

# Prévenir les hémorragies du post-partum et améliorer leur prise en charge

Laurent GAUCHER

Hospices Civils de Lyon

HESPER EA 7425

under the supervision of Corinne DUPONT



4 sages-femmes + 1 obstétricien  
4'666 naissances vivantes en 2018

126 PPH > 1 litre (2,9%)





1 Résultat(s) concernant les professionnels de santé

	RPPS ⓘ	Bénéficiaire	Code postal	Ville	Adresse	Profession
<input type="checkbox"/>	10100048536	GAUCHER LAURENT	69677	BRON CEDEX	HOPITAL FEMME MERE ENFANT	Sage-femme

## Résultats des déclarations par bénéficiaire

[Afficher les Avantages](#)

[Afficher les Conventions](#)

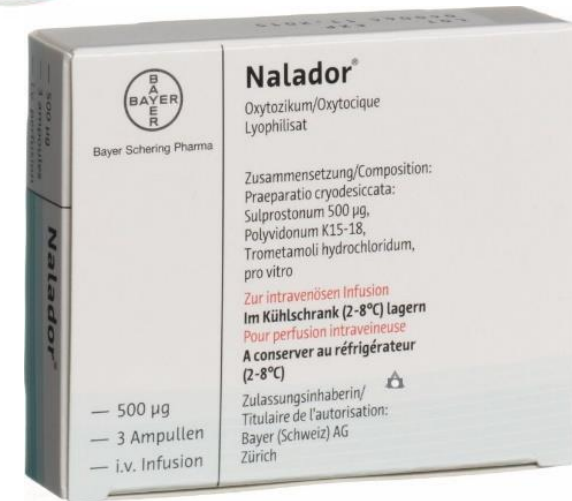
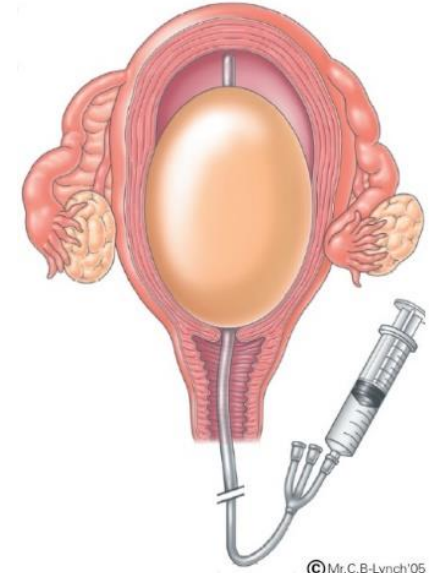
[Afficher les Rémunérations](#)

0 Avantage(s) correspondant à votre sélection

Aucun avantage correspondant à votre sélection

[Retour](#)

# Ce dont nous ne parlerons pas

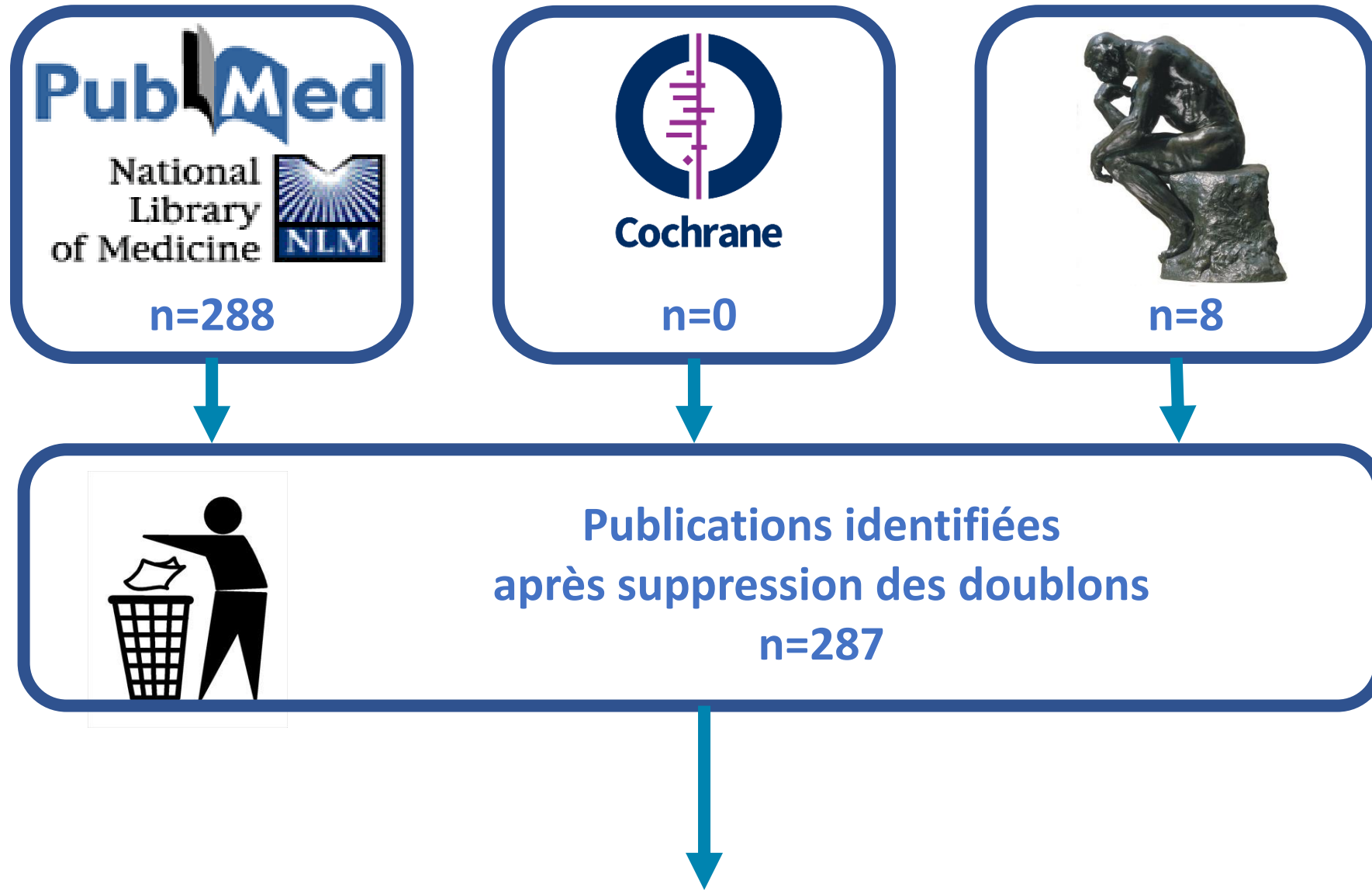




# Ce dont nous allons parler



# Identification



# Présélection



Publications présélectionnées  
sur titres et résumés  
(n=288)

## EXCLUS

- Commentaires (n=5)
- Absence d'intervention (n=146)
- Intervention sans évaluation (n=1)
- Evaluation sans HPP (n=62)



# Eligibilité

 Articles relus en intégralité pour la sélection  
(n=73)

## EXCLUS

- Commentaires (n=5)
- Protocoles (n=5)
- Absence d'intervention (n=4)
- Intervention technique ou pharmacologique (n=8)
- Intervention sans évaluation (n=4)
- Evaluation sans groupe contrôle (n=6)
- Evaluation sans HPP(n=12)



## INCLUS

- Méthode boule de neige  
(n=3)





# Inclusion



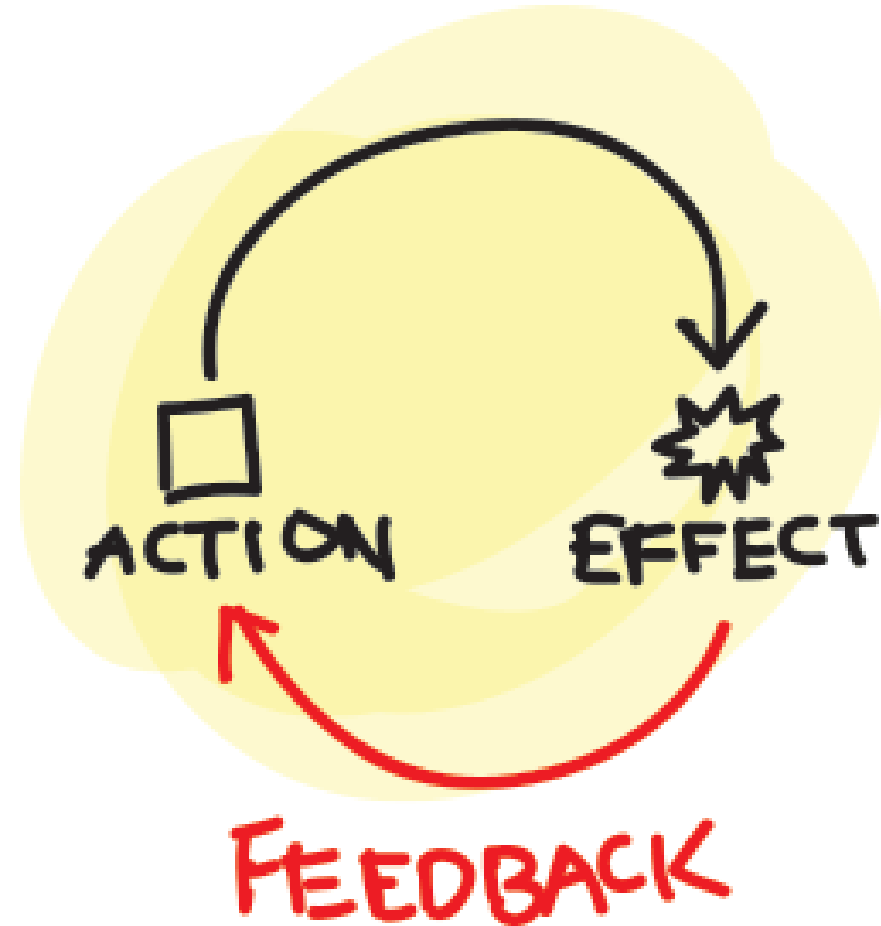
## Etudes incluses (total n=27)

Essais contrôlés randomisés (n=4)

Etudes avant-après (n=23)

- 13 études sans résultats stat. significatifs
- 2 études avec augmentation significative des HPP
- 12 études avec diminution significative des HPP
  - 4 méthodes d'interventions non-cliniques
    - Audit feedback
    - Simulation
    - Training
    - (Multifacettes)
    - ~~Simple diffusion de recommandation~~

## Audit and feedback



N° of records : | | | | | |  
 Date : | | | / | | | / | | |

**Postpartum  
 Haemorrhage**

**1. Risk factors**

PRE	PARTUM
Placenta praevia, accreta	<input type="checkbox"/> Yes <input type="checkbox"/> No
Macrosomia > 4 000 g	<input type="checkbox"/> Yes <input type="checkbox"/> No
Multiple pregnancy	<input type="checkbox"/> Yes <input type="checkbox"/> No
Fibroma	<input type="checkbox"/> Yes <input type="checkbox"/> No
Previous PPH	<input type="checkbox"/> Yes <input type="checkbox"/> No
Bleeding disorder	<input type="checkbox"/> Yes <input type="checkbox"/> No
Stillbirth	<input type="checkbox"/> Yes <input type="checkbox"/> No
Previous caesarean	<input type="checkbox"/> Yes <input type="checkbox"/> No
Hypertension	<input type="checkbox"/> Yes <input type="checkbox"/> No

Labor / Delivery	
Spontaneous labor	<input type="checkbox"/> Yes <input type="checkbox"/> No
Induction of labor	<input type="checkbox"/> Yes <input type="checkbox"/> No
Spontaneous vaginal delivery	<input type="checkbox"/> Yes <input type="checkbox"/> No
Instrumental delivery	<input type="checkbox"/> Yes <input type="checkbox"/> No
Prophylactic caesarean	<input type="checkbox"/> Yes <input type="checkbox"/> No
Caesarean during labor	<input type="checkbox"/> Yes <input type="checkbox"/> No
PER PARTUM	
Hyperthermia	<input type="checkbox"/> Yes <input type="checkbox"/> No
Labor > 12hours	<input type="checkbox"/> Yes <input type="checkbox"/> No

Time of PPH (hours):  
 < 2 h  2 to 12 h  > 12 h

**2. Management**

Prophylactic administration of oxytocin	<input type="checkbox"/> Yes <input type="checkbox"/> No
PPH Identification	<input type="checkbox"/> Yes <input type="checkbox"/> No
Call to the senior physician < 10 min	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NS*
Manual uterine examination or manual removal of the placenta < 15 min	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NS*
Administration of oxytocin	<input type="checkbox"/> Yes <input type="checkbox"/> No
Suture with no delay of perineal tears	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NS*
Examination of the lower genital tract	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NS*
Sulprostone < 30 mn	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NS
Exacyl IV	<input type="checkbox"/> Yes <input type="checkbox"/> No
Bakri Balloon	<input type="checkbox"/> Yes <input type="checkbox"/> No
Embolisation	<input type="checkbox"/> Yes <input type="checkbox"/> No
Surgical procedure	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NS*

\*NS : not suited

**3. VOLUME** | | | | | mL

500 à 999 mL	<input type="checkbox"/> Yes <input type="checkbox"/> No
1 000 à 1 499 mL	<input type="checkbox"/> Yes <input type="checkbox"/> No
≥1 500 mL	<input type="checkbox"/> Yes <input type="checkbox"/> No

**4. TRANSFUSION :**

Fibrinogen	<input type="checkbox"/> Yes <input type="checkbox"/> No
Packed red blood cells	<input type="checkbox"/> Yes <input type="checkbox"/> No

**5. AETIOLOGY**

Atony	<input type="checkbox"/> Yes <input type="checkbox"/> No
surgical, hysterotomy	<input type="checkbox"/> Yes <input type="checkbox"/> No
Surgical (other cause)	<input type="checkbox"/> Yes <input type="checkbox"/> No
Retained placenta	<input type="checkbox"/> Yes <input type="checkbox"/> No
Perineal tears	<input type="checkbox"/> Yes <input type="checkbox"/> No
Uterine Rupture	<input type="checkbox"/> Yes <input type="checkbox"/> No
Bleeding disorder	<input type="checkbox"/> Yes <input type="checkbox"/> No
Placenta praevia ou accreta	<input type="checkbox"/> Yes <input type="checkbox"/> No
Unclear	<input type="checkbox"/> Yes <input type="checkbox"/> No

**6. File**

Card of blood group available	<input type="checkbox"/> Yes <input type="checkbox"/> No
Clotting test	<input type="checkbox"/> Yes <input type="checkbox"/> No

**7. POST PARTUM DIAGNOSTIC**

Haemoglobin loss of 4 g/dL or more	<input type="checkbox"/> Yes <input type="checkbox"/> No
------------------------------------	--

**8. SYNTHESIS**

Predictable	<input type="checkbox"/> Yes <input type="checkbox"/> No
Avoidable	<input type="checkbox"/> Yes <input type="checkbox"/> No
-	<input type="checkbox"/> optimal <input type="checkbox"/> sub optimal

**IMPERFECTION**

Midwife	<input type="checkbox"/> Yes <input type="checkbox"/> No	Junior Anaest.	<input type="checkbox"/> Ou <input type="checkbox"/> No
Junior Obs.	<input type="checkbox"/> Yes <input type="checkbox"/> No	Senior Anaest.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Senior Obs.	<input type="checkbox"/> Yes <input type="checkbox"/> No		
Autre	<input type="checkbox"/> Yes <input type="checkbox"/> No		

**IMPERFECTION :**

--	--

La Croix-Rouge hospital

Severe postpartum haemorrhage after vaginal delivery: a statistical process control chart to report seven years of continuous quality improvement

Corinne Dupont <sup>a,\*</sup>, Pauline Occelli <sup>b</sup>, Catherine Deneux- Tharaux <sup>c</sup>, Sandrine Touzet <sup>b</sup>, Antoine Duclos <sup>b</sup>, Marie- Hélène Bouvier-Colle <sup>c</sup>, René-Charles Rudigoz <sup>a</sup>, Cyril Huissoud <sup>d</sup>



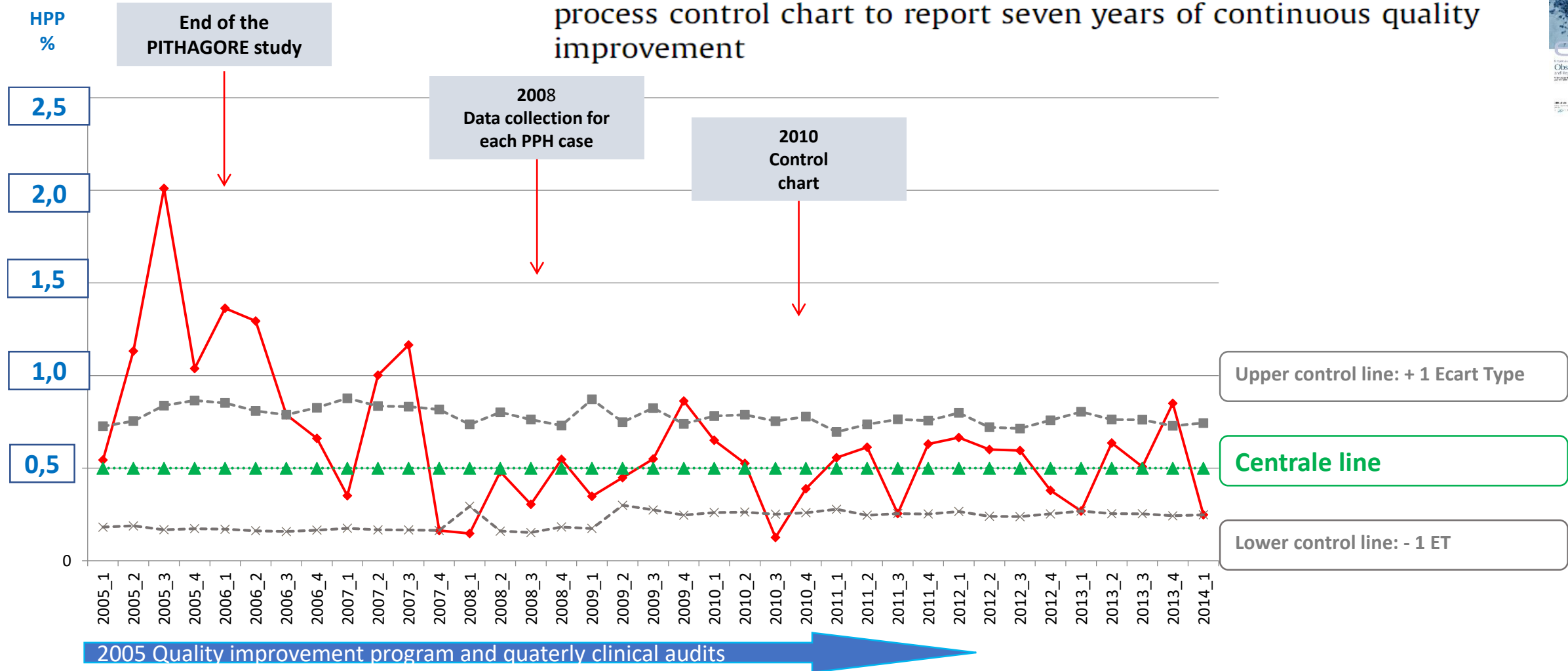
G. Dubernard

R.-C. Rudigoz

C. Huissoud



## Severe postpartum haemorrhage after vaginal delivery: a statistical process control chart to report seven years of continuous quality improvement





# Training

Enseignement théorique

# Training



## An Education and Motivation Intervention to Change Clinical Management of the Third Stage of Labor —The GIRMAHP Initiative

Albert Figueras, MD, Edgar Narváez, MD, Mabel Valsecia, DD, Susana Vásquez, PharmD, Germán Rojas, PharmD, Angiolina Camilo, MD, José-María del Valle, MD, and Cristina Aguilera, MD

**Table 1. The Four Consecutive Stages of the GIRMAHP Initiative**

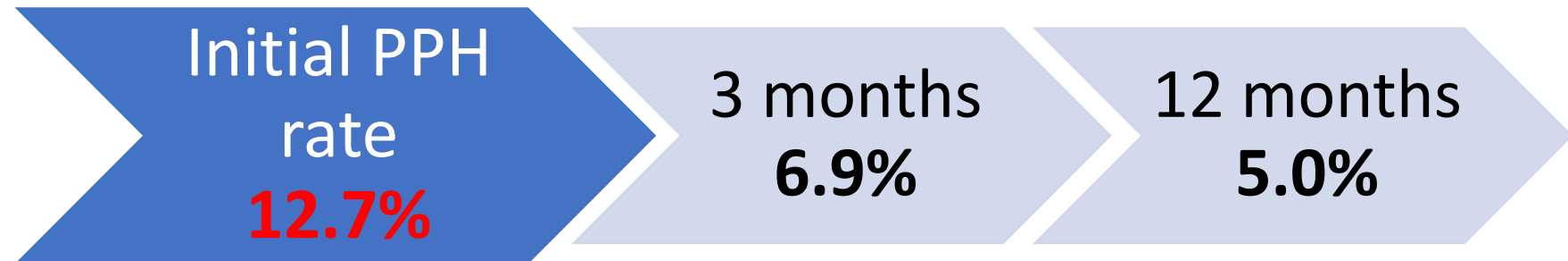
<i>Stage</i>	<i>Objectives</i>	<i>Duration (Months)</i>	<i>Accumulated Time (Months)</i>
1	Observational study to characterize delivery care	1 each hospital	1
2	Intervention To discuss the results of the observational study To compare evidence-based CPGs with current practice To stimulate the demand for CPGs Knowledge transference process including topics such as evidence-based medicine and theory about CPGs Workshop to adapt a CPG for the obstetrics department of each participant hospital	3	4
3	Short-term postintervention observational study 3 mo after the implementation of the CPGs	0.5 each hospital	7.5
4	Long-term postintervention observational study 12 mo after the implementation of the CPGs	1 each hospital	17

CPGs = clinical practice guidelines.



# Training

- Period: 2003 and 2005
- Study design: Before-after study
- Number of maternity units: 17
- Number of women: 2247
- Outcome: PPH
- Results:  
p<0.05



## An Education and Motivation Intervention to Change Clinical Management of the Third Stage of Labor —The GIRMMAHP Initiative

*Albert Figueras, MD, Edgar Narváez, MD, Mabel Valsecia, DD, Susana Vásquez, PharmD,  
Germán Rojas, PharmD, Angiolina Camilo, MD, José-María del Valle, MD, and  
Cristina Aguilera, MD*

# Simulation



Laurence E. Shields, MD; Kathy Smalarz, RN; Lester Reffigee, MD;  
 Sandra Mugg, RN; Theodore J. Burdumy, MD; Marilyn Propst, RN

# Simulation

« There were 3 main phases of preparation prior to protocol initiation: development, education, and team training/simulation. » and ...

cf. Crofts et al.

Crofts *et al.*

**Table 1.** Description of training inventions

	Local hospital course	Simulation centre course
Trainers	Local obstetricians, midwives and anaesthetists	Obstetricians, midwives and anaesthetists from the South West region of the UK
Mannequins	Locally available low-fidelity mannequins and training aids	Computer-controlled high-fidelity mannequins, which respond to treatment
Location	Local hospital	Simulation centre—a distance of 5–170 miles from local hospitals
Content	Identical	Identical
Course manual	Identical	Identical
Training drills	Conducted in a local delivery suite room	Conducted within a simulated clinical environment
Participants	Six participants in each local hospital per course	Eighteen participants; three teams of six from three hospitals per course
Cost of training venue	Free of charge	£1500 per day
	No teamwork training course	Teamwork training course
Content	Clinical	Clinical plus teamwork training
Length	1 day	2 days
Course manual	No teamwork chapter	Teamwork chapter
Participants per course	One team of six or three teams of six dependant on course location	One team of six or three teams of six dependant on course location



Laurence E. Shields, MD; Kathy Smalarz, RN; Lester Reffigee, MD;  
 Sandra Mugg, RN; Theodore J. Burdumy, MD; Marilyn Propst, RN

# Simulation

« There were 3 main phases of preparation prior to protocol initiation: development, education, and team training/simulation. » and ...

cf. Crofts et al.

Crofts *et al.*

**Table 1.** Description of training inventions

	Local hospital course	Simulation centre course
Trainers	Local obstetricians, midwives and anaesthetists	Obstetricians, midwives and anaesthetists from the South West region of the UK
Mannequins	Locally available low-fidelity mannequins and training aids	Computer-controlled high-fidelity mannequins, which respond to treatment
Location	Local hospital	Simulation centre—a distance of 5–170 miles from local hospitals
Content	Identical	Identical
Course manual	Identical	Identical
Training drills	Conducted in a local delivery suite room	Conducted within a simulated clinical environment
Participants	Six participants in each local hospital per course	Eighteen participants; three teams of six from three hospitals per course
Cost of training venue	Free of charge	£1500 per day
	No teamwork training course	Teamwork training course
Content	Clinical	Clinical plus teamwork training
Length	1 day	2 days
Course manual	No teamwork chapter	Teamwork chapter
Participants per course	One team of six or three teams of six dependant on course location	One team of six or three teams of six dependant on course location





Laurence E. Shields, MD; Kathy Smalarz, RN; Lester Reffigee, MD;  
 Sandra Mugg, RN; Theodore J. Burdumy, MD; Marilyn Propst, RN

## Simulation

- Results

**TABLE 4**  
**Changes in stage of hemorrhage before and after protocol initiation**

Stage	Preprotocol	Post-period 1	Post-period 4	Post-period 3
1 <sup>a</sup>	35% (22) <sup>b</sup>	51% (25)	69% (27)	82% (49)
2 <sup>a</sup>	53% (33)	45% (22)	18% (7)	8% (5)
3	11% (7)	4% (2)	13% (5)	10% (6)

<sup>a</sup> P = .02; <sup>b</sup> Numbers in parenthesis are total patients at that stage in that time period.  
 Shields. *Maternal hemorrhage protocol. Am J Obstet Gynecol* 2011.

Increase of simple HPP (better diagnosis)

Reduce the 2<sup>nd</sup> stage of PPH

No change on severe PPH rate

- Improve team work
  - Call
- Lack of a detailed description of simulation
- Lack of improvement of clinical endpoint





# Multifaceted intervention

## Does a postpartum hemorrhage patient safety program result in sustained changes in management and outcomes?

Brett D. Einerson, MD, MPH; Emily S. Miller, MD, MPH; William A. Grobman, MD, MB

# Multifaceted intervention

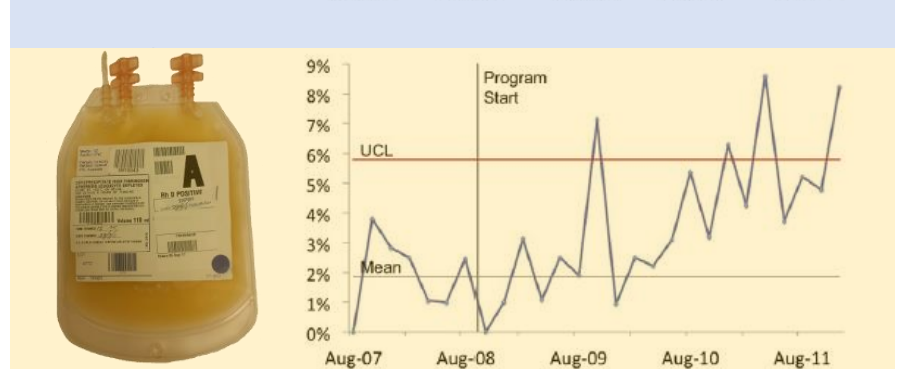
**TABLE 2**  
**Interventions and outcomes before and after postpartum hemorrhage protocol**

Patient characteristics	Pre protocol n = 592	Post protocol n = 2513	P value
<b>Estimated blood loss</b>			
Clinical blood loss, mL	1168 ± 688	1265 ± 905	.014
>1500 mL	12 (21.5)	66 (26.6)	.010
<b>Transfusions</b>			
Packed red cells	63 (10.6)	314 (12.5)	.214
Fresh frozen plasma	18 (3.0)	64 (2.6)	.500
Cryoprecipitate	11 (1.9)	94 (3.8)	.022
Platelets	7 (1.2)	39 (1.6)	.503
>2 U PRBC	27 (4.6)	113 (4.5)	.944
>2 U fresh frozen plasma	9 (1.5)	36 (1.4)	.872
>2 U cryoprecipitate	1 (0.2)	22 (0.9)	.071
>2 U platelets	1 (0.2)	11 (0.4)	.343
≥4 U total blood products	22 (3.7)	106 (4.2)	.582
<b>Uterotonics used</b>			
PGE1	160 (27.0)	1216 (48.4)	< .001
Methylergonovine	163 (27.5)	1042 (41.5)	< .001
PGF2-alpha	128 (21.6)	900 (35.8)	< .001
>2 uterotonics	125 (21.1)	1064 (42.3)	< .001
Intrauterine balloon tamponade	17 (2.9)	155 (6.2)	.002
B-Lynch suture	23 (3.9)	151 (6.0)	.042
Embolization via interventional radiology	4 (0.7)	45 (1.8)	.050
Curettage	29 (4.9)	127 (5.1)	.875
Gynecologic oncology present	6 (1.0)	30 (1.2)	.712
Postpartum hysterectomy	7 (1.2)	43 (1.7)	.357
ICU admission	14 (2.4)	57 (2.3)	.926

All values presented as mean ± SD or n (%).

ICU, intensive care unit; PGE1, prostaglandin E1; PGF2-alpha, prostaglandin F2-alpha; PRBC, packed red blood cells.

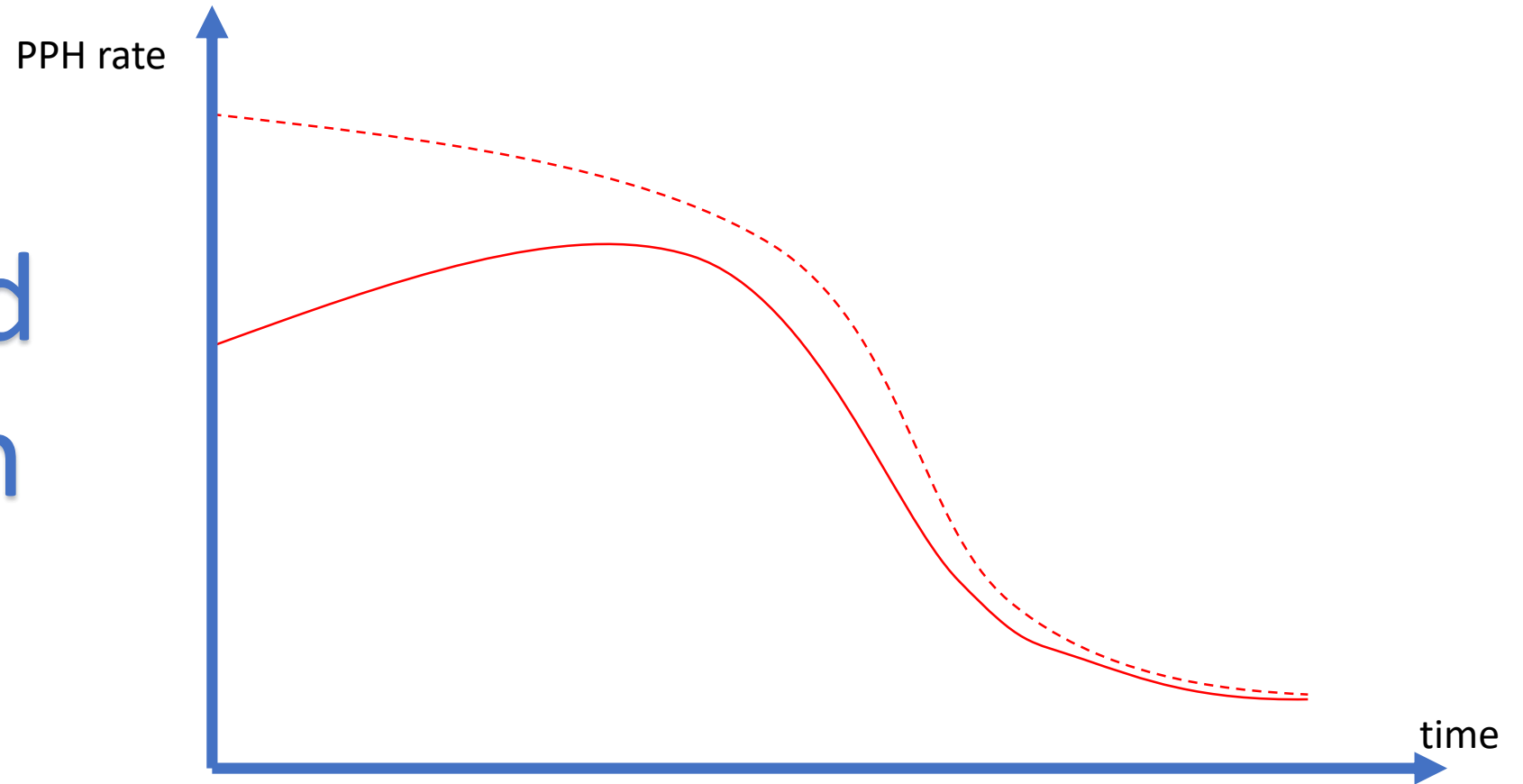
Einerson. Postpartum hemorrhage safety program. *Am J Obstet Gynecol* 2015.



Does a postpartum hemorrhage patient  
safety program result in sustained changes  
in management and outcomes?

Brett D. Einerson, MD, MPH; Emily S. Miller, MD, MPH; William A. Grobman, MD, MBA

Multifaceted  
intervention





# Conclusion

- Très peu d'études sur interv. non-cliniques (vs cliniques)
- Niveau de preuve faible
- Temps nécessaire pour changer les pratiques
- Critères de jugements
  - Adapté aux objectifs (prévention ou traitement)
  - Shock index (pouls / TAS)?

# Salon

**& GYNÉCOLOGIE  
OBSTÉTRIQUE**

## PRATIQUE

20 mars 2019



Hospices Civils de Lyon



**EA 7425**