Chapter 2

Implementation of hysteroscopic surgery in The Netherlands

Heleen van Dongen
Wendela Kolkman
Frank Willem Jansen

**Introduction**

Diagnostic hysteroscopy offers a reliable examination of the uterine cavity and detection of intrauterine pathology [Clark 2002b; Farquhar 2003]. The benefits of hysteroscopy as an operative tool together with women’s desire to preserve their uterus despite dysfunction, has led to replacement of hysterectomy as a therapeutic procedure in certain cases of abnormal uterine bleeding [Sowter 2000]. Additionally, complication rates of hysteroscopy are low, varying from 0.012% for diagnostic hysteroscopy to 0.8% for operative procedures [Aydeniz 2002; Hill 1992; Jansen 2000].

The degree of its diffusion these days, however, is not completely clear. Therefore, the objective of this study was to determine the diffusion of hysteroscopy in gynaecological practice in The Netherlands. This was objectified in two ways. First, of each specific procedure the percentage of hospitals performing these procedures was outlined. Second, the number of different procedures performed per gynaecologist was estimated.

**Methods**

In 2003 all the departments of Gynaecology (n=102) in The Netherlands were sent a questionnaire. The questionnaire addressed the number and types of all hysteroscopic procedures that were performed in each hospital in 2002. Each envelope contained a letter of introduction, the questionnaire and a stamped return envelope. To maximise the response rate a second mailing was sent after six weeks. In cases of non-response a final request was done by phone.

Data from this study were compared to previously published data from 1997 [Jansen 2000]. The questionnaires used in both studies were similar. For this study all surveyed departments of Gynaecology were stratified by type of clinic: teaching hospital or non-teaching hospital. Due to merging of gynaecology practices the total number of hospitals notified, changed over time. In 1997 there were 36 teaching hospitals (8 university hospitals and 28 non-university hospitals) and 94 non-teaching hospitals. Among all hospitals in 2002, 42 were teaching hospitals (8 university hospitals and 34 non-university hospitals) and 60 non-teaching hospitals. In contrast to teaching hospitals, non-teaching hospitals offer no residency program for gynaecology. In 2000 the Dutch Society of Obstetrics and Gynaecology established curriculum guidelines for residency training, specifying hysteroscopic procedures required for graduation [www.nvog.nl]. These procedures are diagnostic hysteroscopy, removal of intrauterine devices (IUD), polypectomy and myomectomy type 0 (completely intracavitary). Submucous myomas are classified according to the criteria of Wamsteker et al. [Wamsteker 1993b]. Pedunculated submucous myomas without intramural extension are classified as type 0 myomas. Type I and II myomas have an intramural extension of less than or more than 50% respectively. Guidelines issued by the Royal College of Obstetricians and Gynaecologists were used to classify hysteroscopic surgery procedures according to their level of difficulty (level 1-3) [Royal College of Obstetricians and Gynaecologists (RCOG) 2001].
The information was collected in the statistical SPSS program (SPSS, version 11, SPSS Inc., Chicago, IL) and analysed using the Mann-Whitney \( U \)-test and the Pearson’s Chi-square test. Significance was reached at a \( p \)-value of <0.05.

**Results**

Out of the 102 departments notified in 2003, 82 (80%) returned the questionnaire. Significantly more teaching hospitals (40/42; 95%) returned the questionnaire than non-teaching hospitals (42/60; 70%; \( p=0.001 \)). Of the hospitals that responded to the questionnaire in 1997, 79% also responded in 2002. Not all respondents answered to all items of the questionnaire; therefore subcalculations with different denominators were made.

The diffusion of hysteroscopic procedures in 1997 and 2002, defined as a percentage of hospitals performing hysteroscopic surgery, is shown in figure 1. Diagnostic hysteroscopy was performed in almost all hospitals in 1997 and 2002. The percentage of hospitals that adopted polypectomy, myomectomy and endometrial ablation increased to more than 90% in 2002, however this increase was not statistically significant compared to 1997 (\( p=0.058 \)). The diffusion of synechiolysis increased significantly to 67% (\( p=0.025 \)). The percentage of gynaecologists regularly performing hysteroscopic surgery increased significantly from 63.9% (228/357) in 1997 to 76.3% (184/241) in 2002 (\( p=0.001 \)).

![Figure 1](image_url)

**Figure 1** | Percentage of all hospitals performing different types of hysteroscopic procedures in 1997 and 2002.
The diffusion of hysteroscopic procedures in 1997 and 2002 stratified by type of hospital is detailed in figure 2. The number of teaching hospitals that integrated diagnostic hysteroscopy, polypectomy and myomectomy (procedures required for graduation) into their operative spectrum increased to 100% \( (p=0.047) \). The number of teaching hospitals performing synechiolysis increased significantly to 88% in 2002 \( (p=0.010) \). The extent of hysteroscopic surgery in non-teaching hospitals hardly changed.

![Figure 2](image)

**Figure 2** | Percentage of hospitals performing different types of hysteroscopic procedures stratified by teaching (TH) and non-teaching hospitals (non-TH) in 1997 and 2002.

In 1997 a total of 9,207 diagnostic procedures in 62 hospitals and 2,958 therapeutic procedures in 69 hospitals were reported. The questionnaire in 2002 revealed 13,044 diagnostic procedures in 75 hospitals and 4,636 therapeutic procedures in 82 hospitals. To correct for differences in response rate and number of gynaecologists per hospital, the median number per procedure performed per gynaecologist per year was calculated (table 1). The median number of diagnostic hysteroscopies \( (p=0.860) \) and therapeutic hysteroscopies \( (p=0.104) \) performed per gynaecologist increased slightly over time, however, not significantly. The number of hysteroscopic polypectomies increased significantly \( (p=0.040) \), whereas the number of other therapeutic procedures remained consistent. Of all hysteroscopically removed myomas 47% were defined as type 0.

The median number of all diagnostic and therapeutic procedures stratified by type of clinic is detailed in table 2. In teaching hospitals, the median number of septum resections \( (p=0.023) \) and hysteroscopic sterilisation procedures \( (p=0.033) \) performed per gynaecologists per year decreased significantly over time.
The number of hysteroscopic procedures performed per hospital per year stratified by the level of difficulty according to the guidelines of the Royal College of Obstetricians and Gynaecologists are detailed in table 3 [Royal College of Obstetricians and Gynaecologists (RCOG) 2001]. The median number of level 1 procedures (diagnostic hysteroscopy and IUD removal) increased significantly from 107 in 1997 to 169 in 2002 ($p=0.042$). The number of level 2 (polypectomy, myomectomy type 0, septum resection, endometrial ablation) and 3 (myomectomy type I and II, synechiolysis, sterilisation) procedures increased slightly, however, not significantly.
Table 3 | Median number of procedures performed per hospital stratified by level of procedure according to the guidelines issued by the Royal College of Obstetricians and Gynaecologists.

<table>
<thead>
<tr>
<th>Level</th>
<th>1997 Median (range)</th>
<th>2002 Median (range)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1</td>
<td>107 (10-523)</td>
<td>169 (25-558)</td>
<td>0.04</td>
</tr>
<tr>
<td>Level 2</td>
<td>22 (14-131)</td>
<td>33 (3-112)</td>
<td>0.91</td>
</tr>
<tr>
<td>Level 3</td>
<td>9 (1-32)</td>
<td>15 (10-35)</td>
<td>0.41</td>
</tr>
</tbody>
</table>

Level 1: diagnostic hysteroscopy, IUD removal
Level 2: polypectomy, myomectomy type 0, endometrial ablation, septum resection
Level 3: myomectomy type I and II, synechiolysis, sterilisation

Discussion

The diffusion of diagnostic and therapeutic hysteroscopy has increased slightly from 1997 to 2002 in The Netherlands. However, the number of procedures performed per gynaecologist is still limited, especially the more advanced operative procedures. If implementation of basic and more advanced hysteroscopic procedures is aspired, this limitation may hamper the ability to maintain or further develop advanced surgical skills.

The field of endoscopic surgery has evolved considerably over the past few years. However, its implementation in daily practice has been a problem [Bröllmann 2001; Chiasson 2003; Loh 2002; Nussbaum 2002]. In particular the introduction of hysteroscopic surgery, which came relatively late compared to other endoscopic fields such as laparoscopy, diffused very slowly into routine practice in The Netherlands [de Wit 1993].

Compared to the early nineties, in which only half of all gynaecological departments in The Netherlands had access to diagnostic hysteroscopy and only two hospitals had full operative facilities [Schijf 1991], the number of hospitals that incorporated hysteroscopic surgery into their operative spectrum had changed promisingly by 1997. At that time almost all gynaecological departments in The Netherlands performed diagnostic hysteroscopy and the majority performed hysteroscopic surgery related to the treatment of abnormal uterine bleeding (polypectomy, myomectomy and endometrial ablation). These numbers slightly increased in 2002. As diagnostic hysteroscopy is an accurate method in the evaluation of the uterine cavity [chapter 5, Clark 2002b] and as hysteroscopic surgery is widely adopted as an alternative for hysterectomy in cases of abnormal uterine bleeding, this corresponds with our expectations. Though the number of endometrial ablation procedures per gynaecologist stagnated. In the United Kingdom a similar phenomenon was described. Garry et al. suggested that skill-related problems and severe complications encountered with the first-generation techniques delayed the implementation [Garry 2005]. Another rational explanation for this stagnation is the
introduction of the levonorgestrel-IUD for the therapy of heavy menstrual bleeding.

Although the results of this study might imply that the diffusion of advanced hysteroscopic procedures (hysteroscopic synechiolysis, septum resection and sterilisation) improved over the years studied, the number of procedures performed per gynaecologist tended to decrease. The number of hysteroscopic sterilisations dropped significantly. This decrease is probably caused by the fact that, due to insurance matters in The Netherlands during the study period, hysteroscopic sterilisation became more expensive than the laparoscopic approach.

It is likely that learning advanced hysteroscopic surgery is time-consuming, and that the caseload is rather small. Therefore the question remains, what degree of implementation should be aspired. Especially since Brölmann et al. signalled a decline in gynaecological surgery in combination with an increasing number of gynaecologists in The Netherlands, resulting in difficulties acquiring and maintaining surgical skills [Brölmann 2001]. Moreover, difficult procedures are prone to a higher complication rate, underlining the need of experience [Jansen 2000]. The establishment of special centres in combination with an adequate referral system might solve this problem.

A limitation of this study is that we had to take into account different response rates. The percentage of non-responders performing hysteroscopic surgery is expected to be low, because they were thought to have had difficulties recovering the number of procedures performed or more likely they did not perform this type of hysteroscopic surgery at all. Moreover, significantly more teaching hospitals responded than non-teaching hospitals. As we expect that the integration of hysteroscopic surgery in teaching hospitals is better than in non-teaching hospitals, the real diffusion could be less good.