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**EuSEM 2015 10-14** OCTOBER

## Evaluation of pain management for adult sickle cell patients in a emergency department

T. Préseau M.D.  
For the CHUB/EDU team



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## Alone we can do so little, together we can do so much Helen Keller

**Haematology department:** M.A. Azerad MD, C. Chan (Head Nurse), B. Dohet (Reference nurse for sickle cell), S. Depauw (Psychologist), A. Efir M.D.

**Emergency department:** T. Preseau MD, T.M.Q. Tran MD, S. Belhaj (Head Nurse), S. El Hamzaoui (Reference nurse for pain treatment).

**Clinical reseach Unit:** T. besse-Hammer MD, B. Dumoulin (statistics)





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**Speaker: Thierry Préseau M.D.**

**Title: Evaluation of pain management for adult sickle cell patients in a emergency department**

Member of a scientific committee  YES  NO

Speaking or writing in exchange for remuneration  YES  NO


If so: ...

Travel expenses and/or registration to congresses or other events covered  YES  NO

If so: ...

Leader of research of clinical study  YES  NO


If so: ...



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## Sickle cell patient in ED


- EDs:
  - Vaso-occlusive crisis is the most common emergency by these patients
  - Wait quite long (overcrowding: 65 000 pat/year):
    - First contact most important for trust.
    - Long waiting time first cause of complaints.
  - Under evaluation of the pain :
    - chronic pain => not so demonstrative.
    - Evaluation of the pain often different between patient and nurses/ doctors.
    - Low knowledge of the disease by the ED teams.
    - Inadequate treatment



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## Sickle cell patient in ED

- Brugmann: one of the biggest population of adult sickle cell patients in Belgium.
  - Public hospital
  - Close relationship with the « Queen Fabiola Children University Hospital »
  - Reference center
  - Lot of ED admission (min 2/ week).

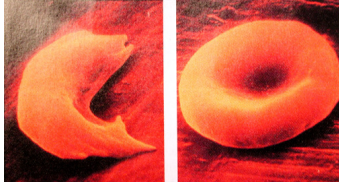



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## Goals

### Quality

- Improve knowledge
- Introduction of a written protocol
- Evaluation of the protocol (quality evaluation by the patients, follow up of the treatment: of medication doses, population,...)
- How to improve ?





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- **Endpoints:**
- Treatment evaluation
  - Analogic Visual Pain Scale (t0), 1h , 3h, 6h then every 6h until pain is gone.
  - Respect of the written protocol.
    - Systematic paracetamol + NSAID: done
    - Systematic hyperhydratation: done
    - IV Morphine: 0,05 to 0,08 mg/kg / 15 minutes for pain evaluation > 6/10.
  - Waiting time (organisation).
- Patient satisfaction survey



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## Materiel en method


- Recruitment ?
  - Ethical committee
  - Adult patients > 18 y (informed consent)
  - In haematology consultation and in ED.
- Which team, which tools ?
  - ED nurses, ED doctors
  - Visual Analogic Pain Scale,
  - written protocol for treatment (paracetamol, NSAID, Morphine 0,05 mg/kg/15 min)
- How do we evaluate?
  - Patient survey form: satisfaction from 1 (very bad) to 5 (very good).



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## Recruitment?

- Acceptation by the Ethic Committee.
- Inclusion criteria's:
  - All adult patient (> 18 years) who are known with Sickle Cell Disease (all forms), with acute pain crisis.
  - Able to understand and accept his participation to the study
    - No impaired mental status
- Exclusion criteria's:
  - All other possible cause of pain
    - Trauma,...
  - Unable to sign the written informed consent.
- Recruitment:
  - A priori: on hematology consultation:
    - Receive a « Study Member Card » to show at the ED gate.
  - On ED: when patient is coming with a acute crisis.



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## Wich team, wich tools?

- Informed consent by haematologist or ED
- Nursing and medical team from the haematology and ED department.
  - Previous staff to explain the study and the protocol.
- Survey was given to the patient in ED or in the haematology department
  - Conception of the form by Mrs De Pauw (psychologist) et Mrs Dohet (reference nurse for sickle cell patients).
  - All item evaluated from 1 (very bad) to 5 (very good).
- Analyse of the data's by the Clinical Reseach Department
  - Fully independance with the other departments.



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Les informations qu'ils vous ont transmises concernant les soins, les traitements et les examens ? ① 2 3 4 5

Commentaires :  
*f. connaissance sur tous les infirmiers*

Durant cette admission, comment qualifiez-vous les infirmières en ce qui concerne :

Leur connaissance et expérience de votre maladie ? 1 2 3 ④ 5

Commentaires :  
.....

Leur traitement et le suivi médical qu'ils ont instaurés ? 1 2 3 ④ 5

Commentaires :  
.....

L'attention qu'ils ont accordée à vos problèmes physiques ? 1 ② 3 4 5

Commentaires :  
*beau coup de patience fait avec des médicaments fait calmer ma température*

Les informations qu'ils vous ont transmises concernant les soins, les traitements et les examens ? ① 2 3 4 5

Commentaires :  
*ils transmettent bien ce n'est que quand mes parents demandent*

Durant cette admission, comment qualifiez-vous les infirmières en ce qui concerne :

Leur connaissance et expérience de votre maladie ? 1 2 ③ 4 5

Commentaires :  
.....

Leur traitement et le suivi médical qu'ils ont instaurés ? 1 ② 3 4 5

Commentaires :  
.....

L'attention qu'ils ont accordée à vos problèmes physiques ? 1 ② 3 4 5

Commentaires :  
*ça dépend de l'infirmier ou infirmière*

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Les informations qu'ils vous ont transmises concernant les soins, les traitements et les examens ? 1 2 ③ 4 5

Commentaires :  
.....

Lors de votre admission :

Quel a été approximativement, selon vous, le délai entre votre entrée aux urgences et la prise en charge de votre douleur (premier contact avec une infirmière ou un médecin) ?  
*1.30 min (maximum) (malgré la carte) ①*

Ce délai vous semble-t-il acceptable ?

Oui  
 Non

La prise en charge concernant la douleur que vous ressentiez, vous a paru :

1 ② 3 4 5

Très mauvaise Très bonne

Commentaires :  
.....

Document à remettre à Sandra De Pauw (psychologue) BIP 73537

Les informations qu'ils vous ont transmises concernant les soins, les traitements et les examens ? 1 ② 3 4 5

Commentaires :  
*ils disent pas souvent y a demandé souvent*

Lors de votre admission :

Quel a été approximativement, selon vous, le délai entre votre entrée aux urgences et la prise en charge de votre douleur (premier contact avec une infirmière ou un médecin) ?  
*1.10 min*

Ce délai vous semble-t-il acceptable ?

Oui  
 Non


La prise en charge concernant la douleur que vous ressentiez, vous a paru :

1 ② 3 4 5

Très mauvaise Très bonne

Commentaires :  
*not quiet at Brugnon enfant c'est les douleurs.*


Document à remettre à Sandra De Pauw (psychologue) BIP 73537



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## How to evaluate the pain?

- Visual Analogic Pain Scale (VAPS)
  - at admission (t0),
  - 1h, 2h, 3h, 6h and after that every 6 hours
  - till the pain is gone.
- VAPS by patient, Numeric pain scale evaluation by the nurses
- Permanent evaluation until the patient is discharged from hospitalisation.



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Etude Prise en charge de la douleur chez les patients drépanocytaires aux urgences

31.03.2014  
 URG 011 - 30040100 10-34  
 PAC 0101 - 0101-02 - CA - 78108  
 PAT 200803220 DN 06.06.1991 SEXE : M  
 YOUNG TOON  
 Avenue Aristotele 73 1002  
 1002 Bolzano - Centre - Lanerart  
 SA1 : 30000 01000648329 101 101  
 SA2 :

Check list :

1. Le patient est-il en possession de sa carte drépano ?  oui  non
2. Utilisation sachet biologie drépano ?  oui  non
3. Questionnaire de satisfaction remis au patient ?  oui  non


	EVA PATIENT	EVA (selon l'infirmière)	Quantité M-administrée
H0	8	7	—
H1	7		
H3	4		
H6			

4) Hospitalisé unité x ou RAD  
 Merci de déposer le document complété dans le casier de SANA

V8

Laodanp  
 11.09






## Results

- Starts on February 1<sup>st</sup> 2013, stops January 31<sup>st</sup> 2015: 2 years.
- 104 observations by 51 patients (6 unusable evaluations)

Admissions in ED	1	2	3	4	5	6	11
Patients	31	9	2	4	3	1	1

Men/Women: 60/44 ( 58%/ 42%)  
Mean age M/W : 26,5/25,9

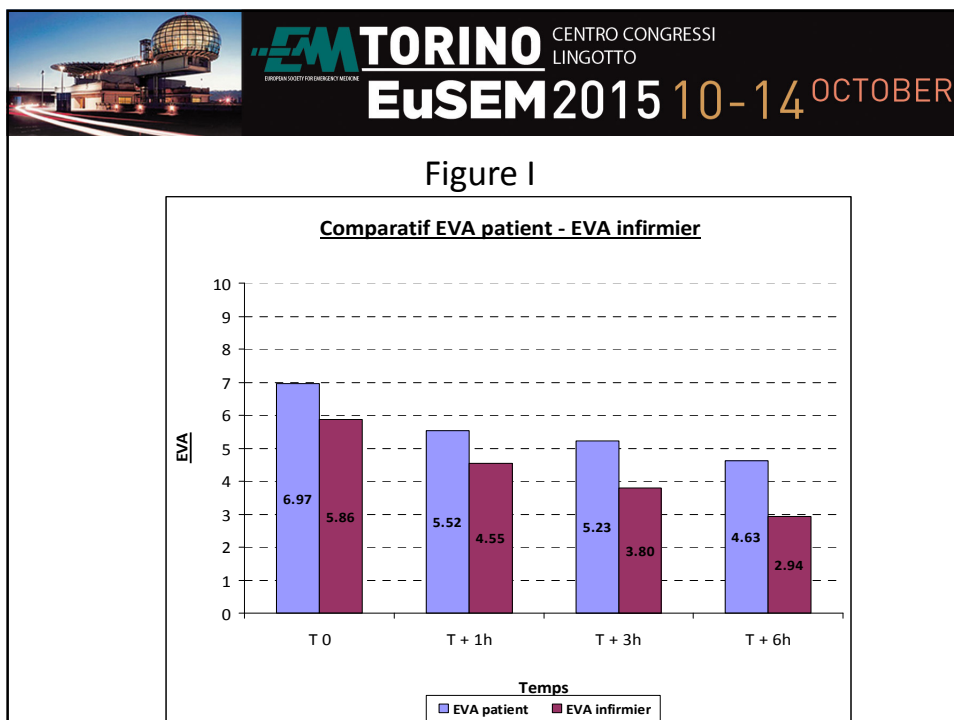
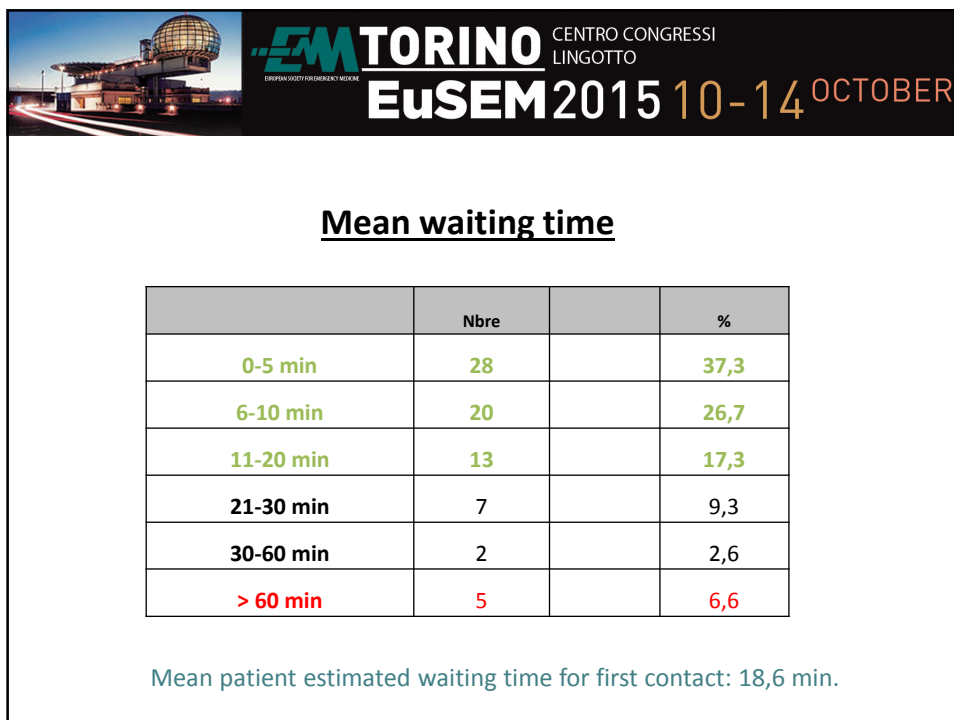



## Population

	Age (years)	Weight (kg)	BMI	Stay (days)	M+ Dose (mg)	Wait (min)	1st dose (min)	Glob satis	Hglob (g/dl)	WBC 10 <sup>3</sup> /l	PLT 10 <sup>3</sup> /l	LDH UI/l	CRP mg/l	D-dim ng/ml	HBCO	EryBI %	APTT (sec)	INR ratio
Mean Severe	26,26	60,23	22,43	10,75	13,75	31,93	56,00	3,77	9,04	13,25	365,43	420,88	15,84	1785,00	1,06	5,48	30,63	1,10
St dev	7,38	17,22	3,35	3,98	11,40	41,04	38,76	1,06	2,20	6,07	132,74	125,58	21,35	960,96	0,77	4,30	2,90	0,09
Mean Mild	26,15	66,52	22,41	3,64	10,61	11,49	54,45	3,89	8,99	10,91	348,60	436,78	8,82	1424,47	1,91	6,50	31,97	1,08
St dev	7,59	10,07	2,94	2,72	12,21	10,73	22,83	0,81	2,78	4,05	160,01	178,78	11,50	875,18	1,23	3,53	3,33	0,07
Tot Mean	26,18	64,42	22,41	5,95	11,43	20,08	54,95	3,85	9,01	11,68	353,95	431,95	10,84	1560,19	1,63	6,18	31,56	1,09
St dev	7,48	13,03	3,03	4,61	11,99	34,28	28,75	0,89	2,60	4,90	151,31	163,80	15,38	1012,82	1,16	3,79	3,25	0,08

- Severe disease : need for transfusion/ plasmapheresis or hospital stay > 8d. .
- Mild disease : No transfusion, hospital stay < 8d.
- Tot. population : all patients.


**Remarque :**  
No statistical difference for biological parameters.





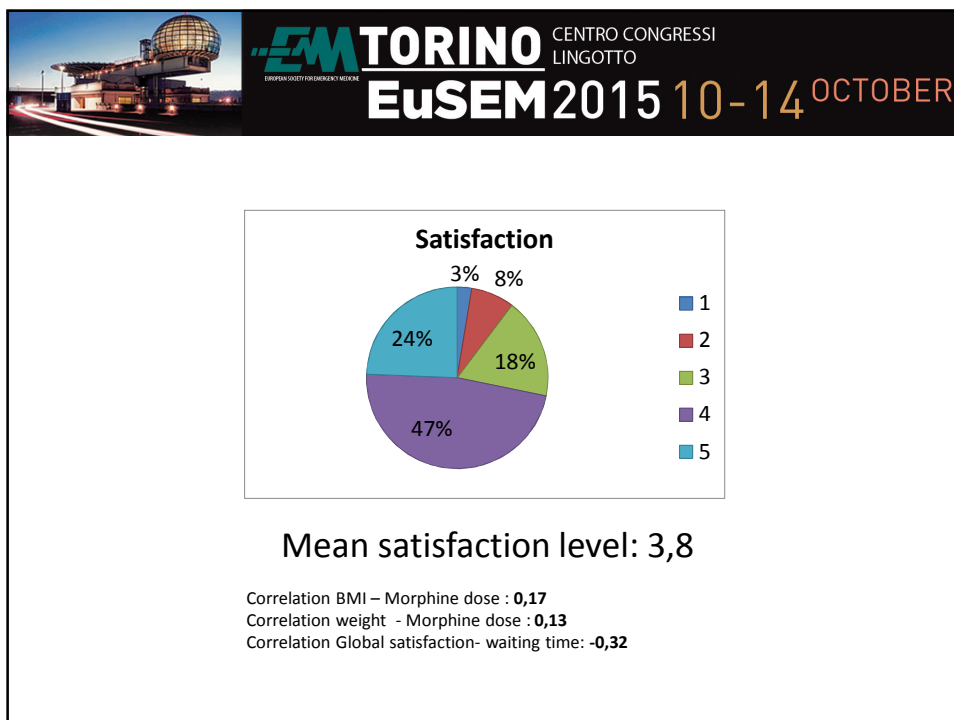
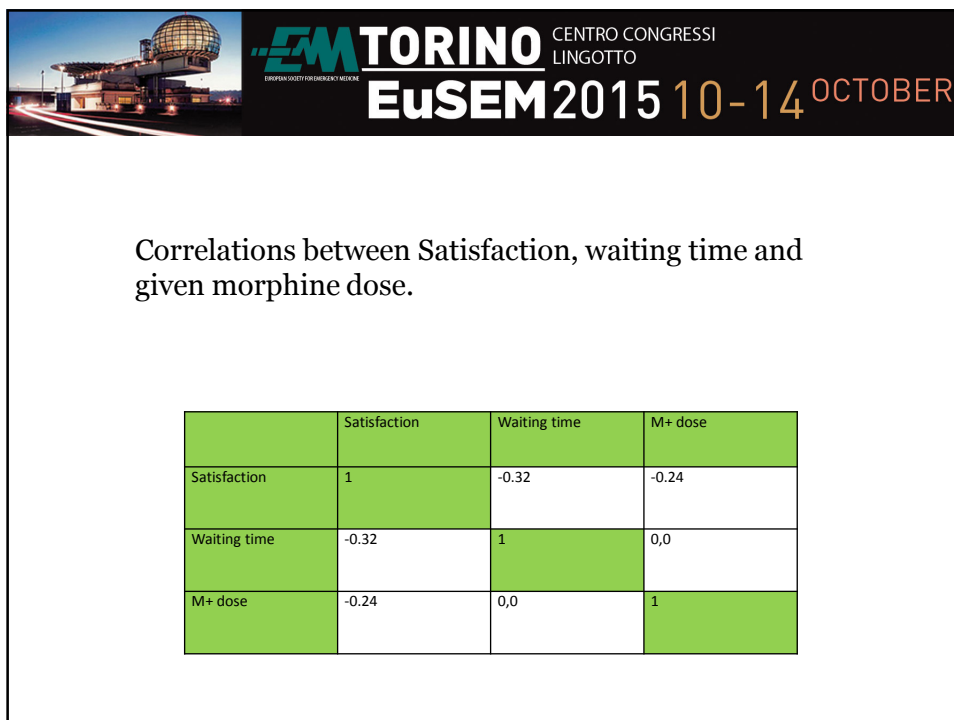
## Morphine dose


	Women	Men	P value
M+ in mg (mean)	<b>14,5</b>	<b>11,6</b>	<b>&lt;0,001</b> (Student t-test )
M+ in mg (SD)	13,17	11,48	-
Satisfaction (mean)	<b>3,7</b>	<b>3,9</b>	-
Satisfaction (SD)	0,98	0,97	-



## Mean morphine dose and satisfaction, / 3 months

	M+ (mg)	Waiting time (min)	Satisfaction
1 <sup>er</sup> Quadri (fev. 2013)	10,7	19	4,1
2 <sup>ème</sup> Quadri (juin 2013)	15,3	26	4
3 <sup>ème</sup> Quadri (oct. 2013)	12,3	10,8	3,6
1 <sup>er</sup> Quadri (fev 2014)	13,4	13,4	3,7
2 <sup>ème</sup> Quadri (juin 2014)	11,3	11,8	4,1
3 <sup>ème</sup> Quadri (oct 2014)	14,7	42,7	3,2
{0-24 mois}	12,8	18,6	3,8






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## Discussion: Waiting time

- Mean waiting time 18,6 minutes (First contact).
- >65% of patient waits < 10min
  - < sensibilisation of the team.
- Shortened in the timeline (except when staff is changing)
  - Higher in October each year (new nurses and doctors).
- Much longer for first IV Morphine dose (55 min)
  - Difficult to place a catheter.
  - Trying of other drugs: tramadol, ... even if VAPS > 6.




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## Discussion: Pain evaluation

- Why a difference between care givers and patients?
  - >60% of care givers think that patients are addict to morphine, 30% of them have a problem with systematic administration of morphine. <sup>1</sup>
  - Real addiction : 0,2% et 2%<sup>2</sup>
  - Lack of comprehension and fear of addiction leads caregivers to minimise morphine use and dosis<sup>3-4</sup>.

1. Pack-Mabien A, Labbe E, Herbert D, Haynes J Jr Nurses' attitudes and practices in sickle cell pain management. Appl Nurs Res. 2001 Nov;14(4):187-92  
2. Martin J and Moore G (1997). Pearls, pitfalls, and updates for pain management. Emergency Medicine Clinics of North America, 15(2), 399-415  
3. American Academy of Pain Medicine and American Pain Society (1997). Consensus Statement: The use of opioids for the treatment of chronic pain (available from AAPM and APS 4700 W. Lake Avenue, Glenview, IL. 60025-1485)  
4. Schug S, Merry A and Ackland R (1991). Treatment principles for the use of opioids in pain of nonmalignant origin. Drugs, 42(2), 228-239




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## Discussion: Morphine dose

- Protocol: 0,05 à 0,08 mg/kg every 15 minutes if pain > 6/10.
- English guidelines : 0,10 à 0,15 mg/kg every 15 to 30 minutes<sup>1-3</sup>
- In our study : lower doses than in the protocol.
- Women receive more Morphine than men
  - Less suspicion of addiction ?
  - More demonstrative ?
  - Other ?


1. Benjamin LD, Dampier CD, Lacroix AK. Guideline for the management of acute and chronic pain in sickle-cell disease. J Pain 1999;12  
2. Tanabe P, Hafner JW, Martinovich Z, Artz N. Adult emergency department patients with sickle cell pain crisis: results from a quality improvement learning collaborative model to improve analgesic management. Acad Emerg Med 2012; 19:430  
3. National Institutes of Health. The Management of Sickle Cell Disease. National Heart, Lung, Blood Institute 2002; :4



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## Limitations of our study


- Visual Analogic pain scale is subjective
- Simplified satisfaction scale (no validation)
- Selection bias?
  - Pre-enlisted patients
  - Known with disease.
  - No witness group.



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Conclusions:


- Mean satisfaction quite good: 3,8/5
  - > sensibilisation over the specific needs of a sickle cell patient.
  - Recognition of the problem: « VIP » cards.
  - Pre- training
  - Despite unappropriated morphine dose.
    - 0,05 mg/kg / 15 min.



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Conclusions:

- But:
  - Need for feedback and permanent sensibilisation/ formations
    - New team, ...
  - Deconstruct the ideas over morphine addiction
    - Staffs
  - Insist over the protocol's morphine doses following patient weight:
    - 0,05 mg/kg / 15 min.
  - Minimise time to drug time



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## Newborn ideas?

- Shortening the inscription to drug interval?
  - Long time to IV:
    - Low venous capital patients
    - ED overcrowding.
  - Systematic Porth-a Cath:
    - Often refused < aesthetic barrier.
  - Other ways:
    - Oral morphine (Oxycodone)
    - Intranasal administration of Sufentanyl/ Morphine.



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## Take home messages

- Our study have lead to a de-demonization of the SCD patient in our ED, and have made of those patients VIP patients 😊
- Pain management is complex, but must only be based over the patient's pain evaluation.
  - Take care of the false ideas about morphine use and addiction.
- Multi-disciplinary collaboration is needed to obtain results
  - With written protocols available on intranet.
  - With permanent evaluation.
- Continuous training and sensibilisation is requested.
- Other ways than IV must be evaluated and used.





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Thank you



Questions ?