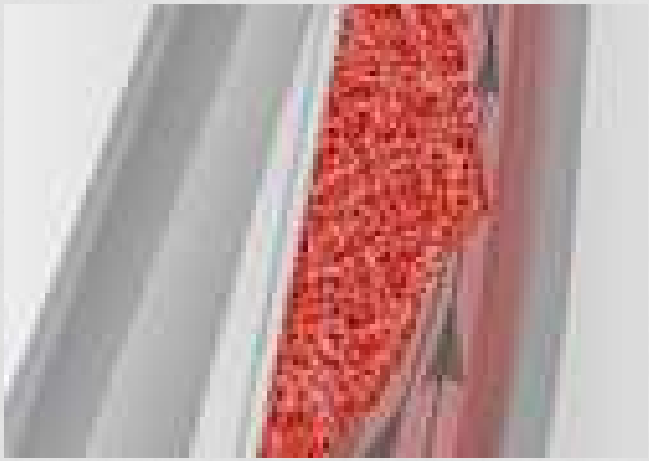


PROPHYLAXIE ANTITHROMBOTIQUE EN TRAUMA PÉDIATRIQUE

DISCUSSION DE PROTOCOLE CHUSJ - MAI 2016

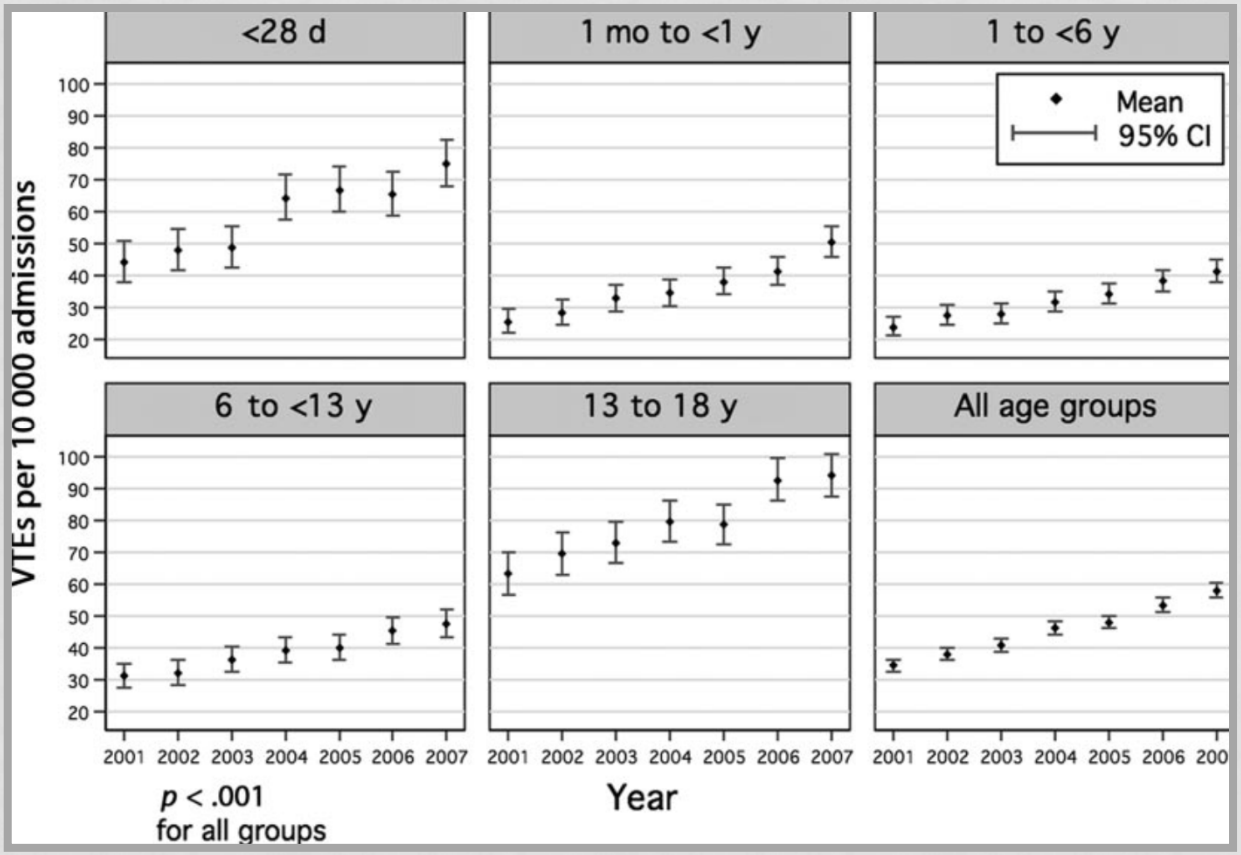
OBJECTIFS
PROPHYLAXIE ANTITHROMBOTIQUE

Prévenir maladie veineuse thromboembolique (MVTE) et ses complications:

- Mortalité d'embolie pulmonaire
- Complications des traitements
- Prolongation de l'hospitalisation
- Coûts (27,000 USD/épisode)
- Complications de la TVP
  - Syndrome post-phlébitique
  - TEV récidivante

Dramatic Increase in Venous Thromboembolism in Children's Hospitals in the United States From 2001 to 2007

Pediatrics 2009;124;1001 Raffini et al



5 :1000 admissions (0.5%)

INCIDENCE MVTE CHEZ ENFANT AVEC TRAUMA

Incidence MVTE chez enfant avec trauma

0.02%- 0.33%

Plus élevée que population enfants hospitalisés sans trauma

Beaucoup faible que chez l'adulte avec trauma

>1%-7.6% (trauma majeur 3-5%, trauma cérébral ou spinal 8-10%)

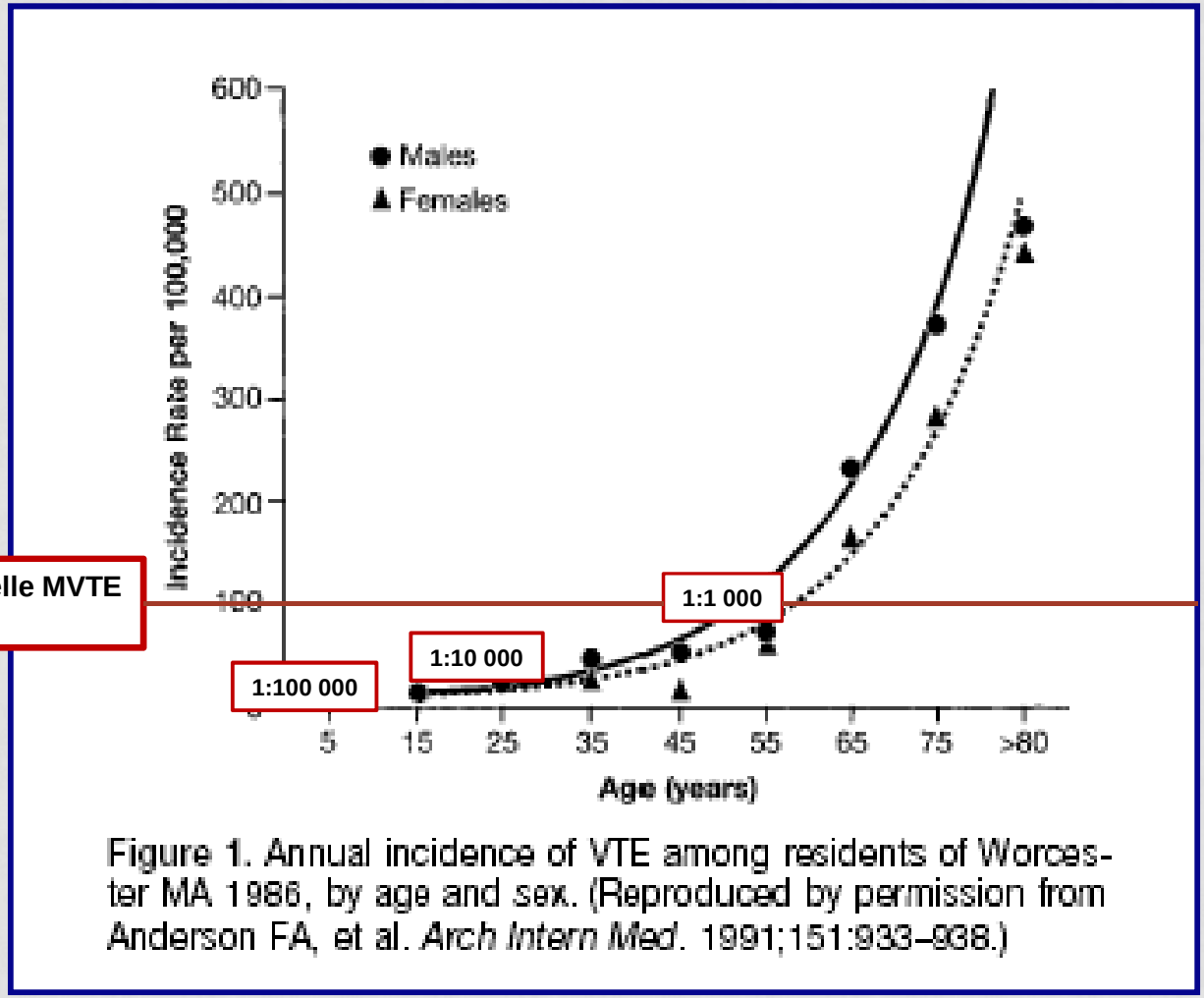
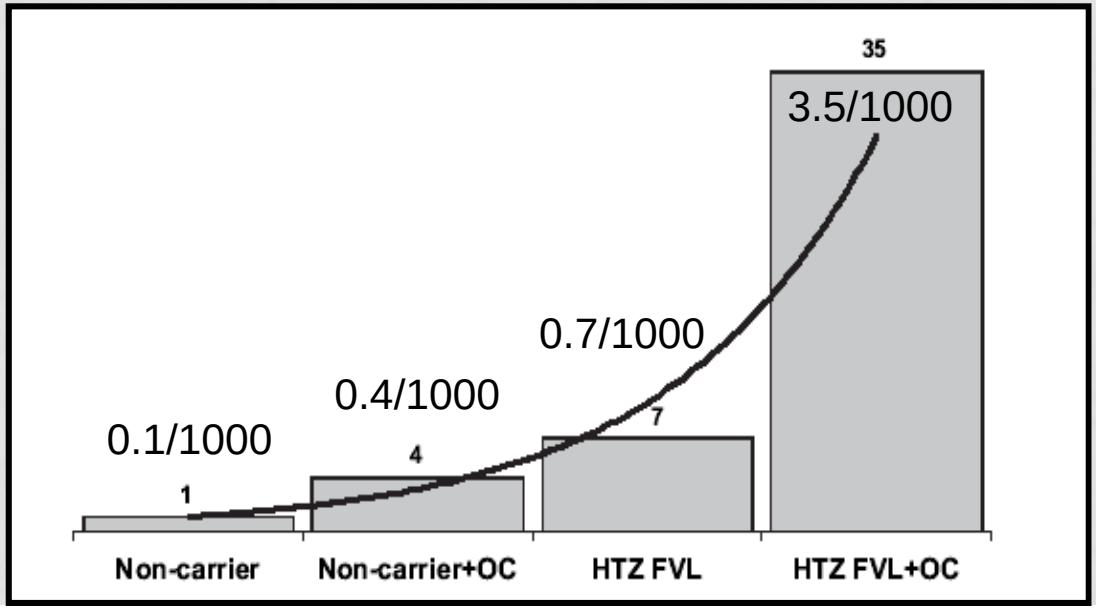


Figure 1. Annual incidence of VTE among residents of Worcester MA 1986, by age and sex. (Reproduced by permission from Anderson FA, et al. *Arch Intern Med*. 1991;151:933–938.)

EFFET SYNERGIQUE FACTEURS DE RISQUE

Facteur de Risque	Incidence Annuelle TEV/10 000	RC
Aucun	0.8	1
COC	3.0	3.7
F5 Leiden	5.7	6.9
COC + F5 Leiden	28.5	34.7



Lancet 1994

FACTEURS DE RISQUE CLINIQUES DE MVTE

Facteur de Risque	RC
Tabagisme	1.7
Obésité	2.9
Histoire Familiale	4.5
COC	4.7
Antécédent de TEV	8

FACTEURS DE RISQUE IDENTIFIÉS CHEZ ENFANTS AVEC TRAUMA

- Age
- Sévérité trauma
- Obésité
- CVC
- Ventilation mécanique
- Usage inotropes
- Transfusion
- Fractures bassin, fractures MI
- Trauma médullaire
- Séjour soins intensifs

FACTEURS DE RISQUE CHEZ ADULTES AVEC TRAUMA

Rogers et al J Trauma 2002
Practice Management Guidelines for the Prevention of VTE in Trauma Patients: the EAST Practice Management Guidelines Work Group

Evidence niveau I

- Trauma médullaire RR 2.2 (1.4-3.6)
- Fracture vertébrale RR 3.0 (1.8-5.4)

Evidence niveau II

- Age
- Sévérité trauma (ISS)
- Transfusion
- Trauma crânien
- Fractures bassin, fractures os longs

MODALITÉS DE PROPHYLAXIE

- Ambulation précoce
- Bas à compression graduée
- Jambières à pression séquentielle
- Pharmacologique
  - Héparine Standard
  - HBPM

RISQUE/BÉNÉFICE DES INTERVENTIONS MÉCANIQUES

GOULD ET AL CHEST 2012

Bas à compression graduée

- Diminution possible TEV 30-65%
- Étude Clots
  - RR TEV 0.65-0.84 NS
  - Complications cutanées 3.9%

Jambières à pression séquentielle

- Diminution TEV 50%
- Adhérence 50%

RISQUE/BÉNÉFICE DES INTERVENTIONS PHARMACOLOGIQUES

GOULD ET AL CHEST 2012

Héparine Standard

- Risque décès diminué de 18%
- Risque EP fatale diminué de 47%, non fatale de 41%
- Risque Hémorragie majeure non fatale augmenté de 57%

HBPM

- Risque décès 0.54 (0.27-1.10)
- Risque TEV clinique diminué de 70%
- Risque Hémorragie majeure doublé 2.03 (1.37-3.01)

HBPM vs Héparine Standard

- Risque TEV clinique diminué de 30%
- 0 bénéfice démontré risque EP clinique ou décès

❖ Plus de données sur efficacité dans trauma avec HBPM (J Trauma 2002)

ADULTE
RECOMMANDATIONS PROPHYLAXIE POST-OP CHIRURGIE (NON ORTHOPÉDIQUE) ACCP CHEST 2012

Risque estimé TEV Symptomatique	Recommandations de prophylaxie post-opératoire Grade 1 **strong** Grade 2 **weak** recommendation A, B, C: Quality of evidence **high, moderate, low**
< 0.5%	Ambulation précoce (Grade 1B) **Pas** de prophylaxie Mécanique (Grade 2C)
≈ 1.5%	Mécanique (Grade 2C)
≈ 3.0%	Pharmacologique (Grade 2B) **OU** Mécanique (Grade 2C)
≈ 6.0%	Pharmacologique (Grade 1B) **ET** Mécanique (Grade 2C)

Mécanique = Jambières à pression séquentielle

ADULTE
RECOMMANDATIONS PROPHYLAXIE TRAUMA
ACCP CHEST 2012

8.4.1. For **major trauma patients**, we suggest use of LDUH (Grade 2C), LMWH (Grade 2C), or mechanical prophylaxis, preferably with IPC (Grade 2C), over no prophylaxis.

8.4.2. For **major trauma patients at high risk for VTE** (including those with acute spinal cord injury, traumatic brain injury, and spinal surgery for trauma), we suggest adding mechanical prophylaxis to pharmacologic prophylaxis (Grade 2C) when not contraindicated by lower extremity injury.

ADULTE
RECOMMANDATIONS PROPHYLAXIE TRAUMA
ACCP CHEST 2012

8.4.3. For major trauma patients **in whom LMWH and LDUH are contraindicated**, we suggest mechanical prophylaxis, preferably with IPC, over no prophylaxis (Grade 2C) when not contraindicated by lower-extremity injury. We suggest adding pharmacologic prophylaxis with either LMWH or LDUH when the risk of bleeding diminishes or the contraindication to heparin resolves (Grade 2C).

ADULTE
RECOMMANDATIONS PROPHYLAXIE TRAUMA
ACCP CHEST 2012

8.4.4. For major trauma patients, we suggest that an **IVC filter should not be used** for primary VTE prevention (Grade 2C).

8.4.5. For major trauma patients, we suggest that **periodic surveillance with venous compression ultrasound should not be performed** (Grade 2C).

ADULTE
RECOMMANDATIONS PROPHYLAXIE TRAUMA
ACCP CHEST 2012

6.4.1. et 2. et 7.4.1 et 2.

Craniotomie

Chirurgie spinale

Prophylaxie mécanique (Grade 2C)

Si risque TE très élevé (eg cancer), ajouter prophylaxie pharmacologique une fois le risque hémorragique diminué/résolu (Grade 2C)

Acute spinal cord injury: extended prophylaxis 3 months

ENFANT

Risque bénéfice prophylaxie inconnu/incertain

Peu d'indications de prophylaxie antithrombotique:
Approche recommandée: « Opt in » vs « Opt out »

Agrément Canada

Décisions à prendre (patients individuels, institution): utilité protocole

Recommendations for venous thromboembolism prophylaxis in pediatric trauma patients: A national, multidisciplinary consensus study

Hanson, Sheila J. MD, MS; Faustino, E. Vincent S. MD, MHS; Mahajerin, Arash MD, MSCr; O'Brien, Sarah H. MD; Streck, Christian J. MD; Thompson, A. Jill PharmD; Petrillo, Toni M. MD; Petty, John K. MD

EDITOR'S CHOICE

PTS 2015 PLENARY PAPER

Journal of Trauma and Acute Care Surgery
80(5):695-701, May 2016.

PEDIATRIC TRAUMA SOCIETY

- Consensus d'experts (processus de nomination par pairs)
- Panel: chirurgie pédiatrique, soins intensifs pédiatriques, hématologie pédiatrique, pharmacie pédiatrique + dans processus Delphi: neurochirurgie, chirurgie orthopédique, trauma adulte
- Revue systématique littérature 1995-2014
  (tableau avec résumé)
- Processus Delphi modifié, 3 rondes
- Consensus = ≥ 80%
- Enfants ≤15 ans

Background
Thank you for your participation in round two to determine consensus regarding VTE prophylaxis for children 15 years old or younger who are admitted to the hospital for management of traumatic injuries. As part of the iterative, modified Delphi process, as you make your recommendations in the final round, please consider the following:

- **Literature summary**
- **Free text responses** — expert panel comments related to the corresponding questions from round two. Comments have been left "as is" with negligible editing.
- **Round two results** — responses from the expert panel expressed graphically. Review the responses of other experts as you answer in round two

.
Definition:
The term "routine prophylaxis" as used below indicates that a group of patients who share the characteristic(s) should generally receive an active intervention (pharmacologic and/or mechanical) to prevent VTE, in the absence of an absolute contraindication to that intervention. The particular situation of an individual patient may differ, but please provide your best recommendations for typical patients who share the characteristics below.
Instructions: In this final round of the Delphi consensus process, review the attached document containing the expert panelist responses from the previous round. Please also refer to the literature summary as well as your clinical experience as you consider the statements below. Only statements with a high level of consensus will be put forward as conclusions from this expert panel. For each of the statements below, please indicate if you agree/disagree:
Haut du formulaire

Questions:

PTS VTE PROPHYLAXIS EVIDENCE SUMMARY

1. Harris DA, J Neurosurg Pediatrics, 2014
Objective: A **retrospective** review of the Healthcare Cost and Utilization Kids Inpatient Database to evaluate **VTE risk factors** in patients with **traumatic brain injury. Cross-sectional 2009.**
267 TEV symptomatiques /58,529 enfants 0-20 ans admis avec trauma crânien **(0.46%)**
Significant Risk Factors: Age > 15, CVC, mechanical ventilation, tracheostomy, non-accidental trauma, longer length of stay in hospital, major surgical procedures including craniotomy, orthopedic surgery.
Notable Conclusions: Further studies are needed to better characterize coagulopathy of trauma and to determine best prophylaxis practices.

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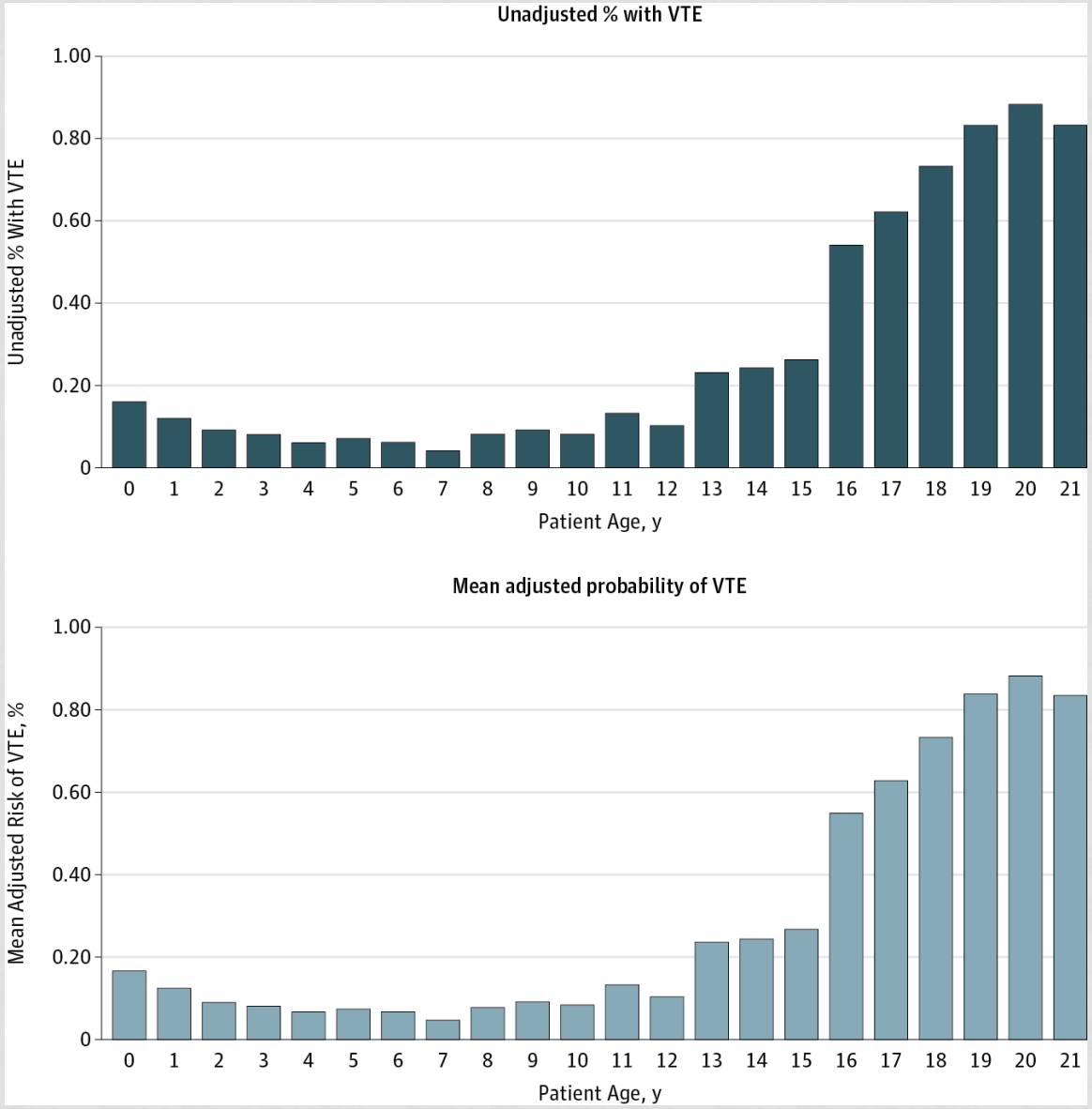
2. Van Arendonk, JAMA Surg, 2013

Objective: To **identify age parameters** at which VTE risk significantly rises from the low rate in children to the higher rate in adults via evaluation of the **National Trauma Data Bank**.

# of VTE/# of patients: **1655/402,329 (0.41%)**

Significant Risk Factors: Age > 16, with age 13-15 having a higher risk (0.8%) compared to ages 0-12 (0.1%), increasing ISS (with > 25 conferring the highest risk), obesity, intubation/mechanical ventilation, blood transfusion, decreasing GCS score (highest VTE risk with score of 3-8), “major surgical procedure,” CVC, longer length of stay in the hospital.

Notable Conclusions: There appears to be defined ages at which pediatric patients become “adult-like” in regards to VTE risk. These should form the basis for future studies of prophylaxis.


Unadjusted % with VTE
Unadjusted % With VTE
1.00
0.80
0.60
0.40
0.20
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
Patient Age, y
Mean adjusted probability of VTE
Mean Adjusted Risk of VTE, %
1.00
0.80
0.60
0.40
0.20
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
Patient Age, y

3. Askegard-Giemsmann JR, J Pediatr Surg, 2012
Objective: Evaluate use of low-molecular-weight-heparin (LMWH) in pediatric trauma patients via PHIS from 2001-2008.
# of VTE/# of patients: **671/260,078 (0.26%)**
Significant Risk Factors: PICU stay, pelvic injury, central venous catheters (CVC)
Notable Conclusions: Increased use of LMWH in pediatric trauma patients despite stable VTE incidence.

4. Greenwald LJ, J Pediatr Orthop, 2012
Objective: Analyze VTE risk factors, use of thromboprophylaxis, and impact of CVC in pediatric trauma patients (**femoral or pelvic fracture**) at a single institution from 1990-2009.
3 TEV trouvées par surveillance/1782 patients **(0.17%,** 0.35% des patients n'ayant pas reçu de prophylaxie**)**
Notable Conclusions: Thromboprophylaxis was used in ~ 8.8% of pediatric trauma patients and none of the 3 VTE events were associated with a CVC.

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5. Hanson SJ, J Trauma, 2012
Objective: Prospective monitoring of a VTE prophylaxis clinical guideline for use in the PICU for pediatric trauma patients at a single institution. Comparison of VTE incidence pre-, during a “roll-out” period, and post-guidelines with ultrasound (US) screening done on Day 7 of PICU stay post-guidelines.
# of VTE/# of patients: PRE&ROLL-OUT: **11/375 (2.9%)**, POST: **3/169**
Significant Risk Factors: Age older than 13, acute spinal cord injury.
Notable Conclusions: Decreased incidence of VTE post-guidelines. The VTE in the pre-guidelines and roll-out groups were **symptomatic** whereas VTE post-guidelines were discovered incidentally on **screening** US. The guidelines did not lead to an increased use of enoxaparin and no bleeding complications reported.

6. O’Brien SH, J Trauma Nurs, 2012
Objective: Analyze use of LMWH in pediatric trauma patients in trauma registries at 2 children’s hospitals and 2 adult hospitals.
# of VTE/# of patients: **15/706 (2.1%)** âge moyen 18.5 ans, 12/706 < 14 ans
Significant Risk Factors: Male gender, ICU stay of any duration, mechanical ventilation, craniotomy, laparotomy, CVC
Notable Conclusions: Thromboprophylaxis is used in children with trauma, particularly lower extremity fractures and head trauma. Bleeding events due to thromboprophylaxis was uncommon (0.4%) and occurred 5 times less than VTE events that occurred while on thromboprophylaxis.

7. O'Brien SH, Pediatr Crit Care Med, 2011

Objective: Describe incidence and risk factors in pediatric trauma patients through analysis of the National Trauma Data Bank.

# of VTE/# of patients: **1087/135,032 (0.8%)**

Significant Risk Factors: Patients in infancy or adolescence, > 4 days in the ICU, > 4 days on mechanical ventilation, CVC, increasing Injury Severity Score (ISS), head injury, ASCI, vascular injury, pelvic fracture, lower extremity fracture, craniotomy, spinal procedure, and open fixation of a lower extremity fracture were procedures associated with VTE.

Notable Conclusions: VTE is rare in children with trauma and thromboprophylaxis may only be needed for those with critical injury and CVC.

8. Hanson SJ, J Trauma, 2010

Objective: A **prospective** nested case-control study to evaluate incidence and risk factors of patients **admitted to a PICU due to trauma** with subsequent development of VTE. # of VTE/# of patients: **9/144 (6.2%)**

Significant Risk Factors: Parenteral nutrition, CVC, deep sedation, neuromuscular blockade, inotropic support, recombinant Factor VIIa use,

Notable Conclusions: VTE is not rare in critically ill children with trauma and develops in those with multiple risk factors, particularly CVC, poor perfusion and immobility.

9. Candrilli SD, Pediatr Crit Care Med, 2009

Objective: Generate national estimates of effect of injury severity on VTE incidence in pediatric trauma patients utilizing the 2003 Healthcare Cost and Utilization Project Kids Inpatient Database.

# of VTE/# of patients**: 648/240,387 (0.27%)**

Significant Risk Factors: Moderate, Severe, and Critical ISS levels, increasing age, head trauma, vascular injury, ASCI, pelvic fracture, lower extremity fracture, CVC, open reduction/fixation of lower extremity fracture, laparotomy, craniotomy, and spinal procedure.

Notable Conclusions: VTE increases the length of stay and hospital costs but the overall rate of VTE is low, even in ICU patients.

10. Rana AR, J Pediatr Surg, 2009

Objective: To evaluate the effect of obesity in the pediatric trauma population.

# of VTE/# of patients: **2/1314 (0.15%)**

Notable Conclusions: Both VTE events noted in patients found to be obese. The study focused on obesity in trauma patients and not on VTE, specifically.

11. O'Brien SH, J Trauma Nurs, 2008
Objective: Survey study of nurses from 133 institutions via the Society of Trauma Nurses regarding VTE prophylaxis practices.
Significant Risk Factors: Respondents felt significant risk factors included: pelvic fracture, ASCI, immobilization, lower extremity fracture, obesity. Of note, CVC was considered the least important of risk factors assessed.
Notable Conclusions: Prophylaxis strategies are uncommon but higher than what the authors expected for the to-date low rate of reported VTE.

12. Cyr C, Michon B, Pettersen G, David M, Brossard J, VTE after severe injury in children, J Acta Haematol, 2006
Objective: To determine incidence and risk factors for VTE in pediatric trauma patients at 2 trauma centers.
11TEV symptomatiques/ 3 291 admissions pour trauma ≥ 72h aux SI (0.33%)
Significant Risk Factors: ISS ≥ 9, older age, thoracic injury, spinal injury, CVC.
Notable Conclusions: Adolescents with high ISS, thoracic or spinal injuries, and/or CVC are at high-risk to develop VTE.

13. Azu MC, J Trauma, 2005
Objective: To evaluate the efficacy of the institution's VTE prophylaxis practice in pediatric trauma patients.
Retrospective (prophylaxie > 17a, selon MD 13-17a, aucune <13a)
# of VTE/# of patients: **59/13,894 (0.42%)**
Significant Risk Factors: Increasing age alone and in conjunction with any ISS score – the older the patient was led to higher VTE risk
Notable Conclusions: The risk of VTE in pediatric trauma patients, especially those < 13 years of age, is negligible and therefore prophylaxis is not necessary.

14. Cook A, J Trauma, 2005
Objective: A cross-sectional study to describe use of vena cava filters (VCF) in pediatric trauma patients by querying the National Trauma Data Bank.
of **VTE/# of patients: 91/116,357 (0.08%)**
VCF's placed in 214 patients.
Significant Risk Factors: None for VTE. Risk factors reported as to whether they would increase likelihood for placement of a VCF.
Notable Conclusions: VCF use is uncommon in pediatric trauma.

15. Jones T, Arch Phys Med Rehab, 2005
Objective: A **retrospective** review of records of all public California hospitals to evaluate VTE incidence in patients with ASCI.
# of VTE/# of patients: **70/1585** (A total of 16,240 patients included but the remainder were > 20 years of age) (4.4%)
Significant Risk Factors: Male gender, the age group of 14-19 year old patients had higher risk than 8-13 year old patients.
Notable Conclusions: Prophylaxis is likely not needed in patients < 14 years of age.

16. Truitt AK, J Pediatr Surg, 2005
Objective: A single-institution study that evaluated incidence and risk factors for VTE in pediatric trauma patients.
# of VTE/# of patients: **3/3637 (0.08%)**
Significant Risk Factors: Age > 9, admit GCS < 8, ISS > 25, head injury
Notable Conclusions: The incidence of VTE in pediatric trauma is low and prophylaxis should not be considered unless a patient has the afore-mentioned significant risk factors.

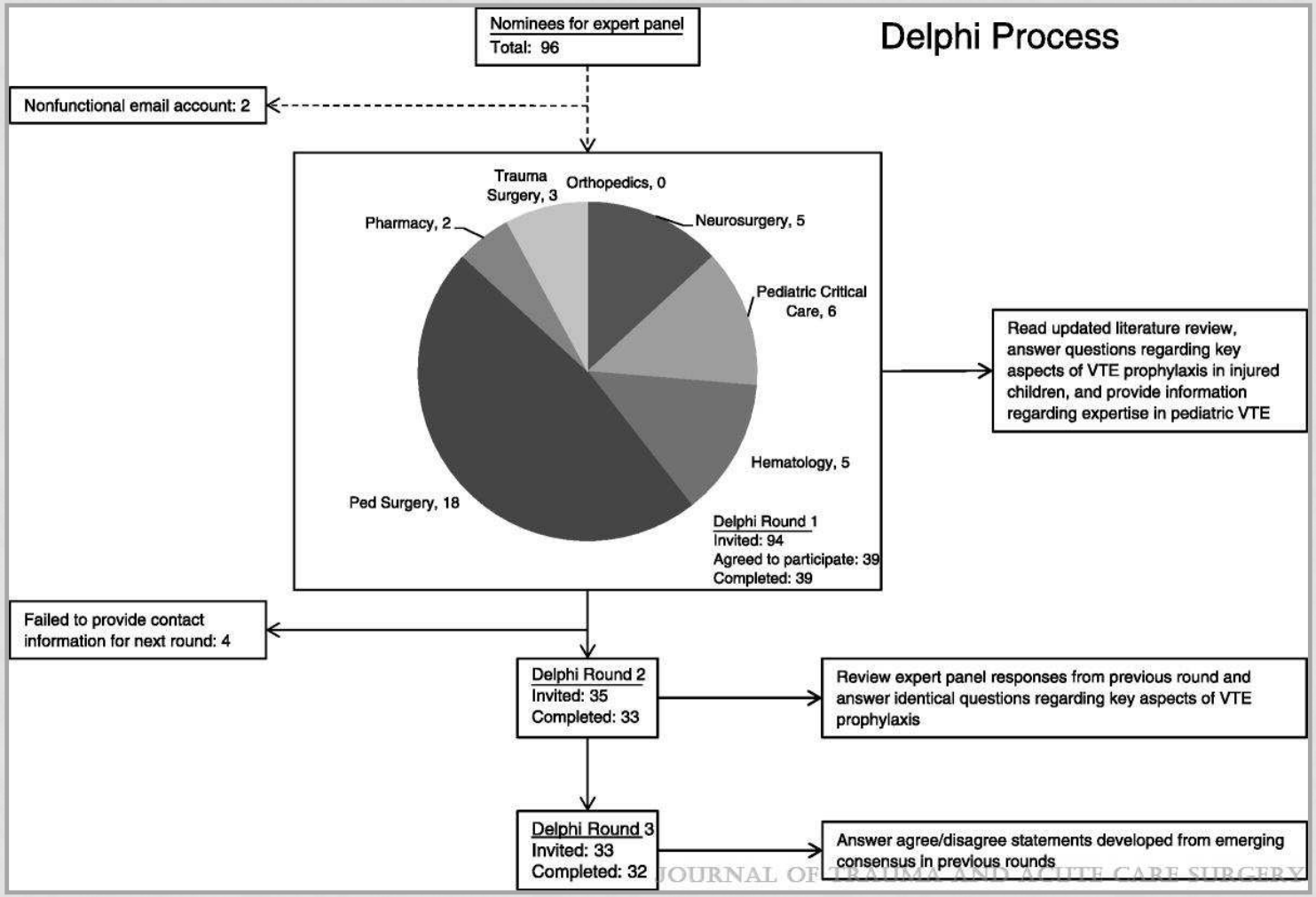
17. Vavilala MS, J Trauma, 2002
Objective: A **retrospective** study of several institutional databases to evaluate incidence and risk factors for VTE in pediatric trauma.
# of VTE/# of patients: **45/58,716 (0.08%)**
Significant Risk Factors: Increasing ISS, particularly > 25, vascular injury, CVC, increasing age, ASCI, severe head injury, severe thoracic injury, procedures including craniotomy, open reduction/internal fixation of lower extremity fracture, laparotomy.
Notable Conclusions: VTE prophylaxis should be considered in pediatric trauma patients with the afore-mentioned significant risk factors.

18. Hofmann S, Thromb Res, 2001
Objective: A **retrospective**, single institution study evaluating use of LMWH's. The authors describe 2 groups: 1. Those that received LMWH as primary prophylaxis following surgery or trauma (n=62) and 2. Those that received LMWH as part of treatment for a thrombotic event [including both venous (n=13) and arterial).
# of VTE/# of patients: **13/79** (these 13 patients did not receive prophylaxis, they received LMWH as treatment after VTE discovered)
Significant Risk Factors: "Orthopedic surgery" and "trauma"
Notable Conclusions: Pharmacologic prophylaxis is safe and effective.

19. Grandas OH, Am Surg, 2000
Objective: A **retrospective**, single institution study to evaluate incidence of VTE in pediatric trauma patients.
# of VTE/# of patients: **3/2746 (0.11%)**
Significant Risk Factors: "Venous system manipulations" (e.g. CVC, atrio-caval shunt), immobility
Notable Conclusions: Screening and prophylaxis is not necessary in pediatric trauma patients, especially in light of 1123 patients with head injury and 29 patients with ASCI who did not develop VTE.

20. McBride WJ, J Trauma, 1994
Objective: A retrospective review of the National Pediatric Trauma Registry to define incidence of VTE, particularly PE.
# of VTE/# of patients: **6/28,692 (0.02%)**
Significant Risk Factors: ASCI, CVC, immobility
Notable Conclusions: General prophylaxis is not necessary but older teenagers with paraplegia (and therefore immobility) and/or CVC should be considered for pharmacologic prophylaxis.

APPLIED DELPHI PROCESS FOR BUILDING CONSENSUS, DISPLAYING RESPONDENTS AND THREE ROUNDS OF EXPERT PANELIST SURVEYS.



SELF-IDENTIFIED QUALIFICATIONS OF PANELISTS TO PARTICIPATE AS EXPERTS IN THE DELPHI CONSENSUS PROCESS

	Total n = 39
Years in practice	
0–5	4
6–10	9
11–15	6
16–20	12
>20	8
Institution pediatric trauma patients, admissions per year	
0–100	3
101–200	6
>200	30
Expert qualifications, n	
Significant clinical experience	37
Institutional leadership related to care pediatric trauma and/or VTE	29
Publication in the field of pediatric trauma	25
Involvement in national organizations related to pediatric trauma and/or VTE	25
Publication in the field of VTE	17

92% panelistes prêts à modifier leur approche en fonction du consensus

STATEMENTS FOR VTE PROPHYLAXIS IN INJURED CHILDREN

- **No recommendation**: recommendations for routine VTE prophylaxis are **not affected** by the presence or absence of this factor
- **Weak recommendation**: **weak** recommendation **in favor** of routine VTE prophylaxis **if other factor(s) are present**
- **Moderate recommendation**: **moderate** recommendation **in favor** of routine VTE prophylaxis **if other factor(s) are present**
- **Strong recommendation**: **strong** recommendation **in favor** of routine VTE prophylaxis **if other factor(s) are present**
- **Very strong recommendation**: recommendation **in favor** of routine VTE prophylaxis **even if no additional factor(s) are present**

STATEMENTS FOR VTE PROPHYLAXIS IN INJURED CHILDREN
WITH CONSENSUS (>80% AGREEMENT)

General:

- For injured children 12 years or younger, VTE prophylaxis should not routinely be given, though exceptions may apply (91%)

  (Pour enfants > 15 ans: split ≈ égal)
- Mechanical prophylaxis is appropriate to lower the risk of VTE in children with a significant risk of bleeding or other contraindication that would prevent safe pharmacologic prophylaxis (91%)
- Injured children who can walk may need VTE prophylaxis based on other factors (84%)

VTE Risk Factors:

- **Strong** recommendation for pharmacologic prophylaxis in injured children with a **personal history of VTE** (94%)
- **Weak** recommendation for pharmacologic prophylaxis in injured children with a **central venous catheter** (91%)

STATEMENTS FOR VTE PROPHYLAXIS IN INJURED CHILDREN NOT REACHING CONSENSUS

NEAR-CONSENSUS STATEMENTS (70-79% AGREEMENT)

General:

- Screening ultrasound should not be used routinely in children at risk for VTE (75%)

VTE Risk Factors:

- **Strong** recommendation for pharmacologic prophylaxis in injured children:
  - with a non-weight bearing **pelvis fracture** (75%)
- **Moderate** recommendation for pharmacologic prophylaxis in injured children :
  - with a **spinal cord** injury (78%)
  - with **obesity**(78%)
  - with a **vascular injury** (72%)
  - with **major polytrauma (ISS >25)** (72%)
  - with a **family history of VTE** (72%)
  - with **oral contraceptive use** (72%)

STATEMENTS FOR VTE PROPHYLAXIS IN INJURED CHILDREN NOT REACHING CONSENSUS

NEAR-CONSENSUS STATEMENTS (70-79% AGREEMENT)

Bleeding Risks:

For children whose risk of VTE requires pharmacologic prophylaxis, this prophylaxis should be held

- for 3 days following a neurosurgical operation (in the absence of active bleeding)(78%)
- for 4 days following intracranial hemorrhage (in the absence of active bleeding) (72%)
- for 3 days following major solid organ injury (in the absence of active bleeding)(72%)

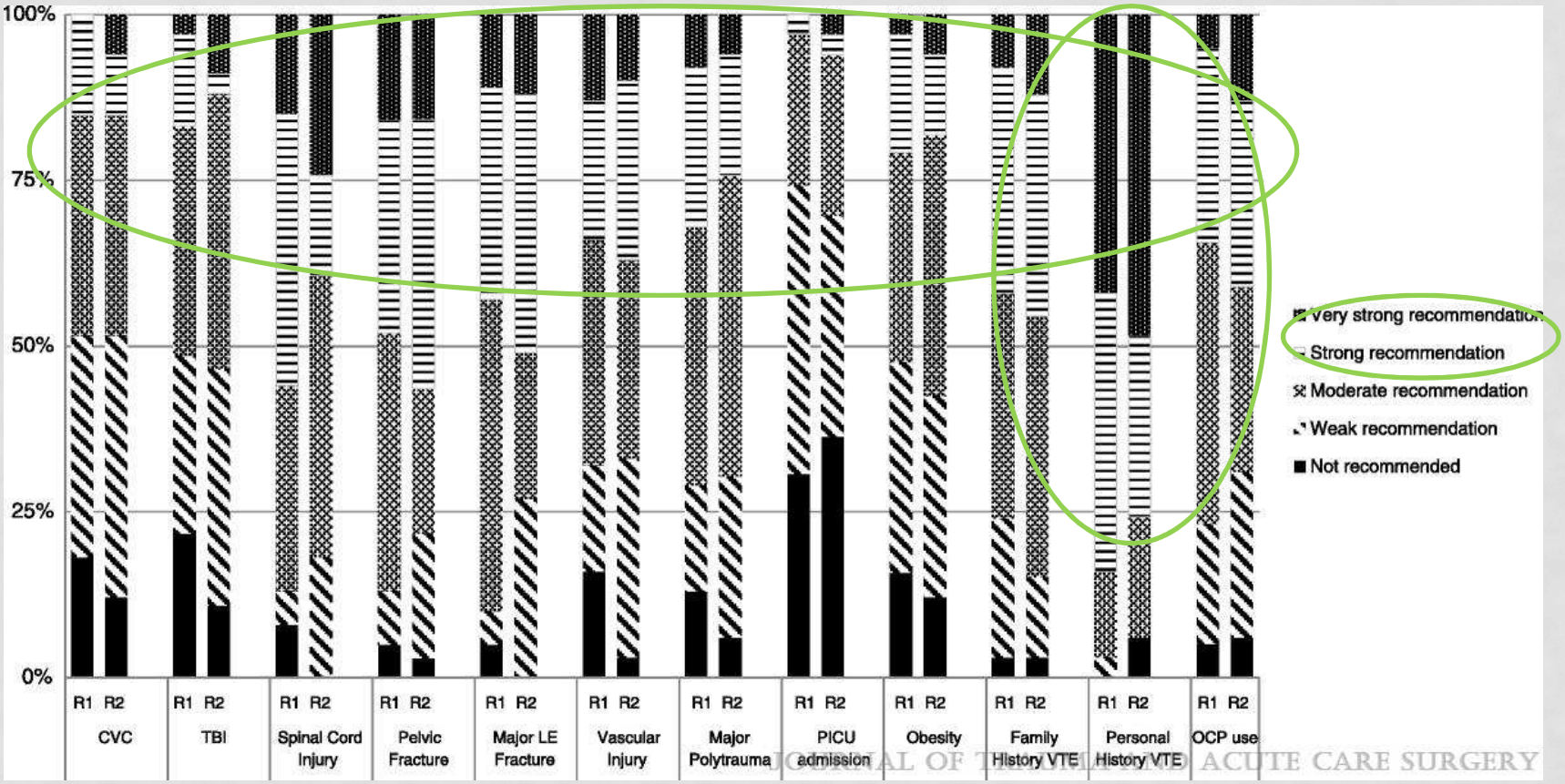
STATEMENTS FOR VTE PROPHYLAXIS IN INJURED CHILDREN NOT REACHING CONSENSUS

STATEMENTS NOT REACHING CONSENSUS (<70% AGREEMENT)

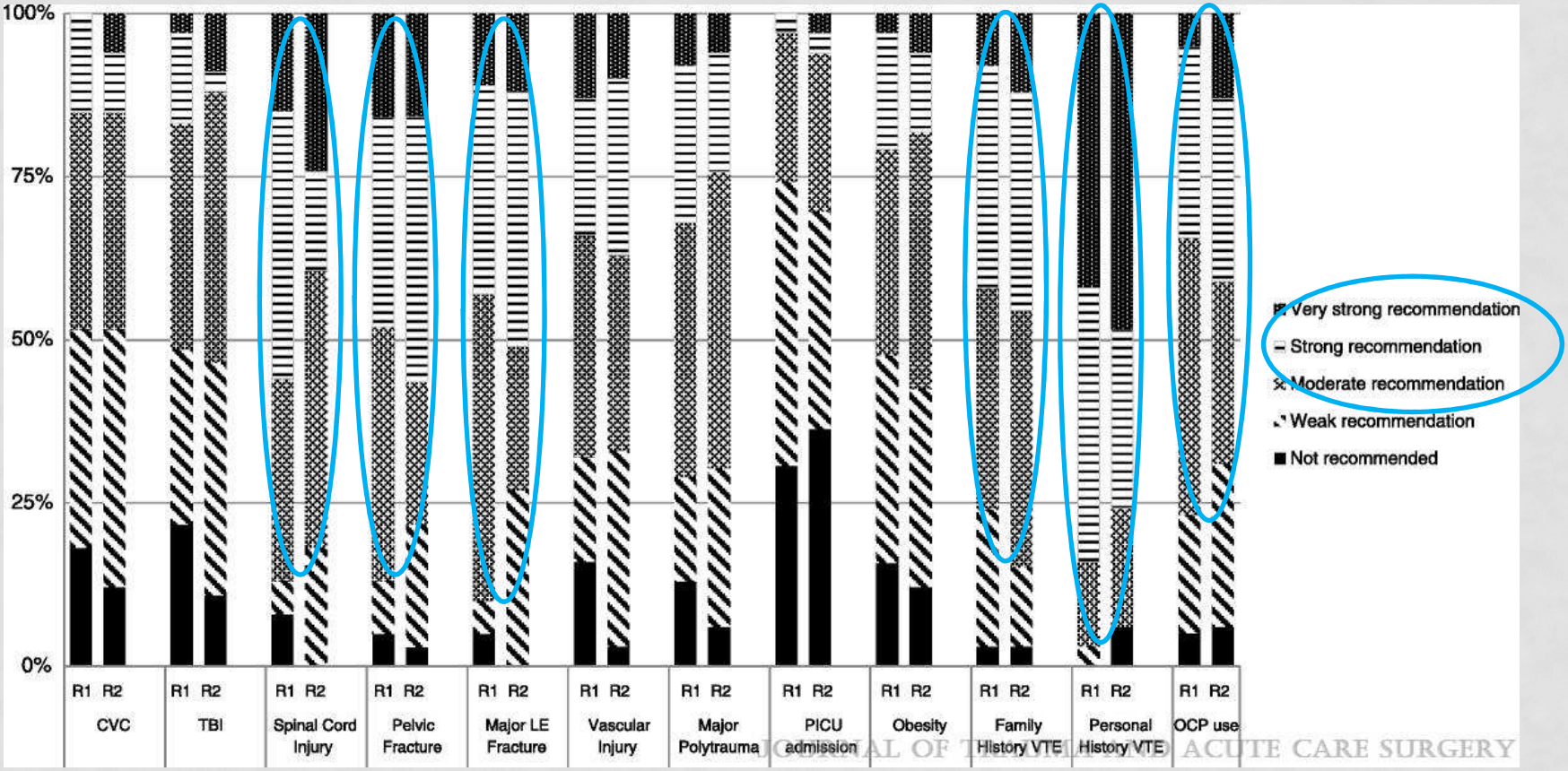
VTE Risk Factors:

- Moderate recommendation for pharmacologic prophylaxis in injured children with a **major lower extremity fracture** (56%)
- Moderate recommendation for pharmacologic prophylaxis in injured children with a **traumatic brain injury** (59%)
- Weak recommendation for pharmacologic prophylaxis in injured children who are **admitted to the PICU** (69%)

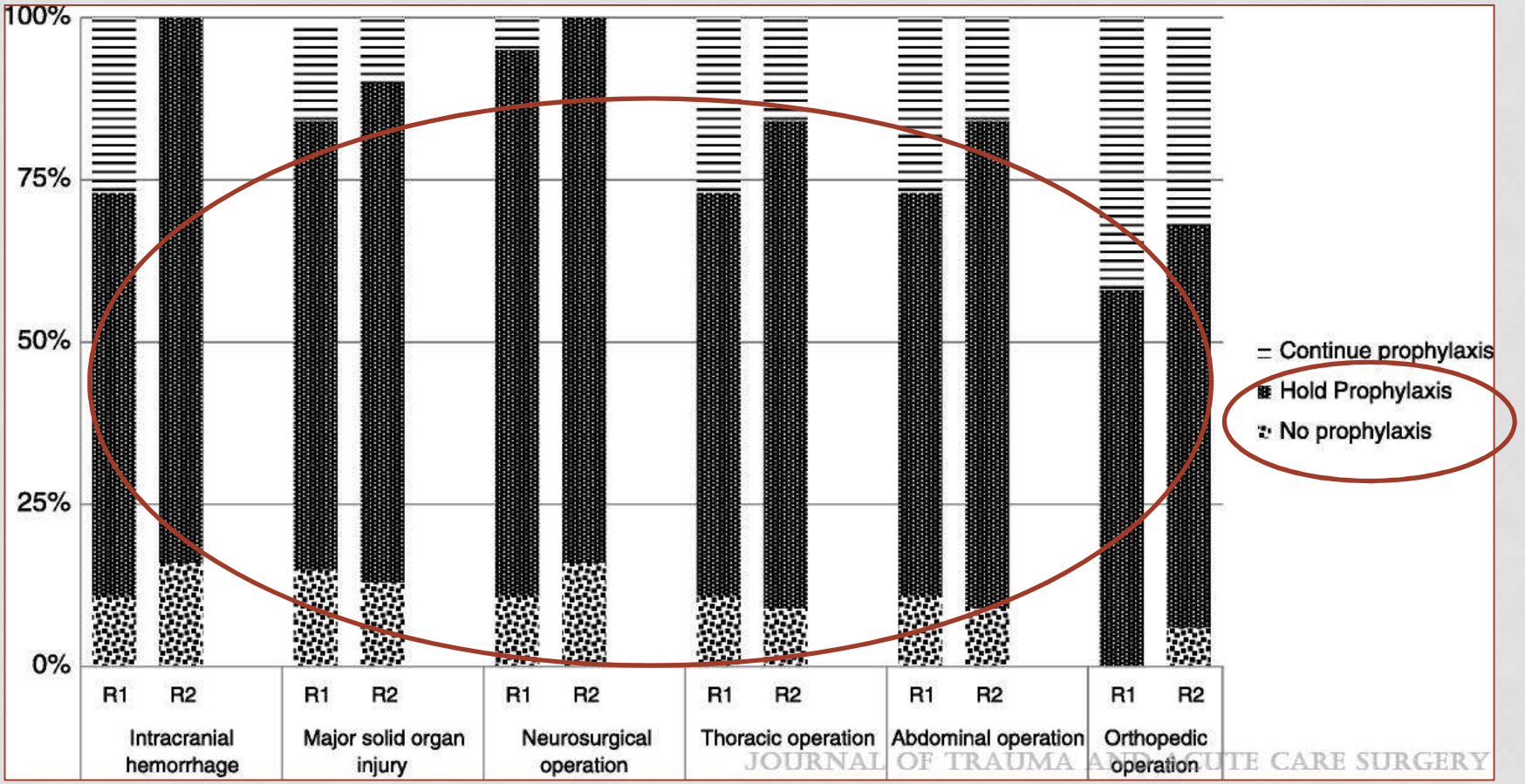
EXPERT PANEL RECOMMENDATIONS FOR VTE PROPHYLAXIS BY RISK FACTOR. RESPONSES FROM ROUNDS 1 AND 2 ARE COMPARED.



EXPERT PANEL RECOMMENDATIONS FOR VTE PROPHYLAXIS BY RISK FACTOR. RESPONSES FROM ROUNDS 1 AND 2 ARE COMPARED.



RECOMMENDATIONS FOR MANAGEMENT OF VTE PROPHYLAXIS IN LIGHT OF SITUATIONS WITH A RISK OF BLEEDING. RESPONSES FROM ROUNDS 1 AND 2 ARE COMPARED.



PROTOCOLE DE PROPHYLAXIE EN CHIRURGIE ORTHOPÉDIQUE CHUSJ

Non contraignant

Il est recommandé que tous les patients subissant une chirurgie orthopédique aient une évaluation pré-opératoire du risque de thromboembolie veineuse. Il est suggéré de considérer une prophylaxie antithrombotique chez les patients de ≥ 15 ans subissant une chirurgie orthopédique à risque majeur de thromboembolie veineuse (chirurgie du bassin, de la hanche ou du fémur, remplacement du genou), chez ceux avec antécédents de thromboembolie/thrombophilie et chez ceux avec multiples facteurs de risque cliniques de thromboembolie veineuse.

Poids (kg) : _____ **Taille (m) :** _____ **IMC :** _____ **(kg/m^2)** (IMC= [poids (kg) ÷ taille (m)] ÷ taille (m))

FACTEURS DE RISQUE

- ❒ Chirurgie à risque majeur de thromboembolie veineuse (chirurgie du bassin, de la hanche ou du fémur, remplacement du genou)
- ❒ Âge ≥ 15 ans
- ❒ Obésité i.e. IMC ≥ 30 kg/m^2
- ❒ Prise de contraceptifs oraux contenant des œstrogènes
- ❒ Cancer actif sous traitement
- ❒ Autres : maladie inflammatoire chronique, infection aiguë, paralysie
- ❒ Antécédent personnel ou familial de maladie thromboembolique ou présence de thrombophilie

PRISE EN CHARGE

Prophylaxie antithrombotique: ❒ Oui ❒ Non

PROTOCOLE DE PROPHYLAXIE EN CHIRURGIE ORTHOPÉDIQUE CHUSJ (SUITE)

Si prophylaxie antithrombotique :

❒ **Énoxaparine** _____ mg **(0,6 mg/kg/dose, max 40 mg/dose) sous-cutané** DIE
pour une durée de ❒ 10 jours ❒ 35 jours ❒ _____ jours
À débuter le lendemain de la chirurgie (au moins 12 heures post-opératoire) après confirmation d'une hémostase adéquate par examen du site chirurgical.

❒ **Jambières à pression séquentielle**

Contre-indications à l'énoxaparine : Hémorragie active, plaquettes < 50 x 10^9/L, pathologie de l'hémostase (porteur d'hémophilie, maladie de Von Willebrand, etc.), antécédents de thrombocytopénie induite par l'héparine, allergie à l'héparine, insuffisance rénale.
S'il advient un saignement anormal, arrêter l'énoxaparine et aviser le médecin de garde.

Attendre au moins 12 heures après la dose d'énoxaparine pour le retrait d'un cathéter épidural.
Attendre au moins 2 heures après le retrait d'un cathéter épidural avant de recommencer l'énoxaparine.

❒ **Consultation en hématologie** (recommandée si antécédent personnel ou familial de maladie thromboembolique ou thrombophilie, requise si l'anticoagulation se poursuivra après le congé)

LABORATOIRES

FSC, BUN, créatinine, puis FSC deux fois par semaine
PAS de dosage anti-Xa nécessaire
Décompte des plaquettes avant le début de l'énoxaparine : _____ x 10^9/L
Aviser le médecin si plaquettes < _____ x 10^9/L (< 50% du décompte initial ou < 140 x 10^9/L, la valeur la plus grande des deux)

PROPHYLAXIE ANTITHROMBOTIQUE POUR LES ENFANTS ET LES ADOLESCENTS AVEC TRAUMA CHUSJ- A DISCUTER

Énoncé: « Il est recommandé que tous les patients avec trauma aient une évaluation du risque de thromboembolie veineuse. Il est suggéré de considérer une prophylaxie antithrombotique chez les enfants avec trauma et antécédents de thromboembolie/thrombophilie, ainsi que chez ceux avec multiples facteurs de risque cliniques de thromboembolie veineuse »

Facteurs de risque de TEV (à déterminer):

Age > 15 ans
Obésité (IMC > 30)
Contraceptifs oraux contenant des œstrogènes
Antécédent de thromboembolie veineuse
Thrombophilie
Histoire familiale de thromboembolie veineuse
Trauma médullaire
Fracture vertébrale
Fracture bassin
Sévérité trauma: ISS > x
CVC?
etc.

Facteurs de risque de saignement (à déterminer):

HIC, trauma organe solide, chirurgie ou procédure invasive prévue dans les 24h, insuffisance rénale, etc.

Si prophylaxie antithrombotique:

- ❑ Jambières à pression séquentielle
- ❑ Enoxaparine
- ❑ Héparine standard

CREATION GROUPE TRAVAIL CHUSJ PON - FOPRI

- Chirurgie-trauma
- Orthopédie/neurochirurgie
- Soins intensifs
- Nursing
- Pharmacie
- Hématologie
- Autres