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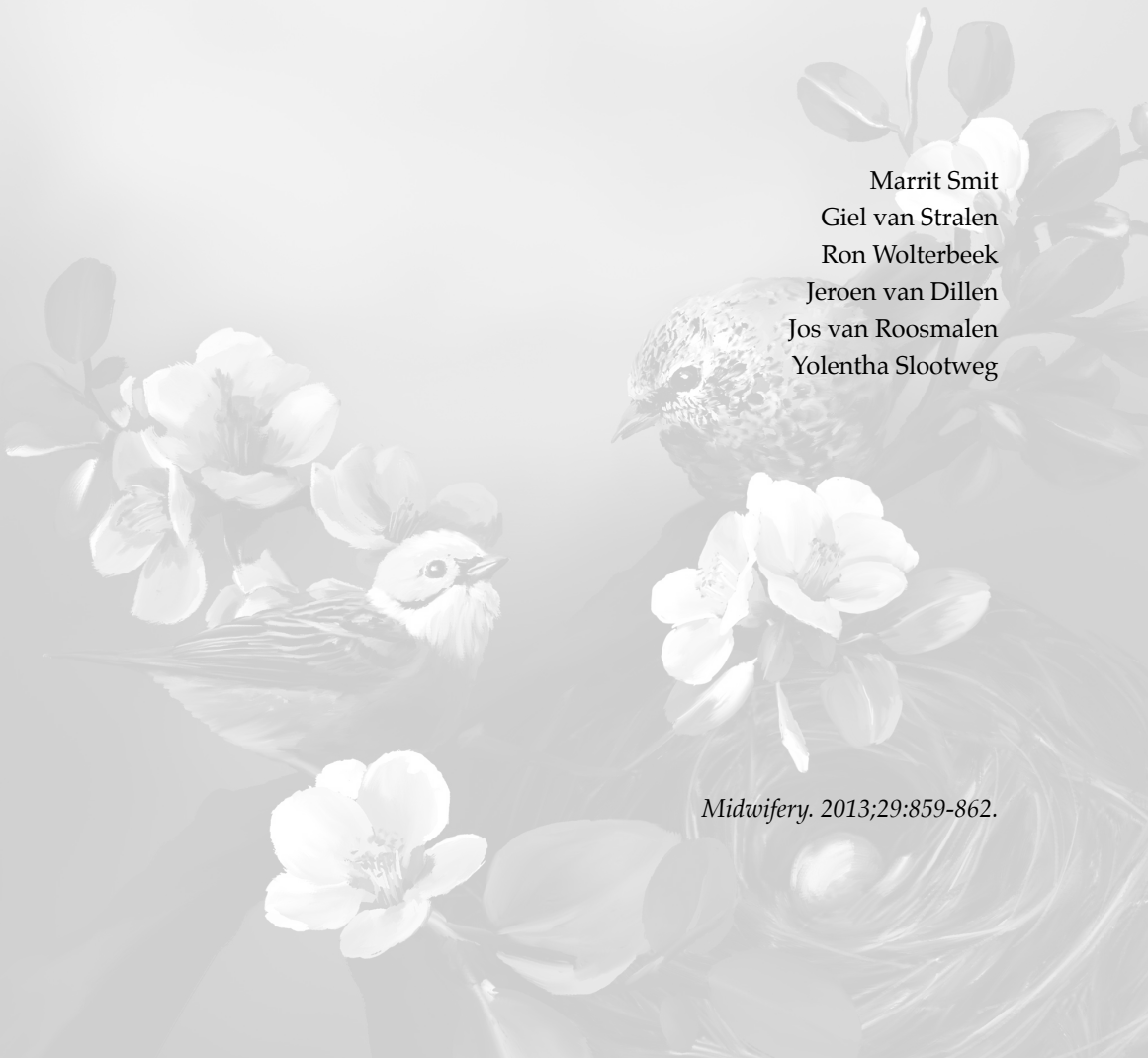
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# Chapter 5

## Survey of prophylactic use of uterotonics in the third stage of labour in the Netherlands

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## ABSTRACT

### Objective

Aim of this study was to investigate current knowledge and practice regarding 'Active Management of Third Stage of Labour' (AMTSL) in midwifery practices and obstetric departments in the Netherlands.

### Design

Web-based and postal questionnaire.

### Setting

In August and September 2011 a questionnaire was sent to all midwifery practices and all obstetric departments in the Netherlands.

### Participants

All midwifery practices (528) and all obstetric departments (91) in the Netherlands.

### Measurements and findings

The response was 87.5%. Administering prophylactic uterotonic was seen as a component AMTSL by virtually all respondents; 96.1% of midwives and 98.8% of obstetricians. Cord clamping was found as a component of AMTSL by 87.4% of midwives and by 88.1% of obstetricians. Uterine massage was only seen as a component of AMTSL by 10% of the midwives and 20.2% of the obstetricians. Midwifery practices routinely administer oxytocin in 60.1% of births. Obstetric departments do so in 97.6% ( $p < 0.01$ ). Compared to 1995, the prophylactic use of oxytocin had increased in 2011 both by midwives (10–59.1%) and by obstetricians (55–96.4%) ( $p < 0.01$ ).

### Key conclusions

Prophylactic administration of uterotonic directly after childbirth is perceived as the essential part of AMTSL. The administration of uterotonic has significantly increased in the last decade, but is not standard practice in the low-risk population supervised by midwives.

### Implications for practice

The evidence for prophylactic administration of uterotonic is convincing for women who are at high risk of PPH. Regarding the lack of evidence of AMTSL to prevent PPH in low risk (home) births, further research concerning low-risk (home) births, supervised by midwives in industrialised countries is indicated. A national guideline containing best practices concerning management of the third stage of labour supervised by midwives, should be composed and implemented.



## INTRODUCTION

Postpartum haemorrhage, PPH, defined as more than 1000 ml after childbirth contributes to substantial numbers of maternal deaths and morbidities worldwide. <sup>1</sup> The incidence of postpartum haemorrhage caused by uterine atony is increasing in industrialised countries. <sup>2</sup> In the Netherlands, if pregnancy is uncomplicated and no elevated risk has been identified, birth can take place either at home or in hospital, both supervised by a midwife. In fact, 33% of all women give birth under supervision of a midwife. Although 5.9% of births in the Netherlands are complicated by PPH, the incidence of PPH in low risk (home) births is approximately 3.4%. <sup>3</sup> Management of the third stage of labour has roughly two approaches. Expectant management involves waiting for signs of placental separation and allowing the placenta to deliver spontaneously or assisted by gravity or nipple stimulation. <sup>4</sup> Active Management of Third Stage of Labour, AMTSL, includes prophylactic use of uterotonics, cord clamping and Controlled Cord Traction, CCT. <sup>2, 5-8</sup> It is assumed that prophylactic use of uterotonics halves the risk of PPH. <sup>9</sup> It is unclear what the impacts of the other components of AMTSL (cord clamping and CCT) are in the reduction of PPH. <sup>7,10</sup> Active management has often been compared to expectant management. <sup>4,7,8,11,12</sup> A recent review shows that if AMTSL is the standard care for all women, the incidence of PPH (>1000 ml) and anaemia is significantly reduced. However, AMTSL increased maternal blood pressure, postpartum contractions, nausea, vomiting and use of drugs for pain relief. These side-effects were probably due to the use of ergot compounds. For women at low risk of bleeding, there was no difference in the risk of PPH>1000 ml and side effects were similar. <sup>7</sup> The International Confederation of Midwives (ICM), the International Federation of Gynaecologists and Obstetricians (FIGO), the World Health Organisation (WHO) and guidelines on the third stage of labour in many countries, advocate AMSTL for all women. <sup>1,5-7,13,14</sup> However, in the United Kingdom, the Royal College of Midwives (RCM) and the New Zealand College of Midwives do not recommend AMSTL but uterotonics on indication. <sup>15,16</sup> In the Netherlands, prophylactic administration of uterotonics is recommended by the Dutch Society of Gynaecologists and Obstetricians (NVOG). <sup>17</sup> At present, The Royal Dutch College of Midwives, KNOV, has no protocol on management of the third stage of labour. In 1995, a survey among all obstetricians and midwives in the Netherlands showed that 55% of the obstetricians versus 10% of midwives administered oxytocin as a prophylaxis. <sup>18</sup> Insufficient evidence on the effectiveness of some components of AMTSL, the conflicting recommendations and the absence of a guideline for midwives in the Netherlands may result in variation in practice.

Aim of this study was to investigate current knowledge and practice regarding AMTSL in midwifery practices and obstetric departments in the Netherlands.



## METHODS

A questionnaire was developed and tested by two midwives and an obstetrician and sent to all hospitals with obstetric departments (n=91) and all midwifery practices (n=528) in the Netherlands. The questionnaire was sent to every midwifery practice and to the chief consultant of all obstetric departments. Recipients were asked whether he or she was currently working in obstetrics or midwifery. Secondly, the presence of an oral or written protocol concerning the management of the third stage of labour was inventoried. Respondents were asked to select components they considered part of AMTSL, picking as many or as little as they found applicable. If incorporated in a protocol, respondents were asked about the type, dose and administration route of the uterotonics. If respondents did not apply AMTSL, considerations for this choice could be indicated, such as: 'too burdensome for the parturient' or 'unnecessary without indication of an increased risk of PPH' or 'not described in a guideline'. In addition, free text space was available to elaborate on this chosen policy. If no AMTSL was applied, participants were asked in what situation uterotonics after childbirth were administered, for example macrosomia, delayed second and/or delayed third stage. A digital version of the questionnaire was placed on the website of the KNOV and linked to their biweekly newsletters in June and August 2011. The NVOG supplied addresses of all obstetric departments in the Netherlands and they received the questionnaire by mail in August 2011. In September 2011 the questionnaire was sent by mail to midwifery practices which had not completed the web-based questionnaire. The first author contacted obstetricians and midwives for missing data to be completed. Data from the web based questionnaire and paper forms were combined in an excel spreadsheet. Analyses were performed using the Statistical Package for the Social Sciences (SPSS), version 17 (SPSS Inc., Chicago, IL, USA). Responses of the obstetricians and midwives were compared. Data from the 1996 study were compared with data obtained in this survey.<sup>18</sup> Similar methodology was used and questions on management of third stage of labour were similar. Therefore, statistical comparison was possible. Analyses were conducted using the  $\chi^2$ -test. Statistical significance was considered if  $p < 0.05$ .

### Findings

Of the obstetric departments, 84 out of 91 (92.3%) responded to the questionnaire as compared to 436 out of the 528 midwifery practices (82.6%) ( $p < 0.01$ ). All respondents were currently working as obstetrician or midwife. Within the 436 midwifery practices, 51.8% reported the presence of an oral or written protocol regarding management of third stage of labour (consisting of either an active management or expectant management) compared to 91.7% of all 91 obstetric departments ( $p < 0.01$ ).



As shown in Fig. 1, 96.1% of the midwives and 98.8% of the obstetricians view 'applying uterotonics directly after childbirth' as part of AMTSL. Delayed cord clamping is found a component of AMTSL in 87.4% of midwives and 88.1% of obstetricians. CCT is seen as a component of AMTSL by 15.8% of midwives, versus 71.4% of obstetricians. Uterine massage is seen as a component of AMTSL by 10.1% of midwives and by 20.2% of obstetricians. Midwifery practices administer oxytocin as a prophylaxis in 60.1% of all births. Obstetric departments do so in 97.6% ( $p < 0.01$ ). Of the practices with a protocol on the management of third stage, 59.1% of midwifery practices and 96.4% of obstetric practices administer oxytocin as a prophylaxis ( $p < 0.01$ ). Of the practices without a protocol on management of third stage, 55.1% of the midwives and 83.3% of obstetricians administer oxytocin as a prophylaxis ( $p < 0.01$ ) (Fig. 2).

Oxytocin is the drug of choice (99.8%), with a dosage of 5 IU (20.2% of midwives, 59.8% of obstetricians) or 10 IU (79.8% of midwives and 40.2% of obstetricians). All midwives administer oxytocin intramuscular (100%), 66.3% of the obstetricians administer oxytocin intramuscular (58.5% 5 IU and 41.2% 10 IU) and 33.4% intravenous (74.1% 5 IU and 25.9% 10 IU). One obstetrical practice uses 0.2 mg methylergometrin, intramuscular as a prophylaxis. Respondents with a protocol prescribing no AMTSL were asked to motivate this choice. 91.1% of the midwifery practices and two obstetrical practices find administering oxytocin routinely unnecessary without indication of an increased risk of PPH. Six per cent of the midwives declared that the absence of a guideline is a reason for not pursuing AMTSL.

The use of prophylactic uterotonics has significantly increased between 1995 and 2011 both by midwives (10–59.1%) and by obstetricians (55–96.4%) ( $p < 0.01$ ).

## DISCUSSION

Compared to 1995, the routine use of uterotonics in the Netherlands has significantly increased for both midwifery practices as well as for obstetric departments. The magnitude of the increase in the use of routine uterotonics found is such that one can assume that a true shift in policy has taken place. Reasons for this change in policy are various and include the implementation of a guideline for obstetricians in 2006, the introduction of the Managing Obstetric Emergencies and Trauma course (MOET) for obstetricians in 2003, the pre-hospital Obstetric Emergency Course (CAVE) for midwives and the promotion of AMTSL in one of three midwifery schools.<sup>17,19,20</sup>

This survey shows that the administering of uterotonics is considered the main component of AMTSL by health-care workers in the Netherlands. Clamping of the umbilical cord, controlled cord traction and uterine massage are found of less importance. This finding has been addressed in other studies.<sup>7,21</sup> The respondents who indicated applying AMTSL



are probably not applying AMTSL according to definitions used in literature, but solely administering oxytocin. The impact of this finding is probably not of great significance to the interpretation of the results, as it is assumed that the effect of oxytocin is greater than the effects of ECC and CCT.

A global survey in various high- and low income countries has shown significant intra- and inter-country variation in policies in AMTSL. In low income countries, AMTSL is proven to reduce maternal deaths. However, the study found that when AMTSL was advised in these areas, it was not always practiced.<sup>21</sup> In a survey of maternity units in 14 European countries, a considerable difference was found concerning management of the third stage of labour both between and within countries. The study showed that in the Netherlands, 95% of women receive uterotonics routinely (similar to our findings), and 36% of the obstetricians apply AMTSL.<sup>22</sup> Our study provides additional information, surveying protocols of midwives in primary care as well. In a survey in British Columbia, Canada, only 17.4% of midwives found that AMTSL should be applied at every birth. The authors concluded that the midwives rejected some elements of 'the package' ('early cord clamping' and CCT), so the level of agreement on AMTSL was low. To support this hypothesis, the question was asked on whether they administered uterotonics as a prophylaxis (without 'early cord clamping' and ECC). This was acknowledged by 36.6% of the midwives.<sup>23</sup> In the United Kingdom, a similar survey on management of third stage of labour was executed among midwives and obstetricians.<sup>24</sup> Most obstetricians (93%) and midwives (73%) reported to 'always or usually' administer prophylactic uterotonics and the majority applies CCT (94%). An interesting finding was that the use of CCT seems superior to the administration of uterotonics. In our study, respondents find CCT of less importance as a component of AMTSL; 15.8% of midwives and 17.4% of obstetricians. There is no convincing evidence concerning the effect of CCT on the incidence PPH, further research is indicated.<sup>1</sup> The strength of this study is the high response rate, as virtually all midwifery and obstetrical practices in the Netherlands provided us with data. A limitation of this study is that if a midwife practice of obstetrical department had no protocol on AMTSL; answers given by the respondents were personal, not necessarily representative of the whole practice or department. Furthermore, no questions were asked on the size of the practices e.g. the number of colleagues represented per respondent, so the percentages given for the overall population should be interpreted with care. As seen in this study, routinely administering uterotonics has increased significantly in the Netherlands since 1995.

The routine use of uterotonics is recommended by ICM as well as FIGO. In the Netherlands, no guideline for (home) birth in primary care is present. Studies have shown the positive effect of prophylactic uterotonics on the prevalence of PPH, worldwide.<sup>7</sup> For birth in primary care in industrialised countries, however, the evidence is less convincing.





Studies have shown that, for women at low risk of PPH who received prophylaxis, there is a reduction of total blood loss, but not in the incidence of PPH.<sup>7</sup> Recent published data from a retrospective study in New Zealand suggests that AMTSL in low-risk midwifery-led births increases the incidence of PPH and retained placenta.<sup>25</sup> The authors concluded that the use of physiological management of could be considered and supported for women who are healthy and have had a spontaneous labour and birth regardless of birth place setting. More research is recommended to determine whether uterotonics are more effective as a treatment in the first instance than after initial exposure prophylaxis in low-risk midwifery-led births.

It is probable that the respondents in our survey who do not routinely administer uterotonics, practice expectant management and administer uterotonics on indication. The present survey provides us with information on current practices regarding management of third stage of labour in the Netherlands. It is a first step towards further research on the routine use of uterotonics in low risk (home) births. Ideally, a randomised controlled trial should be performed concerning AMTSL and physiological management in low-risk midwifery-led births.

### **Key conclusions**

Routinely administering oxytocin directly after childbirth has significantly increased both for midwives and obstetricians in low and high risk pregnancies in the Netherlands since 1995. In low-risk births supervised by midwives, it is not standard practice. Most obstetricians administer oxytocin routinely (97.6%). The evidence for the routine administering of uterotonics is convincing for women who are at risk of PPH, but concerning low-risk (home) birth we advise further research on the routine administering of uterotonics in midwifery practices. A national guideline concerning management of the third stage of labour in (home) birth supervised by midwives should be composed and implemented.

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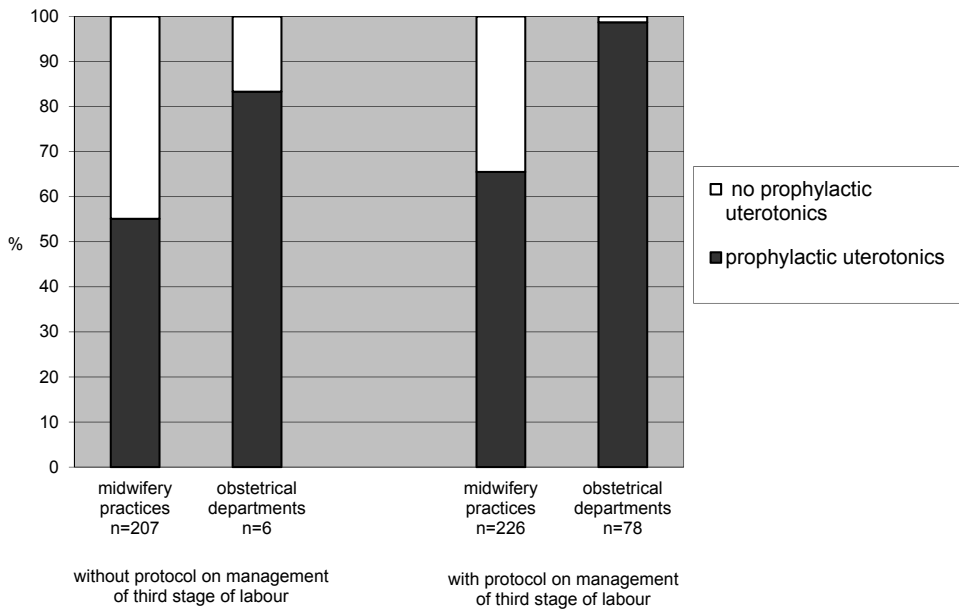
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**Figure 1. Which components do you consider to be part of Active Management of the Third Stage of Labour, AMTSL?**

Components viewed as part of AMTSL.	Midwifery Practices N= 436 (%)	Obstetrical Departments N= 84 (%)
- Applying uterotonics directly after childbirth	419 (96.1)	83 (98.8)
- Delayed cord clamping	381 (87.4)	74 (88.1)
- Controlled cord traction	69 (15.8)	60 (71.4)
- Uterine massage	44 (10.1)	17 (20.2)

**Figure 2. Routine use of prophylactic oxytocin in midwifery practices and obstetric departments with and without an oral or written protocol on management of third stage.**



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