Introduction

A short history of Dutch postgraduate training in obstetrics & gynaecology
Assessment to optimise postgraduate medical training

‘To obtain a drivers’ licence you need to pass a theoretical and practical test, however, to become a medical specialist, you ‘just’ need to show up at work every day for six years….’ 5th year trainee in O&G, participant in focus group that explored trainee perspectives on how assessment can assist learning

Over the last decade the landscape of Dutch postgraduate training has changed dramatically. It has transformed from loosely structured master-apprentice style training towards highly structured competency-based, outcome directed training. To understand the scope of these changes and to place the subjects of this thesis in perspective, it is important to gain some understanding of the history of Dutch postgraduate training in obstetrics and gynaecology (O&G).

Bildung durch Wissenschaft
(Education through learning and research)

Higher education in the Netherlands has largely been modelled on the Prussian education system, as designed by Wilhelm von Humboldt (1767–1835) 1. Von Humboldt was an idealistic neohumanist who strongly believed that the individual, out of an innate drive/intense longing for sciences, would prosper when provided with a solid base in basic sciences and enough solitude and freedom to play his part in shaping the world around him 2. For medical education his basic concept was that the study of medicine should be university based, place great emphasis on the basic sciences, and be firmly linked with research. Practical postgraduate training in a large, non-university hospital followed the study of medicine 3. Academic freedom, freedom to learn, freedom to teach and individual responsibility were key elements of his educational concept and are still prominently present in Dutch higher education 4,5.

Master-apprentice style training

Not so long ago, namely as recently as 2005, Dutch postgraduate medical training was characterised by master-apprentice style workplace-based learning 6,7. In this system, master and apprentice work very closely together, resulting in a continuous transfer of knowledge and skills from master to apprentice. As the necessary knowledge and skills were predominantly authority and experience based, the apprentice was ready for independent practice once his knowledge and skills were at the same level as his master’s. This system has little need for extensive formal assessment, as the master knows his pupil inside out and is continuously aware of the level of progression of his trainee 8. Indeed, for a long time the only assessment during postgraduate O&G was a required minimum number of performed procedures and yearly, loosely structured in-training assessments with the educational supervisor.

Notably, master-apprentice style learning is not underpinned by a clear pedagogical strategy or educational theory 9. In this training structure, the defining educational feature of training medical specialists is the assumption of responsibility by trainees for patients 10. Spending long hours working the wards under the scrutiny of senior physicians was assumed to provide all the learning that was needed. At the same time, trainees were regarded as highly motivated adult learners who were intrinsically motivated to learn, as they had a need to know.
Certifying exams abroad

At the beginning of the twentieth century, as specialisation became more and more common, specialty-certifying exams were introduced in Germany, the UK and the USA. The incentives for this regulation and legislation were provided by the increasing numbers of medical students, a large variety in the level of teaching of medical schools and a need for minimal acceptable standards11. In the Netherlands, however, there are still virtually no certifying exams in postgraduate medical training. The combination of master-apprentice style learning and a strong emphasis on personal responsibility and self-directed learning is thought to provide the best possible outcome, making certifying exams unnecessary, even unwanted, out of fear for exam-driven study behaviour.

One can hypothesise that this system has been able to remain intact for so many years due to the fact that postgraduate training was for a long time undertaken in a master-apprentice setting. Moreover, the Netherlands is a small country, with a clearly defined academic structure; undergraduate medical training is state-based and follows legally defined program outcomes. Furthermore, all postgraduate training programs are subject to a very strict national accreditation system governed by the Dutch equivalent of royal colleges elsewhere. These factors make the outcome of training programs quite homogeneous 12.

Drivers for change

However, times have changed, and currently there is a need to move away from traditional master-apprentice style training and solely relying on individual responsibility and freedom to learn. First of all, the numbers of medical specialists and the number of trainees have surged since the 1950s (table 1). Concomitantly, the current trend for both male and female trainees and recently graduated specialists in O&G is to work part-time. Moreover, 80 (or more) hour workweeks are no longer considered acceptable for junior (or senior) doctors, nor safe for patients. For this reason almost all countries have regulated working hours, resulting in fewer hours of trainee presence on the work floor. The Netherlands complies with the European Working Time Directive, restricting working hours to a maximum of 48 hours a week 13-15. Furthermore, as a consequence of the rapidly expanding database of medical knowledge and technical developments, physicians are increasingly narrowing their focus, resulting in even more (sub) specialisation 14.

Table 1 Number of O&G specialists and trainees over time, including percentages of female specialists / trainees.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>O&amp;G SPECIALISTS</th>
<th>FEMALES</th>
<th>TRAINEES</th>
<th>FEMALE TRAINEES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1887</td>
<td>9</td>
<td>11%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1938</td>
<td>88</td>
<td>12%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1950</td>
<td>151</td>
<td>14%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1972</td>
<td>341</td>
<td>11%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1986</td>
<td>650</td>
<td>10%</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>902</td>
<td>50%</td>
<td>348</td>
<td>83%</td>
</tr>
</tbody>
</table>
It is clear that the ensuing fragmentation of postgraduate training has made it impossible for a trainee to be trained by just one master. Indeed, postgraduate education has become a responsibility of all physicians supervising and working with a trainee. However, the fragmentation of training also portends that it has become very difficult for an educational supervisor, who is the one responsible for the level of performance at the time of certification, to maintain an accurate overview of the progression of trainees.

Parallel with changes in the organisation of postgraduate training in O&G, the demands that society and the government are making upon the training of medical specialists have changed as well. An ever-louder call for more transparency and accountability of medical professionals can be heard. This is a direct result of several high profile cases where professional conduct of physicians was questioned. Furthermore, training medical specialists is a costly endeavour and governments are increasing pressures to make postgraduate medical training more effective and efficient.

**Changing Dutch postgraduate obstetrics and gynaecology training**

At the end of the 20th century postgraduate medical training in O&G in the Netherlands slowly started to evolve. This has partially been caused by incentives arising from the profession of obstetrics and gynaecology itself, and partially by changing legislation for all postgraduate training programmes. One of the first noticeable changes was the introduction of a yearly formative knowledge test or progress test by the NVOG (Dutch Society of Obstetrics and Gynaecology) in 1998. Fitting with the Dutch tradition of individual responsibility and freedom to learn, this test is intended to optimise learning, rather than to appraise learning. The test measures the functional knowledge level of trainees compared to their peers and is followed by feedback on test scores on several knowledge domains. Not passing the test has no formal consequences, instead it is expected that trainees will autonomously adjust their study activities according to their test results. Shortly following the introduction of progress testing, the NVOG made the first effort to define clear and universal end terms for postgraduate training in obstetrics and gynaecology.

The most important change, however, was inspired by a seminar of the Central College of Medical Specialties in 2000, during which the incentive for nationwide reform was created. In 2004 legislation was issued that forced all medical specialities to develop and present a new postgraduate training programme in 2007. The most salient part of this reform is probably the move towards a competency-based, outcome-directed curriculum, incorporating the 7 CanMeds roles. The notion that a competent physician is more than just a medical expert, and that other professional roles such as scholar, health advocate, collaborator, communicator, professional and manager are equally important in providing high-quality patient care in a multidisciplinary environment, caught on quickly. Additionally, the Dutch Legislative Board of Medical Specialists (CGS) directed a vast increase in the number and variety of workplace-based assessments. These were issued under the premise that regular, structured observations of a trainee whilst working in daily clinical practice would counteract the threat of neglect that resulted from fragmented postgraduate training. Furthermore, these assessments were intended to increase the
efficacy and transparency of postgraduate medical training and to make the progress of trainees visible and transferable between training situations. Most of these newly introduced workplace-based assessment instruments are examples of formative assessment and are designed to assess actual clinical performance followed by feedback to assist learning. Examples of these are the Direct Observation of Procedural Skills (DOPS), the mini Clinical Examination Exercise (mini-CEX, also known as ‘korte klinische praktijk beoordeling or kkb/kpb in the Netherlands), and MultiSource Feedback (MSF).

The CGS also insisted on summative assessment (assessment of learning) by instigating clear standards that need to be met before certification. Furthermore the portfolio was introduced to collect material that records and reflects performance during key events and processes in the training pathway of a trainee. This way, the portfolio can also be used to assess and appraise the progress of the trainee. However, in line with Dutch tradition, the CGS refrained from introducing certifying exams.

In 2007, as the far-reaching legislation of the CGS took effect, the Department of Health established a training fund for postgraduate medical education. The postgraduate medical training fund provides teaching hospitals with the means to optimise postgraduate training by making it possible to separate the often conflicting interests of training needs and service needs and enabling more transparent, efficient and flexible postgraduate training. It also means that the Dutch government, and not the specialty board (NVOG), now regulates training numbers.

Incidentally, the Netherlands does not stand alone in its profound transformation of postgraduate medical training. The UK, Canada and the United States of America have moved towards competency-based, outcome-directed postgraduate medical training, including a significant increase in the number and variety of formative assessment moments.

Place of the research project

This research project was set in motion in 2004, when assessment during Dutch postgraduate obstetrics and gynaecology training consisted of loosely structured yearly in-training assessments by the educational supervisor and a yearly formative knowledge progress test. Furthermore, before certification, a set minimum number of surgical and obstetrical procedures had to have been performed, several obligatory postgraduate courses had to have been attended and sufficient scientific progress had to have been made. During the period in which this study took place the directives of the CGS were gradually incorporated and implemented in regional and national postgraduate training programmes.

Study incentive

It was clear that the CGS demanded a vast increase in formative assessment moments, but little was known about the utility of formative assessment in postgraduate medical education and how assessment can be best positioned when the aim is to optimise learning and training. At the same time, it was also clear that the increase in formative assessments would require a significant change in workplace culture and a considerable time investment. For these reasons we embarked on this research journey, which focuses on the following question:
How can assessment be deployed to optimise postgraduate medical training?

To answer this question several sub questions were formulated:
• What is the utility of formative knowledge progress testing in postgraduate obstetrics and gynaecology?
  – Construct validity and reliability
  – Acceptability and educational impact
• Can the utility of formative knowledge progress testing in postgraduate obstetrics and gynaecology be advanced by improving the authenticity of the test?
• What factors determine active engagement in formative assessment of postgraduate trainees and supervisors?
• What is the role of assessment in assessing competence and progressive independence?
• What is the evidence considering the educational impact of both formative and summative assessment?

In this thesis the word ‘trainee’ will be used to depict a graduated (postgraduate) medical doctor who is formally training to become a medical specialist. Table 2 provides an overview of terms that are used to refer to trainees in several different countries.

Table 2 Terms used internationally to depict postgraduate medical trainees

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>TERMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>junior doctor, post registration house officer, foundation year 2 doctor, specialist registrar</td>
</tr>
<tr>
<td>USA</td>
<td>intern, resident, resident physician</td>
</tr>
<tr>
<td>Australia</td>
<td>resident medical officer, registrar</td>
</tr>
<tr>
<td>Canada</td>
<td>resident</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>arts-assistent in opleiding tot specialist (aios)</td>
</tr>
</tbody>
</table>
References

23. KNMG. Kaderbesluit CCMS (Centraal College Medisch Specialisten) 2004.