated as RGS, in Dutch). However, there are several reasons for individuals to adjust this period; as a result, not all residents complete five years of training.

Admission to residency programs is highly competitive, which is one reason why many recent medical school graduates choose to gather experience in medical research, clinical medicine, or both, prior to applying for residency. In the Netherlands, a recent graduate can do clinical work, under close supervision of a physician, outside a residency program. In most cases, this preresidency track lasts several months to years. Consequently, many junior doctors have already obtained various competencies, at varying levels, before formally starting their residency. Because of these previously acquired competencies, rotations during residency may be reduced in duration or altogether skipped when a resident meets prespecified exit criteria.

Imagine, for example, a resident who has two years of previous experience in an intensive care unit (ICU). The residency program director can decide in consultation with the resident to reduce the length of her or his ICU rotation in the anesthesiology program (e.g., from 12 months to 6 months) on the basis of this previous experience. A prerequisite is that the resident is able to provide valid proof of her or his attainment of the relevant competencies. Previous supervisors must provide a judgment on the clinical performance of the resident. Next, if during the rotation, the resident actually needs the full required time to acquire the necessary competencies, the reduction can easily be withdrawn.

Another reason to shorten the length of a residency program is when a resident demonstrates early mastery of the relevant knowledge, skills, and attitudes. Residents can show this mastery using regular workplace-based assessment instruments (e.g., mini-clinical evaluation exercises, objective structured assessments of technical skills, 360-degree evaluations). The program director or the resident can propose to shorten the duration of a rotation or to use part of the time of the rotation to work on extra skills. For example, in the 12-month rotation in the ICU for anesthesiology residents, a reduction of 3 months could allow the resident to start the next rotation earlier. Alternatively, the 3-month period could be used to do research or work on a project of the resident's choice, after which the next rotation would follow

as originally planned. Service demands, resident preferences, and the insights of the program director and medical staff determine which model is negotiated. If a rotation is shortened, there will not necessarily be another resident available to do the clinical work. This can put a strain on the physicians and other team members. Ultimately, it is up to the program director to balance the personal interests of the resident and the perhaps different interests of the organization.

Current regulations allow the program director, in agreement with the resident, to make these adjustments resulting in a reduction in training time. If ultimately a resident needs more time than is usually provided for a rotation, the program also can be extended for a period of three to six months. Such an increase in duration is only allowed once and is subject to many rules and regulations making it a more elaborate procedure.

If a decision is made to alter the length of an individual's training program, the RGS will check whether the appropriate regulations have been followed. If a resident disagrees with a decision, he or she can bring it before a committee of appeal.

### **Working Hours**

Residents in the Netherlands are subject to the European Working Time Directive, which has been translated into the Dutch Working Hours Act.<sup>5</sup> This legislation limits the number of working hours to an average of 48 hours a week, calculated over a 16-week period. In all eight University Medical Centers in the Netherlands, the weekly average number of hours is set at 46. The maximum number of hours allowed in a single week is 60. Maximum duration of an evening, night, or weekend shift is 12 hours, after which the resident must have 12 hours off before the next shift. The law is enforced with high financial penalties for hospitals violating this directive.

These maximum numbers apply to residents who work full-time. Increasingly, however, residents of both genders are choosing to work part-time. According to the Dutch general rules and regulations for all postgraduate medical training programs in the Netherlands, residents are allowed to work part-time if they prefer to do so, with a minimum of 0.5 full-time

equivalent (FTE) employment. In the majority of cases, part-time is more like a 0.8 or 0.9 FTE appointment. Part-time postgraduate medical training, at UMC Utrecht and other training hospitals, increasingly has become the standard (see Table 1).

When a resident starts working part-time, the remainder of her or his residency program must be extended proportionally. Until recently, the duration of each rotation was increased, which resulted in frequent adjustments to the programs' overall schedules, affecting the schedules of all other residents in the program. The RGS now allows a combined program extension to be added at the very end of the program. A resident starting with a 0.8 FTE appointment from the beginning of the third year of training accumulates a deficit of 7.2 months during the remainder of the program (years 3, 4, and 5)—that is, 20% of the 36 months of training. Taking into account that the resident will work part-time (0.8 FTE) during the extension, the total extension is calculated as  $7.2/0.8 = 9$  months. These 9 months may be placed at the end of the resident's training schedule as an extension period.

The rationale behind the introduction of these extension periods is that the majority of part-time residents are quite able to obtain the necessary competencies at the same pace as those residents who are working full-time. Furthermore, an increase in the length of separate three-month rotations (with one and a half weeks for a resident working 0.9 FTE or three weeks for a resident working 0.8 FTE) provides only limited possibility for further training in those rotations. However, a longer extension period allows residents to work on the competencies they need to develop. Depending on the needs or wishes of the resident, the appropriate rotation to work on these competencies

can be determined at a later phase in the program. With the introduction of the extension period, the need to make elaborate adjustments to the length of all rotations for an individual resident, with possible consequences for the training schedules of many other residents, is largely diminished.

There are several reasons for residents to opt for a part-time training schedule. First, residents frequently combine training with family building. Currently, the majority of anesthesiology, pediatrics, and ophthalmology residents are female. As most residents are 25 to 30 years of age at the beginning of the program, many choose to have children during their residency. On return to work after childbirth, these residents mostly choose 0.8 FTE employment. The same holds true for males becoming fathers during their residency. Second, residents opt for part-time work explicitly to use the extension period at the end of their program to individualize their training. When a resident has successfully followed all obligatory rotations and has mastered all relevant competencies at an adequate level, the extension period can be used for further training in an area of interest. Often, residents choose an elective rotation in another country during this period. Third, residents can choose part-time work to use the extra "free" time for other activities like research.

The program director can decide that the resident has functionally reached the end of training, meets all core training objectives, and is able to register as a physician in a part-time arrangement, even before the extension period is finished. In this case, part or all of the extension period can be deleted and the duration of the program shortened. The resident then will finish training in less than the five full-time years allotted for the program.

Postgraduate medical education in the Netherlands allows residents to work even less than the (increasingly usual) 0.8 or 0.9 FTE. The legal minimum employment for a resident in training is 0.5 FTE (i.e., 23 hours per week). Residents rarely opt for this model, and most program directors are not keen on reducing working hours to this level. Possible reasons for this reluctance can be the increase in the duration of the residency to 10 years or more and the sense of a lack of control over the resident's development with so few moments of interaction during the week. In addition, we are uncertain whether effective workplace-based learning and assessment will be possible with these even shorter working hours.

### Area of Focus

The development of an individual area of focus is another approach to individualization available to trainees in the Netherlands. In anesthesiology, ophthalmology, and pediatrics, a six-month period in the last year of training is reserved for development in a chosen and preferred area of focus. This period provides residents with an introduction to a subspecialty and stimulates their desire to acquire in-depth knowledge. Furthermore, adjustments to shorten an individual's program because of previous experience and competency development allow time to increase the length of other rotations or to add an extra rotation in an area of focus.

Training in an elective area of focus can be part of a subspecialty fellowship training program, which can be completed after registration as a physician. Time spent in a subspecialty during residency can be deducted from the duration of a subsequent subspecialty fellowship. However, like residency program directors, subspecialty program directors need proof of acquired competence to allow a learner to complete training.

### Future Changes

In 2014, new governmental regulations in the Netherlands urged programs to shorten the duration of residencies wherever possible, with the aim of achieving an average of six months' reduction in the duration of all residencies by the year 2021, to save

**Table 1**  
**Part-Time Work, by Specialty and Gender, in Three Residency Programs at the University Medical Center Utrecht as of September 2017**

Specialty	Gender distribution, no.		Working part-time, no. (%)	
	Male	Female	Male	Female
Anesthesiology (n = 63)	17	46	15 (88)	42 (91)
Pediatrics (n = 48)	13	35	7 (54)	27 (77)
Ophthalmology (n = 21)	9	12	5 (56)	5 (42)

costs. European regulations on the minimum duration of postgraduate medical programs would indeed allow for a reduction in the duration of most Dutch programs. There is ongoing debate among program directors and resident organizations, however, whether this is a reasonable aim. A national project on the individualization of training duration was initiated by the National Federation of Medical Specialists to critically appraise all existing residency programs.<sup>6</sup> Part of this project has been the wide introduction of entrustable professional activities (EPAs) into all postgraduate medical programs with the aim of strengthening workplace-based assessment. If a resident shows that she or he has mastered all EPAs that are relevant for a rotation, the duration of the rotation as well as the overall length of the residency program may be reduced. Whereas some residents will achieve entrustment relatively quickly, other residents will arguably need more time to master the EPAs. The effects of this recent redesign remain uncertain and will only be demonstrated in the years to come. The National Federation of Medical Specialists and the training hospitals are working to evaluate the impact of individualized training and of a reduction in the number of new residents on clinical services.

## Additional Considerations

### Health care quality

The quality of health care in the Netherlands has consistently been rated highly. According to the 2016 European Health Consumer Index, the Netherlands was rated highest in a comparison of national health care systems in 35 European countries, coming close to meeting all predefined criteria for good and consumer-friendly health care.<sup>7</sup> The recent Commonwealth Fund report on the performance of health care systems in 11 high-income countries put the Netherlands in third place, whereas Canada (9th) and the United States (11th) were not ranked as highly.<sup>8</sup>

There are numerous factors contributing to the quality of care provided; the training of physicians is one factor. Dutch residency programs in all medical specialties are well structured and offer a broad spectrum of workplace-based learning facilities.<sup>3,9,10</sup> The influence of

individualized postgraduate training on quality of care remains to be studied, but we believe it is fair to say that individualization does not limit high-quality care.

### Individualization, flexibility, and working hours

Postgraduate medical education in the Netherlands is becoming increasingly flexible. Although working hours are relatively limited compared with those in many non-European countries, part-time work (further reducing working hours) can be seen as contributing to individualization. The content of a residency program and the development of an area of focus are further contributing to this individualization.

Flexibility in postgraduate training has its pros and cons, however. The Dutch Working Hours Act, introduced in 1997, limiting the number of working hours for residents, was met with a lot of criticism. Some complaints (e.g., it is impossible to train doctors in this limited time frame) have disappeared over the years, but several are still present (e.g., it is more difficult to follow a patient longitudinally; the number of procedures done by a resident has decreased). This reduction in training hours did provide a stimulus for the development of competency-based training. Most residency programs in the Netherlands have since changed from a time-based to a competency-based curriculum.<sup>3</sup> After a slow start, this model is now starting to affect the duration of training for individual residents, in many cases leading to a reduced length of training.

Working hours for residents are still subject to debate. In several disciplines, especially in the procedural specialties, more hours are thought to automatically lead to more exposure and better training possibilities. Although there is conflicting evidence on this issue—a comparative outcomes study looking at Canadian and Dutch surgical trainees revealed little difference—the importance of experience and consolidation of competencies cannot be overrated.<sup>11</sup> At the same time, the work–life balance of residents is a serious point of concern. The risk of burnout is high, especially in women with children.<sup>12,13</sup> Adjusting training programs to improve work–life balance is not merely an option, it is a necessity.<sup>14</sup>

Another issue relates to continuity of care. Part-time work can lead to an increased number of handovers, which could result in information being lost between transitions. Also, if a rotation is shortened or altered, a resident might not be available for the team and thus would have to be replaced by another clinician if the service demands require it. This other clinician might be a physician, a physician assistant or nurse practitioner, or a recent medical school graduate who is not in residency training. Continuity of care thus increasingly depends on the quality of teamwork instead of just on the continuous availability of a specific doctor or other health care provider.

## Conclusion

Flexibility in postgraduate medical training programs has provided residents with an opportunity to develop in a chosen direction, at a speed that is adjusted to their capacity, with time for balancing clinical work and home responsibilities. At the same time, adjustments to the organization of clinical work have been made to accommodate this flexibility. The pediatrics, ophthalmology, and anesthesiology residency programs at UMC Utrecht that we discussed share a number of characteristics related to the implementation of individualized training. Although many other programs in the Netherlands show similar features, not all do. In general surgery, for example, the majority of male residents train full-time, while most female residents train part-time. In neurosurgery, hardly any residents train part-time. Nevertheless, all Dutch postgraduate medical programs now consider individualization of the content of the residency program to some degree. Current practice illustrates that adjusting residency programs to the new generation of doctors by offering individualization and flexible competency-based learning, combined with workplace-based assessment, is a feasible and potentially effective approach to high-quality residency training.

*Acknowledgments:* The authors wish to thank the guest editorial team and reviewers of this supplement.

*Funding/Support:* None reported.

*Other disclosures:* One author (O. ten Cate) is a member of the guest editorial team of this supplement.

*Ethical approval:* Reported as not applicable.

**R.G. Hoff** is professor of education and training in perioperative, intensive, and emergency care and program director, Anesthesiology Residency, Department of Anesthesiology, University Medical Center Utrecht, Utrecht, The Netherlands.

**J. Frenkel** is professor of patient- and family-centered education and program director, Pediatrics Residency, Department of Pediatrics, University Medical Center Utrecht, Utrecht, The Netherlands.

**S.M. Imhof** is professor of ophthalmology and program director, Ophthalmology Residency, Department of Ophthalmology, and chair, Central Residency Committee, University Medical Center Utrecht, Utrecht, The Netherlands.

**O. ten Cate** is professor of medical education, Center for Research and Development of Education, University Medical Center Utrecht, Utrecht, The Netherlands.

## References

- 1 Capaciteitsorgaan. 2016 Recommendations for the Medical, Clinical Technological, Mental Healthcare, FZO and Related Postgraduate Training Programmes. Utrecht, the Netherlands: Capaciteitsorgaan; 2016.
- 2 Bleker OP, ten Cate TJ, Holdrinet RSG. General competencies for the medical specialist in the future [in Dutch]. *Tijdschr voor Med Onderwijs*. 2004;23:4–14.
- 3 Scheele F, Teunissen P, Van Luijk S, et al. Introducing competency-based postgraduate medical education in the Netherlands. *Med Teach*. 2008;30:248–253.
- 4 Ten Cate O. Medical education in The Netherlands. *Med Teach*. 2007;29:752–757.
- 5 EU Parliament and EU Council. DIRECTIVE 2003/88/EC of 4 November 2003 concerning certain aspects of the organisation of working time. *Off J Eur Union*. 2003;L(299):9–19.
- 6 Animation: Individualisation of Training Duration in the Netherlands [video]. Utrecht, the Netherlands: Federation of Medical Specialists; 2016. <https://vimeo.com/178895320>. Accessed November 15, 2017.
- 7 Björnberg A. Euro Health Consumer Index 2016. Marseille, France: Health Consumer Powerhouse; 2017. <http://www.healthpowerhouse.com/publications/euro-health-consumer-index-2016/>. Accessed November 15, 2017.
- 8 Schneider EC, Squires D. From last to first—Could the U.S. health care system become the best in the world? *N Engl J Med*. 2017;377:901–904.
- 9 Jippes E, Van Luijk SJ, Pols J, Achterkamp MC, Brand PL, Van Engelen JM. Facilitators and barriers to a nationwide implementation of competency-based postgraduate medical curricula: A qualitative study. *Med Teach*. 2012;34:e589–e602.
- 10 Fokkema JP, Scheele F, Westerman M, et al. Perceived effects of innovations in postgraduate medical education: A Q study focusing on workplace-based assessment. *Acad Med*. 2014;89:1259–1266.
- 11 Schijven MP, Reznick RK, ten Cate OT, et al. Transatlantic comparison of the competence of surgeons at the start of their professional career. *Br J Surg*. 2010;97:443–449.
- 12 Prins JT, Hoekstra-Weebers JE, Gazendam-Donofrio SM, et al. Burnout and engagement among resident doctors in the Netherlands: A national study. *Med Educ*. 2010;44:236–247.
- 13 Mata DA, Ramos MA, Bansal N, et al. Prevalence of depression and depressive symptoms among resident physicians: A systematic review and meta-analysis. *JAMA*. 2015;314:2373–2383.
- 14 Rich A, Viney R, Needleman S, Griffin A, Woolf K. “You can’t be a person and a doctor”: The work–life balance of doctors in training—A qualitative study. *BMJ Open*. 2016;6:e013897.