

## Supplementary Appendix

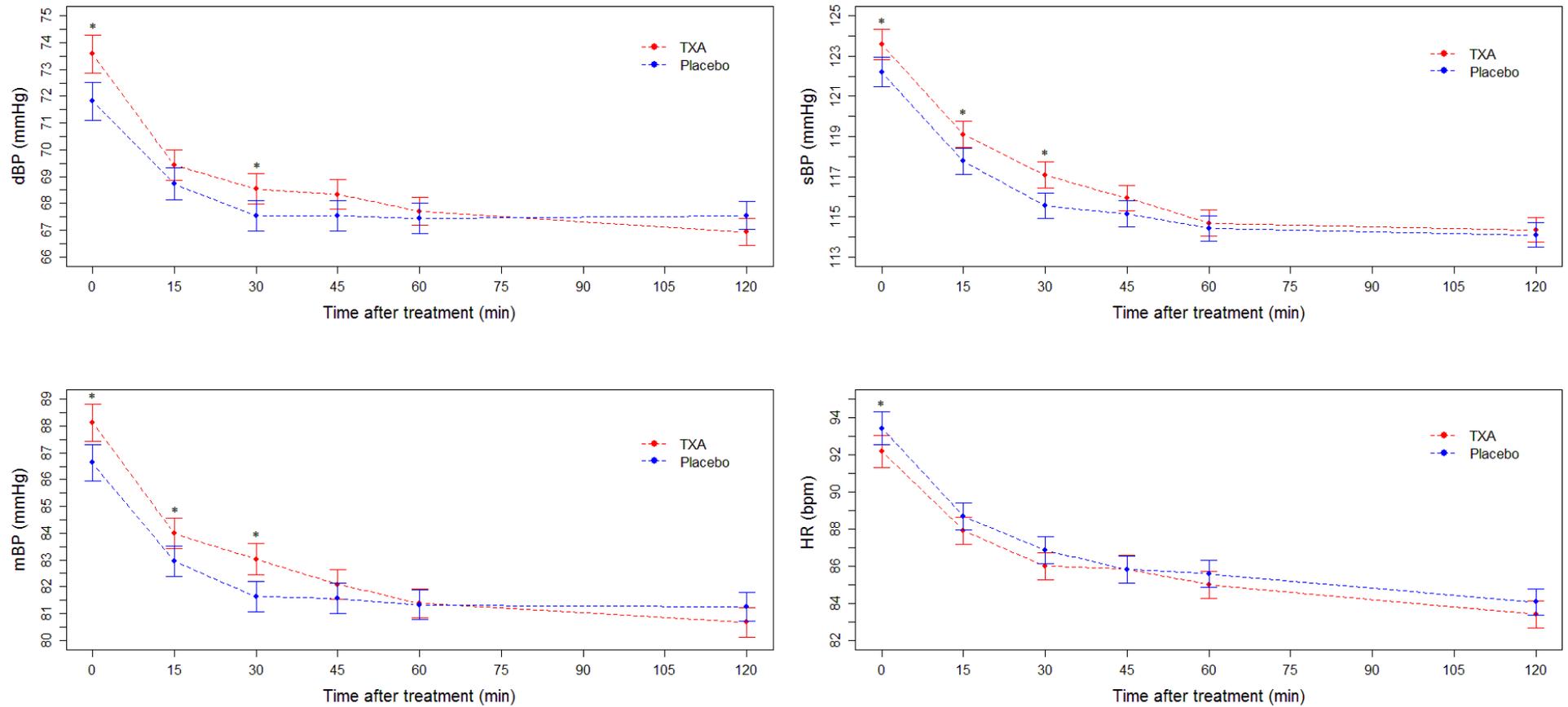
### **Tranexamic acid for the prevention of blood loss after vaginal delivery**

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On behalf of the Groupe de Recherche en Obstétrique et Gynécologie (GROG).

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**Figure S1.** Hemodynamic parameters in the immediate postpartum, modified intention to treat population



Legend:

Results are mean (95% CI)

dBP: diastolic blood pressure, sBP: systolic blood pressure; mBP: mean blood pressure; HR: heart rate

\*p < 0.05 for difference between the 2 groups

**Table S1:** Exclusion criteria, TRAAP trial

|                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Previous episode of venous thrombosis: deep vein thrombosis, pulmonary embolism                                                                                         |
| Previous episode of arterial thrombosis: myocardial infarction, stroke                                                                                                  |
| Any known cardiovascular, kidney, or liver disorder                                                                                                                     |
| Autoimmune disease                                                                                                                                                      |
| Sickle cell disease                                                                                                                                                     |
| Condition at possibly increased risk of bleeding: severe hemorrhagic disease, placenta previa, placenta accrete spectrum, HELLP syndrome, multiple pregnancy            |
| Condition that could impair initial hemostasis: in utero fetal death, administration of low-molecular-weight heparin or antiplatelet agents in the week before delivery |
| Epilepsy                                                                                                                                                                |
| Eclampsia                                                                                                                                                               |
| Poor comprehension of oral French                                                                                                                                       |

**Table S2.** Characteristics of participants at baseline, adherence to assigned intervention and other aspects of management of the third stage of labor, modified intention-to-treat population (expanded version of Table 1)\*

| <b>Characteristic of participants at baseline</b>                      | <b>Tranexamic acid group<br/>(N=1945)</b> | <b>Placebo group<br/>(N=1946)</b> |
|------------------------------------------------------------------------|-------------------------------------------|-----------------------------------|
| <b>Age —yr</b>                                                         | 30.3±4.7                                  | 30.2±5.0                          |
| <b>Geographical origin— no. (%)</b>                                    |                                           |                                   |
| <b>Europe</b>                                                          | 1540 (83.5)                               | 1531 (82.8)                       |
| <b>Sub-Saharan Africa</b>                                              | 70 (3.8)                                  | 88 (4.8)                          |
| <b>North Africa</b>                                                    | 172 (9.3)                                 | 176 (9.5)                         |
| <b>Asia</b>                                                            | 43 (2.3)                                  | 39 (2.1)                          |
| <b>Other</b>                                                           | 20 (1.1)                                  | 14 (0.8)                          |
| <b>Non-French Nationality — no. (%)</b>                                | 161 (8.8)                                 | 162 (8.9)                         |
| <b>Body-mass index before pregnancy ‡</b>                              | 23.3±4.4                                  | 23.5±4.6                          |
| <b>Preexisting chronic hypertension — no. (%)</b>                      | 7 (0.4)                                   | 17 (0.9)                          |
| <b>Preexisting diabetes mellitus — no. (%)</b>                         | 7 (0.4)                                   | 10 (0.5)                          |
| <b>Primiparous — no. (%)</b>                                           | 1025 (52.7)                               | 1048 (53.9)                       |
| <b>Any uterine scar — no. (%)</b>                                      | 122 (6.3)                                 | 114 (5.9)                         |
| <b>Previous cesarean delivery— no. (%)</b>                             | 101 (5.2)                                 | 107 (5.5)                         |
| <b>History of postpartum hemorrhage— no. (%)</b>                       | 92 (4.7)                                  | 85 (4.4)                          |
| <b>Tobacco use during pregnancy — no. (%)</b>                          | 247 (12.7)                                | 284 (14.6)                        |
| <b>Gestational diabetes — no. (%)</b>                                  | 198 (10.2)                                | 222 (11.4)                        |
| <b>Gestational hypertensive disorders— no. (%)</b>                     | 37 (1.9)                                  | 47 (2.4)                          |
| <b>Hospitalization during pregnancy longer than 24 hours — no. (%)</b> | 106 (5.4)                                 | 103 (5.3)                         |

|                                                                                                                                          |               |               |
|------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|
| <b>Induction of labor— no. (%)</b>                                                                                                       | 384 (19.7)    | 410 (21.1)    |
| <b>Epidural analgesia— no. (%)</b>                                                                                                       | 1908 (98.1)   | 1900 (97.6)   |
| <b>Oxytocin during labor— no. (%)</b>                                                                                                    | 1135 (58.4)   | 1171 (60.2)   |
| <b>Duration of active phase of labor— hours</b>                                                                                          |               |               |
| <b>Median (IQR)</b>                                                                                                                      | 2.3 (1.3-3.5) | 2.3 (1.3-3.5) |
| <b>Operative vaginal delivery — no. (%)</b>                                                                                              | 346 (17.8)    | 332 (17.1)    |
| <b>Vacuum</b>                                                                                                                            | 162 (46.8)    | 137 (41.3)    |
| <b>Forceps</b>                                                                                                                           | 184 (53.2)    | 195 (58.7)    |
| <b>Episiotomy— no. (%)</b>                                                                                                               | 456 (23.4)    | 444 (22.8)    |
| <b>Perineal tear— no. (%)</b>                                                                                                            | 1099 (56.5)   | 1119 (57.5)   |
| <b>Birth weight —g</b>                                                                                                                   | 3406±419      | 3384±425      |
| <b>Birth weight above 4000 g— no. (%)</b>                                                                                                | 165 (8.5)     | 142 (7.3)     |
| <b>Characteristics of participants at adherence to assigned intervention and other aspects of management of the third stage of labor</b> |               |               |
| <b>Prophylactic oxytocin at birth — no. (%)</b>                                                                                          | 1922 (98.8)   | 1934 (99.4)   |
| <b>Study treatment — no. (%)</b>                                                                                                         |               |               |
| <b>Received assigned treatment</b>                                                                                                       | 1902 (97.8)   | 1902 (97.7)   |
| <b>within two minutes of birth</b>                                                                                                       | 1479 (76.0)   | 1490 (76.6)   |
| <b>within ten minutes of birth</b>                                                                                                       | 1888 (97.1)   | 1889 (97.1)   |
| <b>Received no treatment</b>                                                                                                             | 41 (2.1)      | 42 (2.2)      |
| <b>Received the opposite treatment</b>                                                                                                   | 2 (0.1)       | 2 (0.1)       |
| <b>Interval between delivery and study treatment administration—min</b>                                                                  |               |               |
| <b>Median (IQR)</b>                                                                                                                      | 2 (1-2)       | 1 (1-2)       |
| <b>Cord clamping within two minutes of birth — no.</b>                                                                                   | 1594 (87.0)   | 1620 (88.2)   |

|                                                   |             |             |
|---------------------------------------------------|-------------|-------------|
| <b>(%)</b>                                        |             |             |
| <b>Controlled cord traction — no. (%)</b>         | 738 (42.5)  | 742 (42.8)  |
| <b>Graduated collector bag — no. (%)</b>          | 1928 (99.2) | 1931 (99.3) |
| <b>Duration of the use of collector bag — min</b> |             |             |
| <b>Median (IQR)</b>                               | 26 (17-38)  | 27 (18-40)  |
| <b>Duration of the third stage of labor – min</b> |             |             |
| <b>Median (IQR)</b>                               | 6 (4-10)    | 6 (4-10)    |

\* Plus-minus values are mean  $\pm$ SD. There were no significant differences between the two groups.

‡ The body-mass index is the weight in kilograms divided by the square of the height in meters.

**Table S3-** Primary outcome analysis after imputation of missing value as failures, modified intention to treat population

| <b>Outcome</b>                                                                                                                          | <b>Tranexamic Acid Group<br/>(N=1945)</b> | <b>Placebo Group<br/>(N=1946)</b> | <b>Risk Ratio<br/>(95% CI)</b> | <b>Unadjusted<br/>P value</b> |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------|--------------------------------|-------------------------------|
| <b>Primary outcome: PPH, defined by blood loss <math>\geq</math>500 mL, measured with a graduated collector bag – no./total no. (%)</b> | 180/1945<br>(9.3)                         | 216/1946<br>(11.1)                | 0.83<br>(0.69-<br>1.01)        | 0.06                          |

95% CI and P values were not adjusted for multiple testing

**Table S4.** Blood sample results at day 2, and EPDS score, modified intention-to-treat population.

|                                            | <b>Tranexamic<br/>Acid Group<br/>(N=1945)</b> | <b>Placebo<br/>Group<br/>(N=1946)</b> | <b>RR<br/>(95% CI)</b> | <b>Mean<br/>difference<br/>(95% CI)</b> | <b>Unadjusted<br/>P value</b> |
|--------------------------------------------|-----------------------------------------------|---------------------------------------|------------------------|-----------------------------------------|-------------------------------|
| <b>Blood sample results at<br/>day 2*</b>  |                                               |                                       |                        |                                         |                               |
| <b>Urea nitrogen –<br/>mmol/l</b>          | 3.42±0.93<br>n=1730                           | 3.42±0.96<br>n=1716                   |                        | -0.00<br>(-0.06 to 0.06)                | 0.97                          |
| <b>Creatinine – µmol/l</b>                 | 54.65±9.83<br>n=1784                          | 54.91±10.16<br>n=1769                 |                        | -0.26<br>(-0.91 to 0.40)                | 0.44                          |
| <b>Prothrombin time –<br/>%</b>            | 107.5±12.4<br>n=1756                          | 107.5±12.1<br>n=1735                  |                        | 0.1<br>(-0.7 to 0.9)                    | 0.87                          |
| <b>Active prothrombin<br/>time – s</b>     | 30.0±3.9<br>n=1749                            | 30.0±3.8<br>n=1734                    |                        | -0.0<br>(-0.3 to 0.3)                   | 0.98                          |
| <b>Fibrinogen – g/l</b>                    | 4.78±0.83<br>n=1688                           | 4.76±0.82<br>n=1670                   |                        | 0.02<br>(-0.04 to 0.08)                 | 0.50                          |
| <b>Alanine transaminase<br/>– IU/l</b>     | 19.3±24.0<br>n=1790                           | 18.0±17.5<br>n=1767                   |                        | 1.3<br>(-0.0 to 2.7)                    | 0.06                          |
| <b>Aspartate<br/>transaminase – IU/L</b>   | 32.9±17.5<br>n=1788                           | 31.5±14.4<br>n=1769                   |                        | 1.3<br>(0.3 to 2.4)                     | 0.01                          |
| <b>Alanine<br/>transaminase &gt; 2 N</b>   | 32/1790<br>(1.8)                              | 23/1767<br>(1.3)                      | 1.37<br>(0.81-2.34)    |                                         | 0.24                          |
| <b>Aspartate<br/>transaminase &gt; 2 N</b> | 42/1788<br>(2.4)                              | 33/1769<br>(1.9)                      | 1.26<br>(0.80-1.98)    |                                         | 0.32                          |
| <b>Total bilirubin –</b>                   | 4.6±5.1                                       | 4.5±2.7                               |                        | 0.1                                     | 0.36                          |

| $\mu\text{mol/l}$                        | n=1750      | n=1746      |  | (-0.1 to 0.4) |      |
|------------------------------------------|-------------|-------------|--|---------------|------|
| <b>Maternal satisfaction at day 2</b>    |             |             |  |               |      |
| <b>Completed questionnaires†</b>         | 1526 (78.5) | 1540 (79.1) |  |               |      |
| <b>Felt tired :</b>                      | n=1590      | n=1603      |  |               | 0.15 |
| <b>Not at all</b>                        | 96 (6.0)    | 115 (7.2)   |  |               |      |
| <b>A little</b>                          | 558 (35.1)  | 525 (32.8)  |  |               |      |
| <b>Moderately</b>                        | 612 (38.5)  | 616 (38.4)  |  |               |      |
| <b>Very</b>                              | 297 (18.7)  | 303 (18.9)  |  |               |      |
| <b>Extremely</b>                         | 27 (1.7)    | 44 (2.7)    |  |               |      |
| <b>Felt anxious :</b>                    | n=1538      | n=1551      |  |               | 0.47 |
| <b>Not at all</b>                        | 783 (50.9)  | 765 (49.3)  |  |               |      |
| <b>A little</b>                          | 533 (34.7)  | 536 (34.6)  |  |               |      |
| <b>Moderately</b>                        | 180 (11.7)  | 193 (12.4)  |  |               |      |
| <b>Very</b>                              | 37 (2.4)    | 53 (3.4)    |  |               |      |
| <b>Extremely</b>                         | 5 (0.3)     | 4 (0.3)     |  |               |      |
| <b>Felt satisfied with the delivery:</b> | n=1591      | n=1605      |  |               | 0.28 |
| <b>Not at all</b>                        | 1 (0.1)     | 3 (0.2)     |  |               |      |
| <b>A little</b>                          | 3 (0.2)     | 10 (0.6)    |  |               |      |
| <b>Moderately</b>                        | 36 (2.3)    | 40 (2.5)    |  |               |      |
| <b>Very</b>                              | 766 (48.1)  | 752 (46.9)  |  |               |      |
| <b>Extremely</b>                         | 785 (49.3)  | 800 (49.8)  |  |               |      |
| <b>Felt satisfied with the</b>           | n=1581      | n=1598      |  |               | 0.46 |

|                                                        |                    |                    |                     |  |      |
|--------------------------------------------------------|--------------------|--------------------|---------------------|--|------|
| <b>postpartum stay:</b>                                |                    |                    |                     |  |      |
| <b>Not at all</b>                                      | 6 (0.4)            | 8 (0.5)            |                     |  |      |
| <b>A little</b>                                        | 6 (0.4)            | 12 (0.8)           |                     |  |      |
| <b>Moderately</b>                                      | 130 (8.2)          | 141 (8.8)          |                     |  |      |
| <b>Very</b>                                            | 1006 (63.6)        | 980 (61.3)         |                     |  |      |
| <b>Extremely</b>                                       | 433 (27.4)         | 457 (28.6)         |                     |  |      |
| <b>Today, what are your memories of your delivery?</b> | n=1589             | n=1603             |                     |  | 0.20 |
| <b>Excellent</b>                                       | 704 (44.3)         | 659 (41.1)         |                     |  |      |
| <b>Good</b>                                            | 674 (42.4)         | 699 (43.6)         |                     |  |      |
| <b>Intermediate</b>                                    | 172 (10.8)         | 191 (11.9)         |                     |  |      |
| <b>Bad</b>                                             | 28 (1.8)           | 43 (2.7)           |                     |  |      |
| <b>Very bad</b>                                        | 11 (0.7)           | 11 (0.7)           |                     |  |      |
| <b>EPDS at day 60†</b>                                 |                    |                    |                     |  |      |
| <b>Completed questionnaires</b>                        | 1394 (71.7)        | 1381 (71.0)        |                     |  | 0.63 |
| <b>EPDS score</b>                                      | n=1394             | n=1381             |                     |  | 0.12 |
| <b>Median (IQR)</b>                                    | 5 (2-8)            | 5 (2-8)            |                     |  |      |
| <b>EPDS score ≥12</b>                                  | 156/1394<br>(11.2) | 163/1381<br>(11.8) | 0.95<br>(0.77-1.17) |  | 0.61 |

95% CI and P values were not adjusted for multiple testing

\* if no blood sample was available from day 2, measurement of blood parameters was assessed from a day-3 blood sample, if available. If no blood sample was available from day 2 or 3, measurement of blood parameters was assessed from a day-1 blood sample, if available.

† Completed for the 5 questions, ‡ EPDS, Edinburgh Postnatal Depression Scale

**Table S5.** Outcome measures describing postpartum blood loss, per protocol 1 population\*.

| <b>Outcome or event</b>                                                                                                 | <b>Tranexamic Acid Group<br/>(N=1467)</b> | <b>Placebo Group<br/>(N=1480)</b> | <b>Risk Ratio<br/>(95% CI)</b> | <b>Mean difference<br/>(95% CI)</b> | <b>Unadjusted<br/>P value</b> |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------|--------------------------------|-------------------------------------|-------------------------------|
| <b>Primary outcome: PPH, defined by blood loss ≥500 mL, measured with a graduated collector bag – no./total no. (%)</b> | 123/1461<br>(8.4)                         | 136/1473<br>(9.2)                 | 0.91<br>(0.72-1.15)            |                                     | 0.44                          |
| <b>Blood loss &gt; 500 mL, measured with a graduated collector bag – no./total no. (%)†</b>                             | 101/1461<br>(6.9)                         | 122/1473<br>(8.3)                 | 0.83<br>(0.65-1.08)            |                                     | 0.16                          |
| <b>Clinically significant PPH according to caregivers – no./total no. (%)</b>                                           | 120/1467<br>(8.2)                         | 152/1480<br>(10.3)                | 0.80<br>(0.63-1.00)            |                                     | 0.05                          |
| <b>Severe PPH, defined by blood loss ≥ 1000 mL – no./total no. (%)</b>                                                  | 42/1461 (2.9)                             | 42/1473 (2.9)                     | 1.01<br>(0.66-1.54)            |                                     | 0.97                          |
| <b>Blood loss at 15 minutes – mL</b>                                                                                    | 131.0±148.1<br>n=1453                     | 135.5±151.7<br>n=1463             |                                | -4.5<br>(-15.4 to 6.4)              | 0.42                          |
| <b>Blood loss at bag removal – mL</b>                                                                                   | 202.9±276.0<br>n=1461                     | 208.0±257.0<br>n=1473             |                                | -5.1<br>(-24.4 to 14.2)             | 0.60                          |
| <b>Estimated total blood loss – mL</b>                                                                                  | 224.9±296.1<br>n=1465                     | 237.5±299.0<br>n=1478             |                                | -12.5<br>(-34.0 to 9.0)             | 0.25                          |

|                                                                          |                        |                        |                     |                         |      |
|--------------------------------------------------------------------------|------------------------|------------------------|---------------------|-------------------------|------|
| <b>Additional uterotonics for excessive bleeding – no./total no. (%)</b> | 109/1467<br>(7.4)      | 141/1480<br>(9.5)      | 0.78<br>(0.61-0.99) |                         | 0.04 |
| <b>Blood transfusion – no./total no. (%)</b>                             | 15/1467 (1.0)          | 14/1480 (0.9)          | 1.08<br>(0.52-2.23) |                         | 0.83 |
| <b>Arterial embolisation or surgery for PPH – no./total no. (%)</b>      | 3/1467 (0.2)           | 5/1480 (0.3)           | 0.61<br>(0.15-2.53) |                         | 0.73 |
| <b>Peripartum change in hemoglobin – g/dL‡</b>                           | -0.77±1.22<br>(n=1394) | -0.80±1.30<br>(n=1371) |                     | 0.03<br>(-0.06 to 0.13) | 0.49 |
| <b>Hemoglobin drop&gt;2g/dL‡</b>                                         | 196/1394<br>(14.1)     | 210/1371<br>(15.3)     | 0.92<br>(0.77-1.10) |                         | 0.35 |
| <b>Peripartum change in Hematocrit – %§</b>                              | -2.06±3.89<br>(n=1330) | -2.08±4.19<br>(n=1316) |                     | 0.02<br>(-0.29 to 0.33) | 0.91 |
| <b>Hematocrit drop&gt;10%§</b>                                           | 36/1330 (2.7)          | 39/1316 (3.0)          | 0.91<br>(0.58-1.43) |                         | 0.69 |

95% CI and P values were not adjusted for multiple testing

PPH, postpartum hemorrhage.

\*Per-protocol 1 population was defined as women of the modified ITT population who received oxytocin and then the study medication within the 2 minutes after birth.

†Outcome was not prespecified in the protocol.

‡Prepartum hemoglobin level measured within eight months of gestation and arrival in labor ward in 1100 (79.8%) and 1094 (80.6%), at arrival in labor ward in 120 (8.7%) and 93 (6.9%), and between 5-7 months of gestation in 159 (11.5%) and 170 (12.5%) in tranexamic acid group and placebo group,

respectively; Postpartum hemoglobin level measured at day 2 postpartum in 1235 (89.6%) and 1228 (90.5%) and on another day between one and three days postpartum in 144 (10.4%) and 129 (9.5%) in tranexamic acid group and placebo group, respectively. In women transfused (respectively 15 and 14 in the TXA and placebo groups), one unit of packed red blood cells was considered equivalent to a 1g/dl decrease in Hb.

§Prepartum hematocrit measured within eight months of gestation and arrival in labor ward in 1046 (79.5%) and 1047 (80.4%), at arrival in labor ward in 126 (9.6%) and 97 (7.5%), and between 5-7 months of gestation in 143 (10.9%) and 158 (12.1%) in tranexamic acid group and placebo group, respectively; Postpartum hematocrit measured at day 2 postpartum in 1182 (89.9%) and 1179 (90.6%) and on another day between one and three days postpartum in 133 (10.1%) and 123 (9.4%) in tranexamic acid group and placebo group, respectively. In women transfused (respectively 15 and 14 in the TXA and placebo groups), one unit of packed red blood cells was considered equivalent to a 5% decrease in Ht.

**Table S6.** Adverse events, maternal satisfaction and EPDS scores, perprotocol 1 population\*.

| <b>Adverse events</b>                                                               | <b>Tranexamic acid<br/>(N=1467)</b> | <b>Placebo<br/>(N=1480)</b> | <b>RR<br/>(95% CI)</b> | <b>Mean<br/>difference (95%<br/>CI)</b> | <b>Unadjusted<br/>P-value</b> |
|-------------------------------------------------------------------------------------|-------------------------------------|-----------------------------|------------------------|-----------------------------------------|-------------------------------|
| <b>In the delivery room –<br/>no./total no. (%)</b>                                 |                                     |                             |                        |                                         |                               |
| <b>Vomiting or nausea</b>                                                           | 99/1467<br>(6.7)                    | 46/1480<br>(3.1)            | 2.17<br>(1.54-3.06)    |                                         | <0.001                        |
| <b>Nausea</b>                                                                       | 72/1467<br>(4.9)                    | 38/1480<br>(2.6)            | 1.91<br>(1.30-2.81)    |                                         | <0.001                        |
| <b>Vomiting</b>                                                                     | 53/1467<br>(3.6)                    | 23/1480<br>(1.6)            | 2.32<br>(1.43-3.77)    |                                         | <0.001                        |
| <b>Photopsias</b>                                                                   | 3/1467 (0.2)                        | 5/1480 (0.3)                | 0.61<br>(0.14-2.53)    |                                         | 0.73                          |
| <b>Dizziness</b>                                                                    | 26/1467<br>(1.8)                    | 26/1480<br>(1.8)            | 1.01<br>(0.59-1.73)    |                                         | 0.97                          |
| <b>Postpartum up to<br/>three months after<br/>delivery – no./total no.<br/>(%)</b> |                                     |                             |                        |                                         |                               |
| <b>Completed forms – no.<br/>(%)</b>                                                | 1393 (94.8)                         | 1403 (95.0)                 |                        |                                         |                               |
| <b>Thromboembolic<br/>events</b>                                                    |                                     |                             |                        |                                         |                               |
| <b>Any thromboembolic</b>                                                           | 1/1393 (0.1)                        | 3/1403 (0.2)                | 0.34                   |                                         | 0.62                          |

|                                                     |                     |                     |                     |                         |      |
|-----------------------------------------------------|---------------------|---------------------|---------------------|-------------------------|------|
| <b>event</b>                                        |                     |                     | (0.03-3.22)         |                         |      |
| <b>Deep vein thrombosis</b>                         | 0/1393 (0.0)        | 1/1403 (0.1)        | -                   | -                       |      |
| <b>Pulmonary embolism</b>                           | 0/1393 (0.0)        | 0/1403 (0.0)        |                     |                         |      |
| <b>Ovarian vein thrombosis</b>                      | 0/1393 (0.0)        | 2/1403 (0.1)        | -                   | -                       |      |
| <b>Superficial vein thrombosis</b>                  | 1/1393 (0.1)        | 0/1403 (0.0)        | -                   | -                       |      |
| <b>Retinal vascular occlusion</b>                   | 0/1393 (0.0)        | 0/1403 (0.0)        |                     |                         |      |
| <b>Myocardial infarction</b>                        | 0/1393 (0.0)        | 0/1403 (0.0)        | -                   | -                       |      |
| <b>Stroke</b>                                       | 0/1393 (0.0)        | 0/1403 (0.0)        | -                   | -                       |      |
| <b>Seizure</b>                                      | 1/1393 (0.1)        | 0/1403 (0.0)        |                     |                         |      |
| <b>Renal failure</b>                                | 0/1393 (0.0)        | 0/1403 (0.0)        | -                   | -                       |      |
| <b>Re-admission after discharge</b>                 | 16/1393<br>(1.1)    | 11/1403<br>(0.8)    | 1.46<br>(0.68-3.15) |                         | 0.32 |
| <b>Anticoagulant therapy at and after discharge</b> | 46/1382<br>(3.3)    | 46/1397<br>(3.3)    | 1.01<br>(0.68-1.51) |                         | 0.96 |
| <b>Blood sample results at day 2†</b>               |                     |                     |                     |                         |      |
| <b>Urea nitrogen – mmol/L</b>                       | 3.40±0.91<br>n=1308 | 3.40±0.93<br>n=1296 |                     | 0.00<br>(-0.07 to 0.07) | 0.98 |
| <b>Creatinine – µmol/L</b>                          | 54.43±9.76          | 55.10±10.36         |                     | -0.66                   | 0.09 |

|                                       |                      |                      |  |                          |      |
|---------------------------------------|----------------------|----------------------|--|--------------------------|------|
|                                       | n=1357               | n=1345               |  | (-1.42 to 0.09)          |      |
| <b>Prothrombin time – %</b>           | 107.1±12.5<br>n=1335 | 107.2±12.1<br>n=1329 |  | -0.0<br>(-1.0 to 0.9)    | 0.96 |
| <b>Active prothrombin time – s</b>    | 30.3±3.9<br>n=1329   | 30.2±3.9<br>n=1327   |  | 0.1<br>(-0.2 to 0.4)     | 0.72 |
| <b>Fibrinogen – g/L</b>               | 4.78±0.83<br>n=1285  | 4.78±0.83<br>n=1271  |  | -0.00<br>(-0.07 to 0.06) | 0.96 |
| <b>Alanine transaminase – IU/L</b>    | 19.2±26.2<br>n=1358  | 18.3±18.7<br>n=1345  |  | 0.9<br>(-0.8 to 2.7)     | 0.28 |
| <b>Aspartate transaminase – IU/L</b>  | 32.8±18.3<br>n=1356  | 31.8±15.1<br>n=1347  |  | 1.0<br>(-0.3 to 2.2)     | 0.13 |
| <b>Total bilirubin – μmol/L</b>       | 4.5±3.3<br>n=1329    | 4.5±2.7<br>n=1326    |  | 0.0<br>(-0.2 to 0.3)     | 0.84 |
| <b>Maternal satisfaction at day 2</b> |                      |                      |  |                          |      |
| <b>Completed questionnaires‡</b>      | 1153 (78.6)          | 1168 (78.9)          |  |                          |      |
| <b>Felt tired :</b>                   | n=1195               | n=1209               |  |                          | 0.44 |
| <b>Not at all</b>                     | 70 (5.9)             | 85 (7.0)             |  |                          |      |
| <b>A little</b>                       | 406 (34.0)           | 398 (32.9)           |  |                          |      |
| <b>Moderately</b>                     | 469 (39.2)           | 468 (38.7)           |  |                          |      |
| <b>Very</b>                           | 229 (19.2)           | 226 (18.7)           |  |                          |      |
| <b>Extremely</b>                      | 21 (1.8)             | 32 (2.6)             |  |                          |      |
| <b>Felt anxious :</b>                 | n=1161               | n=1176               |  |                          | 0.46 |
| <b>Not at all</b>                     | 592 (51.0)           | 568 (48.3)           |  |                          |      |

|                                                        |            |            |  |  |      |
|--------------------------------------------------------|------------|------------|--|--|------|
| <b>A little</b>                                        | 399 (34.4) | 421 (35.8) |  |  |      |
| <b>Moderately</b>                                      | 137 (11.8) | 142 (12.1) |  |  |      |
| <b>Very</b>                                            | 29 (2.5)   | 42 (3.6)   |  |  |      |
| <b>Extremely</b>                                       | 4 (0.3)    | 3 (0.3)    |  |  |      |
| <b>Felt satisfied with the delivery:</b>               | n=1196     | n=1210     |  |  | 0.21 |
| <b>Not at all</b>                                      | 1 (0.1)    | 3 (0.2)    |  |  |      |
| <b>A little</b>                                        | 2 (0.2)    | 9 (0.7)    |  |  |      |
| <b>Moderately</b>                                      | 24 (2.0)   | 22 (1.8)   |  |  |      |
| <b>Very</b>                                            | 583 (48.7) | 572 (47.3) |  |  |      |
| <b>Extremely</b>                                       | 586 (49.0) | 604 (49.9) |  |  |      |
| <b>Felt satisfied with the postpartum stay:</b>        | n=1189     | n=1206     |  |  | 0.76 |
| <b>Not at all</b>                                      | 4 (0.3)    | 4 (0.3)    |  |  |      |
| <b>A little</b>                                        | 6 (0.5)    | 10 (0.8)   |  |  |      |
| <b>Moderately</b>                                      | 95 (8.0)   | 109 (9.0)  |  |  |      |
| <b>Very</b>                                            | 751 (63.2) | 754 (62.5) |  |  |      |
| <b>Extremely</b>                                       | 333 (28.0) | 329 (27.3) |  |  |      |
| <b>Today, what are your memories of your delivery?</b> | n=1196     | n=1209     |  |  | 0.20 |
| <b>Excellent</b>                                       | 523 (43.7) | 501 (41.4) |  |  |      |
| <b>Good</b>                                            | 512 (42.8) | 520 (43.0) |  |  |      |
| <b>Intermediate</b>                                    | 134 (11.2) | 146 (12.1) |  |  |      |
| <b>Bad</b>                                             | 18 (1.5)   | 34 (2.8)   |  |  |      |

|                                 |             |             |                     |  |      |
|---------------------------------|-------------|-------------|---------------------|--|------|
| <b>Very bad</b>                 | 9 (0.8)     | 8 (0.7)     |                     |  |      |
| <b>EPDS at day 60§</b>          |             |             |                     |  |      |
| <b>Completed questionnaires</b> | 1049 (71.5) | 1068 (72.2) |                     |  |      |
| <b>EPDS score</b>               | n=1049      | n=1068      |                     |  | 0.23 |
| <b>Median (IQR)</b>             | 4 (2-8)     | 5 (2-8)     |                     |  |      |
| <b>EPDS score ≥12</b>           | 115 (11.0)  | 127 (11.9)  | 0.92<br>(0.73-1.17) |  | 0.50 |

95% CI and P values were not adjusted for multiple testing

\*Per-protocol 1 population was defined as women of the modified ITT population who received oxytocin and then the study medication within the 2 minutes after birth.

†if no blood sample was available at day 2, measurement of blood parameters was assessed from a day 3 blood sample, if available. If no blood sample was available from day 2 or 3, measurement of blood parameters was assessed from a day 1 blood sample, if available.

‡Completed for the 5 questions

§EPDS, Edinburgh Postnatal Depression Scale

**Table S7.** Outcome measures describing postpartum blood loss, per protocol 2 population\*.

| <b>Outcome or event</b>                                                                                                 | <b>Tranexamic acid Group<br/>(N=1873)</b> | <b>Placebo Group<br/>(N=1878)</b> | <b>Risk Ratio<br/>(95% CI)</b> | <b>Mean difference<br/>(95% CI)</b> | <b>Unadjusted P value</b> |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-----------------------------------|--------------------------------|-------------------------------------|---------------------------|
| <b>Primary outcome: PPH, defined by blood loss ≥500 mL, measured with a graduated collector bag – no./total no. (%)</b> | 153/1867<br>(8.2)                         | 178/1870<br>(9.5)                 | 0.86<br>(0.70-1.06)            |                                     | 0.15                      |
| <b>Blood loss &gt; 500 mL, measured with a graduated collector bag – no./total no. (%)†</b>                             | 124/1867<br>(6.6)                         | 160/1870<br>(8.6)                 | 0.78<br>(0.62-0.97)            |                                     | 0.03                      |
| <b>Clinically significant PPH according to caregivers – no./total no. (%)†</b>                                          | 147/1873<br>(7.8)                         | 192/1878<br>(10.2)                | 0.77<br>(0.63-0.94)            |                                     | 0.01                      |
| <b>Severe PPH, defined by blood loss ≥ 1000 mL – no./total no. (%)</b>                                                  | 46/1867<br>(2.5)                          | 55/1870<br>(2.9)                  | 0.84<br>(0.57-1.23)            |                                     | 0.37                      |
| <b>Blood loss at 15 minutes – mL</b>                                                                                    | 130.7±145.0<br>n=1854                     | 134.0±148.6<br>n=1856             |                                | -3.4 (-12.8 to 6.1)                 | 0.48                      |
| <b>Blood loss at bag removal – mL</b>                                                                                   | 199.7±263.0<br>n=1867                     | 208.9±255.3<br>n=1870             |                                | -9.1 (-25.8 to 7.5)                 | 0.28                      |
| <b>Estimated total blood loss – mL</b>                                                                                  | 220.8±282.4<br>n=1870                     | 235.6±291.4<br>n=1875             |                                | -14.8 (-33.2 to                     | 0.11                      |

|                                                                          |                        |                        |                     |                          |      |
|--------------------------------------------------------------------------|------------------------|------------------------|---------------------|--------------------------|------|
|                                                                          |                        |                        |                     | 3.6)                     |      |
| <b>Additional uterotonics for excessive bleeding – no./total no. (%)</b> | 137/1873<br>(7.3)      | 178/1878<br>(9.5)      | 0.77<br>(0.62-0.96) |                          | 0.02 |
| <b>Blood transfusion – no./total no. (%)</b>                             | 16/1873<br>(0.9)       | 17/1878<br>(0.9)       | 0.94<br>(0.48-1.86) |                          | 0.87 |
| <b>Arterial embolisation or surgery for PPH – no./total no. (%)</b>      | 3/1873 (0.2)           | 5/1878 (0.3)           | 0.60<br>(0.14-2.52) |                          | 0.73 |
| <b>Peripartum change in hemoglobin – g/dL‡</b>                           | -0.77±1.23<br>(n=1777) | -0.78±1.28<br>(n=1747) |                     | 0.01<br>(-0.07 to 0.09)  | 0.78 |
| <b>Hemoglobin drop&gt;2g/dL‡</b>                                         | 258/1777<br>(14.5)     | 265/1747<br>(15.2)     | 0.96<br>(0.82-1.12) |                          | 0.59 |
| <b>Peripartum change in Hematocrit – %§</b>                              | -2.03±3.88<br>(n=1692) | -2.00±4.10<br>(n=1672) |                     | -0.03<br>(-0.30 to 0.24) | 0.83 |
| <b>Hematocrit drop&gt;10%§</b>                                           | 45/1692<br>(2.7)       | 50/1672<br>(3.0)       | 0.89<br>(0.60-1.32) |                          | 0.56 |

95% CI and P values were not adjusted for multiple testing

PPH, postpartum hemorrhage.

\*Per-protocol 2 population was defined as women of the modified ITT population who received oxytocin and then the study medication within 10 minutes after birth.

†Outcome was not prespecified in the protocol.

‡Prepartum hemoglobin level measured between eight months of gestation and arrival in labor ward in 1409 (80.0%) and 1407 (81.3%), at arrival in labor ward in 155 (8.8%) and 119 (6.9%), and between 5-7 months of gestation in 197 (11.2%) and 204 (11.8%) in tranexamic acid group and placebo group, respectively; Postpartum hemoglobin level measured at day 2 postpartum in 1605 (91.1%) and 1592 (92.0%) and on another day between one and three days postpartum in 156 (8.9%) and 138 (8.0%) in tranexamic acid group and placebo group, respectively. In women transfused (respectively 3 and 5 in the TXA and placebo groups), one unit of packed red blood cells was considered equivalent to a 1g/dl decrease in Hb.

§Prepartum hematocrit measured between eight months of gestation and arrival in labor ward in 1336 (79.7%) and 1343 (81.2%), at arrival in labor ward in 164 (9.8%) and 124 (7.4%), and between 5-7 months of gestation in 176 (10.5%) and 188 (11.4%) in tranexamic acid group and placebo group, respectively; Postpartum hematocrit measured at day 2 postpartum in 1534 (91.5%) and 1524 (92.1%) and on another day between one and three days postpartum in 142 (8.5%) and 131 (7.9%) in tranexamic acid group and placebo group, respectively. In women transfused (respectively 3 and 5 in the TXA and placebo groups), one unit of packed red blood cells was considered equivalent to a 5% decrease in Ht.

**Table S8.** Adverse events, maternal satisfaction and EPDS scores, perprotocol 2 population\*.

| <b>Adverse events</b>                                                               | <b>Tranexamic acid<br/>(N=1873)</b> | <b>Placebo<br/>(N=1878)</b> | <b>RR<br/>(95% CI)</b> | <b>Mean difference<br/>(95% CI)</b> | <b>Unadjusted<br/>P value</b> |
|-------------------------------------------------------------------------------------|-------------------------------------|-----------------------------|------------------------|-------------------------------------|-------------------------------|
| <b>In the delivery room –<br/>no./total no. (%)</b>                                 |                                     |                             |                        |                                     |                               |
| <b>Vomiting or nausea</b>                                                           | 132/1873<br>(7.0)                   | 61/1878<br>(3.2)            | 2.17<br>(1.61-2.92)    |                                     | <0.0001                       |
| <b>Nausea</b>                                                                       | 99/1873<br>(5.3)                    | 48/1878<br>(2.6)            | 2.07<br>(1.47-2.90)    |                                     | <0.0001                       |
| <b>Vomiting</b>                                                                     | 73/1873<br>(3.9)                    | 32/1878<br>(1.7)            | 2.29<br>(1.52-3.45)    |                                     | <0.0001                       |
| <b>Photopsias</b>                                                                   | 4/1873 (0.2)                        | 6/1878 (0.3)                | 0.67<br>(0.19-2.36)    |                                     | 0.75                          |
| <b>Dizziness</b>                                                                    | 40/1873<br>(2.1)                    | 30/1878<br>(1.6)            | 1.34<br>(0.84-2.14)    |                                     | 0.22                          |
| <b>Postpartum up to<br/>three months after<br/>delivery – no./total no.<br/>(%)</b> |                                     |                             |                        |                                     |                               |
| <b>Completed forms – no.<br/>(%)</b>                                                | 1780 (95.0)                         | 1787 (95.2)                 |                        |                                     |                               |
| <b>Thromboembolic<br/>events</b>                                                    |                                     |                             |                        |                                     |                               |
| <b>Any thromboembolic</b>                                                           | 1/1780 (0.1)                        | 4/1787 (0.2)                | 0.25                   |                                     | 0.37                          |

|                                                     |                     |                     |                     |                          |      |
|-----------------------------------------------------|---------------------|---------------------|---------------------|--------------------------|------|
| <b>event</b>                                        |                     |                     | (0.03-2.24)         |                          |      |
| <b>Deep vein thrombosis</b>                         | 0/1780 (0.0)        | 1/1787 (0.1)        | -                   | -                        |      |
| <b>Pulmonary embolism</b>                           | 0/1780 (0.0)        | 0/1787 (0.0)        |                     |                          |      |
| <b>Ovarian vein thrombosis</b>                      | 0/1780 (0.0)        | 2/1787 (0.1)        | -                   | -                        |      |
| <b>Superficial vein thrombosis</b>                  | 1/1780 (0.1)        | 1/1787 (0.1)        | -                   | -                        |      |
| <b>Retinal vascular occlusion</b>                   | 0/1780 (0.0)        | 0/1787 (0.0)        |                     |                          |      |
| <b>Myocardial infarction</b>                        | 0/1780 (0.0)        | 0/1787 (0.0)        | -                   | -                        |      |
| <b>Stroke</b>                                       | 0/1780 (0.0)        | 0/1787 (0.0)        | -                   | -                        |      |
| <b>Seizure</b>                                      | 1/1780 (0.1)        | 0/1787 (0.0)        |                     |                          |      |
| <b>Renal failure</b>                                | 0/1780 (0.0)        | 0/1787 (0.0)        | -                   | -                        |      |
| <b>Re-admission after discharge</b>                 | 18/1780<br>(1.0)    | 15/1787<br>(0.8)    | 1.20<br>(0.61-2.38) |                          | 0.59 |
| <b>Anticoagulant therapy at and after discharge</b> | 55/1766<br>(3.1)    | 55/1780<br>(3.1)    | 1.01<br>(0.70-1.46) |                          | 0.97 |
| <b>Blood sample results at day 2†</b>               |                     |                     |                     |                          |      |
| <b>Urea nitrogen – mmol/L</b>                       | 3.41±0.92<br>n=1676 | 3.41±0.94<br>n=1666 |                     | -0.00<br>(-0.07 to 0.06) | 0.89 |
| <b>Creatinine – µmol/L</b>                          | 54.68±9.81          | 54.95±10.20         |                     | -0.27                    | 0.43 |

|                                       |                      |                      |  |                         |       |
|---------------------------------------|----------------------|----------------------|--|-------------------------|-------|
|                                       | n=1731               | n=1717               |  | (-0.94 to 0.40)         |       |
| <b>Prothrombin time – %</b>           | 107.5±12.4<br>n=1703 | 107.5±12.1<br>n=1685 |  | -0.0 (-0.8 to 0.8)      | >0.99 |
| <b>Active prothrombin time – s</b>    | 30.0±3.9<br>n=1696   | 30.0±3.8<br>n=1684   |  | -0.0<br>(-0.3 to 0.2)   | 0.85  |
| <b>Fibrinogen – g/L</b>               | 4.78±0.84<br>n=1638  | 4.76±0.82<br>n=1621  |  | 0.02<br>(-0.04 to 0.08) | 0.51  |
| <b>Alanine transaminase – IU/L</b>    | 19.3±24.1<br>n=1735  | 18.1±17.7<br>n=1717  |  | 1.2<br>(-0.2 to 2.6)    | 0.10  |
| <b>Aspartate transaminase – IU/L</b>  | 32.8±17.5<br>n=1733  | 31.6±14.5<br>n=1719  |  | 1.2<br>(0.2 to 2.3)     | 0.03  |
| <b>Total bilirubin – μmol/L</b>       | 4.6±5.1<br>n=1698    | 4.5±2.7<br>n=1695    |  | 0.1<br>(-0.1 to 0.4)    | 0.34  |
| <b>Maternal satisfaction at day 2</b> |                      |                      |  |                         |       |
| <b>Completed questionnaires‡</b>      | 1481 (79.1)          | 1493 (79.5)          |  |                         |       |
| <b>Felt tired :</b>                   | n=1538               | n=1553               |  |                         | 0.16  |
| <b>Not at all</b>                     | 94 (6.1)             | 113 (7.3)            |  |                         |       |
| <b>A little</b>                       | 537 (34.9)           | 504 (32.5)           |  |                         |       |
| <b>Moderately</b>                     | 595 (38.7)           | 602 (38.8)           |  |                         |       |
| <b>Very</b>                           | 286 (18.6)           | 292 (18.8)           |  |                         |       |
| <b>Extremely</b>                      | 26 (1.7)             | 42 (2.7)             |  |                         |       |
| <b>Felt anxious :</b>                 | n=1492               | n=1503               |  |                         | 0.52  |
| <b>Not at all</b>                     | 762 (51.1)           | 741 (49.3)           |  |                         |       |

|                                                        |            |            |  |  |      |
|--------------------------------------------------------|------------|------------|--|--|------|
| <b>A little</b>                                        | 512 (34.3) | 522 (34.7) |  |  |      |
| <b>Moderately</b>                                      | 177 (11.9) | 185 (12.3) |  |  |      |
| <b>Very</b>                                            | 36 (2.4)   | 51 (3.4)   |  |  |      |
| <b>Extremely</b>                                       | 5 (0.3)    | 4 (0.3)    |  |  |      |
| <b>Felt satisfied with the delivery:</b>               | n=1539     | n=1554     |  |  | 0.20 |
| <b>Not at all</b>                                      | 1 (0.1)    | 3 (0.2)    |  |  |      |
| <b>A little</b>                                        | 2 (0.1)    | 9 (0.6)    |  |  |      |
| <b>Moderately</b>                                      | 34 (2.2)   | 35 (2.3)   |  |  |      |
| <b>Very</b>                                            | 740 (48.1) | 722 (46.5) |  |  |      |
| <b>Extremely</b>                                       | 762 (49.5) | 785 (50.5) |  |  |      |
| <b>Felt satisfied with the postpartum stay:</b>        | n=1529     | n=1548     |  |  | 0.44 |
| <b>Not at all</b>                                      | 6 (0.4)    | 8 (0.5)    |  |  |      |
| <b>A little</b>                                        | 6 (0.4)    | 12 (0.8)   |  |  |      |
| <b>Moderately</b>                                      | 125 (8.2)  | 137 (8.9)  |  |  |      |
| <b>Very</b>                                            | 970 (63.4) | 944 (61.0) |  |  |      |
| <b>Extremely</b>                                       | 422 (27.6) | 447 (28.9) |  |  |      |
| <b>Today, what are your memories of your delivery?</b> | n=1538     | n=1553     |  |  | 0.19 |
| <b>Excellent</b>                                       | 679 (44.1) | 640 (41.2) |  |  |      |
| <b>Good</b>                                            | 657 (42.7) | 676 (43.5) |  |  |      |
| <b>Intermediate</b>                                    | 165 (10.7) | 184 (11.8) |  |  |      |
| <b>Bad</b>                                             | 26 (1.7)   | 42 (2.7)   |  |  |      |

|                                 |             |             |                     |  |      |
|---------------------------------|-------------|-------------|---------------------|--|------|
| <b>Very bad</b>                 | 11 (0.7)    | 11 (0.7)    |                     |  |      |
| <b>EPDS at day 60</b>           |             |             |                     |  |      |
| <b>Completed questionnaires</b> | 1345 (71.8) | 1344 (71.6) |                     |  |      |
| <b>EPDS score§</b>              | n=1345      | n=1344      |                     |  | 0.08 |
| <b>Median (IQR)</b>             | 4 (2-8)     | 5 (2-8)     |                     |  |      |
| <b>EPDS score ≥12</b>           | 146 (10.9)  | 158 (11.8)  | 0.92<br>(0.75-1.14) |  | 0.46 |

95% CI and P values were not adjusted for multiple testing

\*Per-protocol 2 population was defined as women of the modified ITT population who received oxytocin and then the study medication within 10 minutes after birth.

†if no blood sample was available at day 2, measurement of blood parameters was assessed from a day 3 blood sample, if available. If no blood sample was available from day 2 or 3, measurement of blood parameters was assessed from a day 1 blood sample, if available.

‡Completed for the 5 questions

§EPDS, Edinburgh Postnatal Depression Scale

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