

Télémédecine et Ambulatoire: Surveillance et contrôle des cathéters d'analgésie



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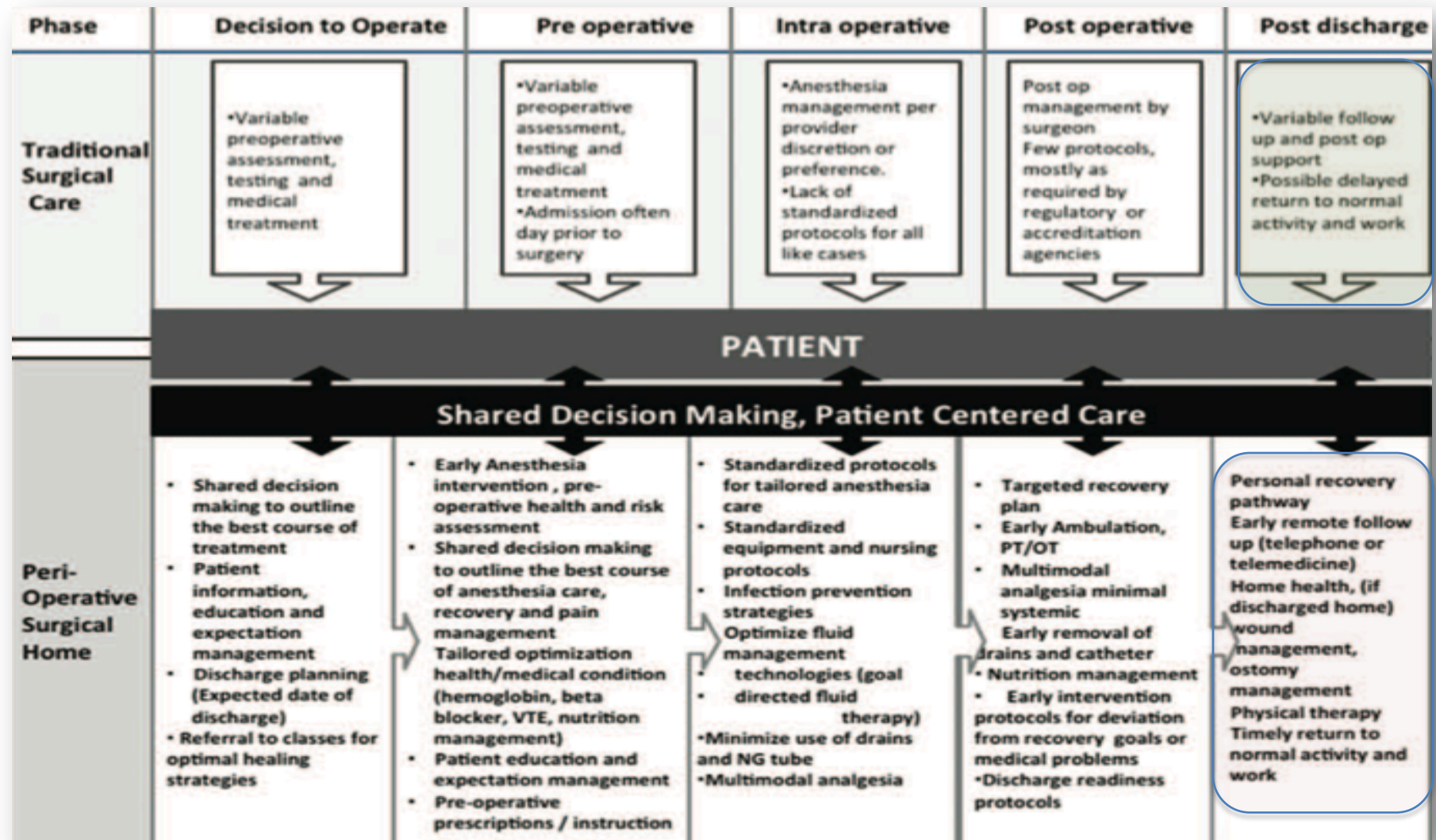
Montpellier - France



The Perioperative Surgical Home as a Future Perioperative Practice Model

anesthesia-analgesia May 2014

Zeev N. Kain, MD, MBA,* Shermeen Vakharia, MD, MBA,* Leslie Garson, MD,* Scott Engwall, MD, MBA,* Ran Schwarzkopf, MD,† Ranjan Gupta, MD,† and Maxime Cannesson, MD, PhD*



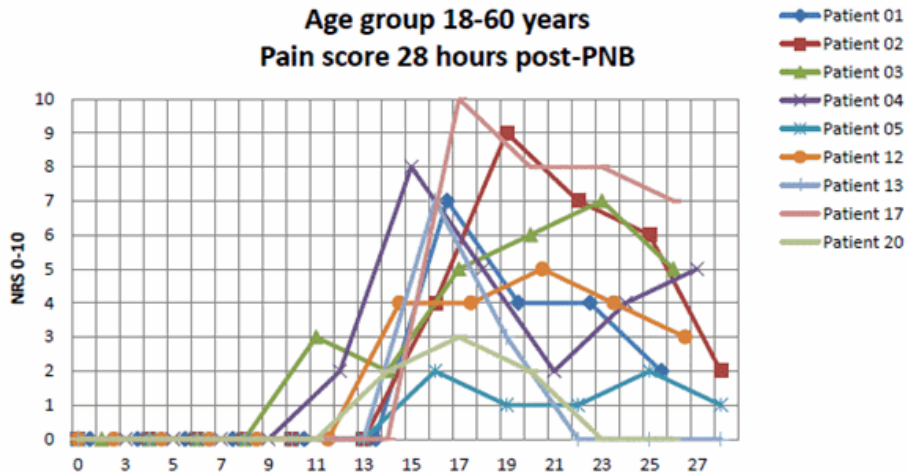
Rebound Pain in Peripheral Nerve Block Anesthesia for Ankle Fracture Surgery - An Age Issue?

Rune Sort, M.D., Stig Brorson, M.D.,Ph.D., Ismail Gögenür, M.D.,Ph.D., Lasse L. Olsen, Student, Heidi Kruse, Student, Ann M. Møller, M.D.,Ph.D.

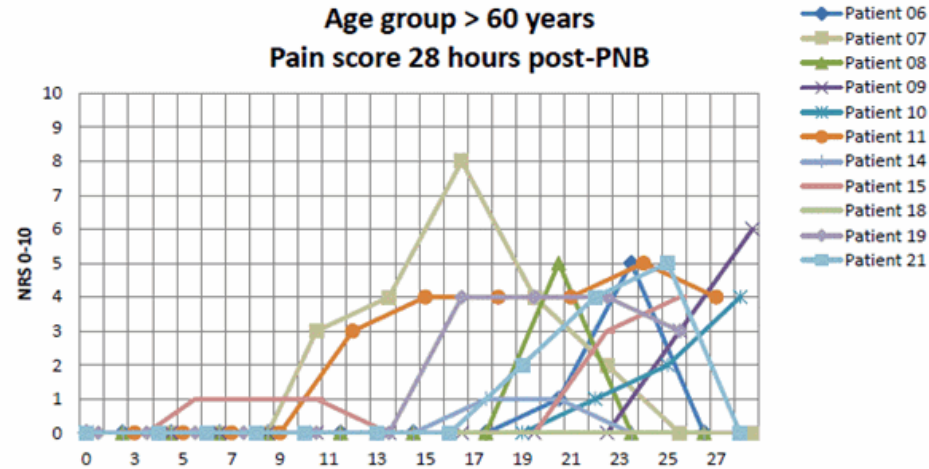
Herlev Hospital, Copenhagen University, Herlev, Denmark

- Popliteal block and a mid-femoral saphenal block with ropivacaine 7,5mg/mL 20mL + 5mL

Age group 18-60 years
Pain score 28 hours post-PNB



Age group > 60 years
Pain score 28 hours post-PNB

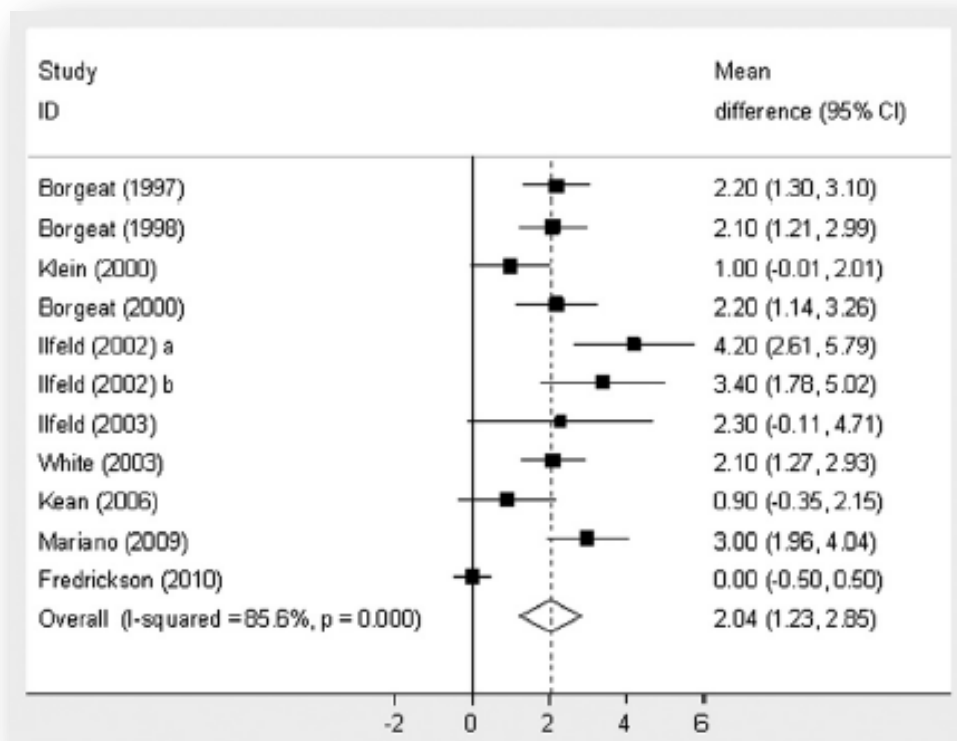
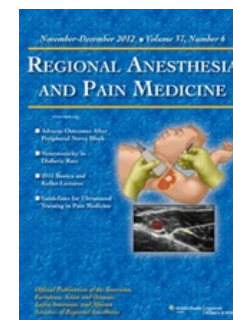


Rebound pain following peripheral nerve block anesthesia for ankle fracture surgery may pose a clinically relevant problem in younger patients.

Continuous Peripheral Nerve Block Compared With Single-Injection Peripheral Nerve Block

A Systematic Review and Meta-Analysis of Randomized Controlled Trials

Ann E. Bingham, MD,* Rochelle Fu, PhD,† Jean-Louis Horn, MD,† and Matthew S. Abrahams, MD†



**Patient
Satisfaction**



Conclusions: Compared with siPNBs, cPNBs were associated with improved pain control, decreased need for opioid analgesics, less nausea, and greater patient satisfaction. The effect of cPNBs on other clinically relevant outcomes, such as complications, long-term functional outcomes, or costs, remains unclear.

Effect of Patient-controlled Perineural Analgesia on Rehabilitation and Pain after Ambulatory Orthopedic Surgery

Anesthesiology 2006; 105:566-73

A Multicenter Randomized Trial

Xavier Capdevila, M.D., Ph.D.,* Christophe Dedure, M.D.,† Sophie Bringuier, Pharm.D., M.Sc.,‡ Nathalie Bernard, M.D.,† Philippe Biboulet, M.D.,† Elisabeth Gaertner, M.D.,§ Philippe Macaire, M.D.‖

Table 2. Reasons for Activity Limitation in the Three Groups

	PCA Morphine, %	Continuous Infusion, %	Basal-Bolus, %
Fatigue	52*	33	18
Postoperative pain	47*	23	10
Paresthesia	0*	40†	23
Nausea/vomiting	33*	10	7
Numbness	0*	23	18
Dizziness	33*	10	10
Fear of falling	33	50‡	33
Other	13	10	10

Table 3. Incidences of Adverse Events due to Technique and Drugs in the Postoperative Period

Adverse Event	PCA Morphine, %	Continuous Infusion, %	Basal-Bolus, %
Nausea/vomiting	39*	13	10
Dizziness	39*	10	6
Sleep disturbances	22†	10	3
Pruritus	13	7	0
Local vein inflammation	17*	0	0
Slight paresthesia	9	33‡	17
Numbness	0	6	3
Mechanical problem with IV or PNB catheter (kinking, dislodgment, occlusion)	39*	13	17

An analysis of 1505 consecutive patients receiving continuous interscalene analgesia at home: a multicentre prospective safety study

Anaesthesia 2016, 71, 373-379

M. J. Fredrickson,^{1,2} P. Leightley,² A. Wong,² M. Chaddock,² A. Abeysekera² and C. Frampton³

Table 3 Early outcomes of patients included in the study (n = 1458). Values are number (proportion) or median (IQR [range]).

Day of home discharge	
0	88 (6%)
1	1239 (86%)
2	47 (3%)
3	64 (4%)
> 3	11 (0.7%)
Elastomeric pump/electronic pump	720 (48%)/738 (52%)
Median pain score during infusion	2 (0-4 [0-10])
Oral analgesia consumption	
Paracetamol	1180 (82%)
NSAID	811 (56%)
Tramadol	549 (38%)
Other oral opioid	169 (12%)
Medical advice sought at home	174 (12%)
Pump or tubing technical issues	29 (2%)
Catheter leakage	111 (8%)
Catheter dislodgement	22 (1.5%)
Postoperative day of catheter removal	
1	6 (0.4%)
2	100 (7%)
3	763 (53%)
4	437 (30%)
> 4	137 (9%)

Table 4 Complications that occurred during the study. Values are number (proportion) or median (IQR [range]).

Recovery area (n = 1505)	
Respiratory failure*	2 (0.1%)
Dyspnoea	11 (0.7%)
Hoarseness	7 (0.5%)
Early (at home during infusion) (n = 1458)	
Nausea	
None	1065 (71%)
Mild	244 (17%)
Moderate	91 (6%)
Severe	45 (3%)
Dyspnoea	384 (27%)
Duration; days	3 (2-3 [1-8])
Hoarseness	193 (13%)
Duration; days	2 (2-3 [1-7])
Dysphagia	103 (7%)
Duration; days	2 (2-4 [1-7])
Late (> 1 week) (n = 1444)	
Catheter redness/pain/discharge	125 (8.5%)
Numbness/tingling (neck, arm or hand)	204 (14%)
Mild	151 (10%)
Moderate	46 (3%)
Severe	6 (0.4%)
Hand weakness	74 (5%)
Mild	48 (3%)
Moderate	24 (2%)
Severe	2 (0.1%)
Pain (forearm, wrist or hand)	171 (12%)

Ambulatory Perineural Infusion: The Patients' Perspective

Brian M. Ilfeld, M.D., Dasia E. Esener, M.S., Timothy E. Morey, M.D., *Reg Anesth Pain Med* 2003;28:418-423.
and F. Kayser Enneking, M.D.

	Axillary	Infraclavicular	Interscalene	Popliteal	Psoas	Total
Patients consenting to survey	4	68	22	29	8	131 (61%)
Fluid leakage from site	3 (75%)	28 (41%)	4 (18%)	6 (13%)	0 (0%)	41 (31%)
Catheter dislodged	3 (75%)	11 (16%)	0 (0%)	4 (14%)	0 (0%)	18 (14%)
Catheter removal						
Easy	100%	95%	95%	100%	71%	95%
Average	0%	3%	0%	0%	29%	3%
Difficult	0%	2%	5%	0%	0%	2%
Prefer to return for removal*	1 (50%)	1 (1.5%)	2 (9%)	1 (5%)	0 (0%)	5 (4%)
Catheter site appearance†	0 (0%)	2 (3%)	2 (9%)	0 (0%)	0 (0%)	4 (3%)
Days Until Skin Normal	NA	9-12	9-12	NA	NA	9-12
Catheter site discomfort?‡	0 (0%)	3 (4%)	4 (18%)	1 (3%)	4 (50%)	12 (9%)
Mild§	NA	100%	50%	100%	50%	70%
Average§	NA	0%	50%	0%	50%	30%
Severe§	NA	0%	0%	0%	0%	0%
Days to resolution (mean)	NA	4	7	14	2	6
Days to resolution (range)	NA	3-5	2-14	14	1-3	1-14

Ambulatory Perineural Infusion: The Patients' Perspective

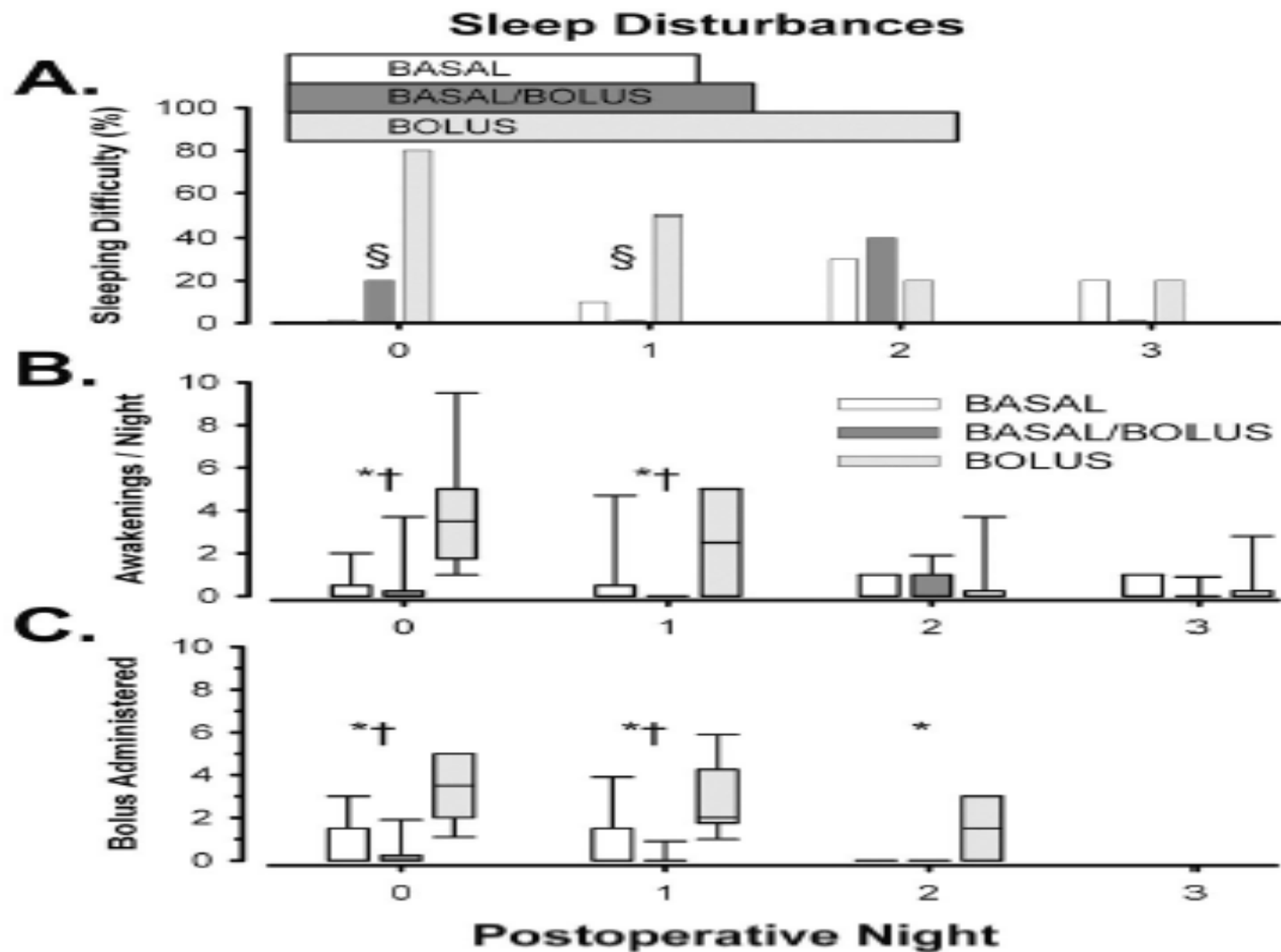
Brian M. Ilfeld, M.D., Dasia E. Esener, M.S., Timothy E. Morey, M.D., *Reg Anesth Pain Med* 2003;28:418-423, and F. Kayser Enneking, M.D.

Age range in years	8-19	20-39	40-59	60+	Total
Patients consenting to survey	8	24	64	35	131
Feel safe during infusion?	8 (100%)	24 (100%)	62 (97%)	34 (97%)	128 (98%)
Comfortable changing pump program?	2 (25%)	10 (42%)	23 (36%)	11 (31%)	46 (35%)
Nightly phone contact inconvenient?	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Comfortable removing catheter?	7 (88%)	24 (100%)	62 (97%)	35 (100%)	128 (98%)
Easy catheter removal?	8 (100%)	21 (88%)	62 (97%)	34 (97%)	125 (95%)
Average catheter removal?	0 (0%)	3 (12%)	0 (0%)	1 (3%)	4 (3%)
Difficult catheter removal?	0 (0%)	0 (0%)	2 (3%)	0 (0%)	2 (2%)
Preferred to return for removal?*	0 (0%)	0 (0%)	4 (6%)	1 (3%)	5 (4%)
Comfortable with written instructions?†	4 (50%)	10 (42%)	25 (39%)	17 (49%)	56 (43%)

Infraclavicular Perineural Local Anesthetic Infusion

A Comparison of Three Dosing Regimens for Postoperative Analgesia

Brian M. Ilfeld, M.D.,* Timothy E. Morey, M.D.,† F. Kayser Enneking, M.D. Anesthesiology 2004; 100:395-402

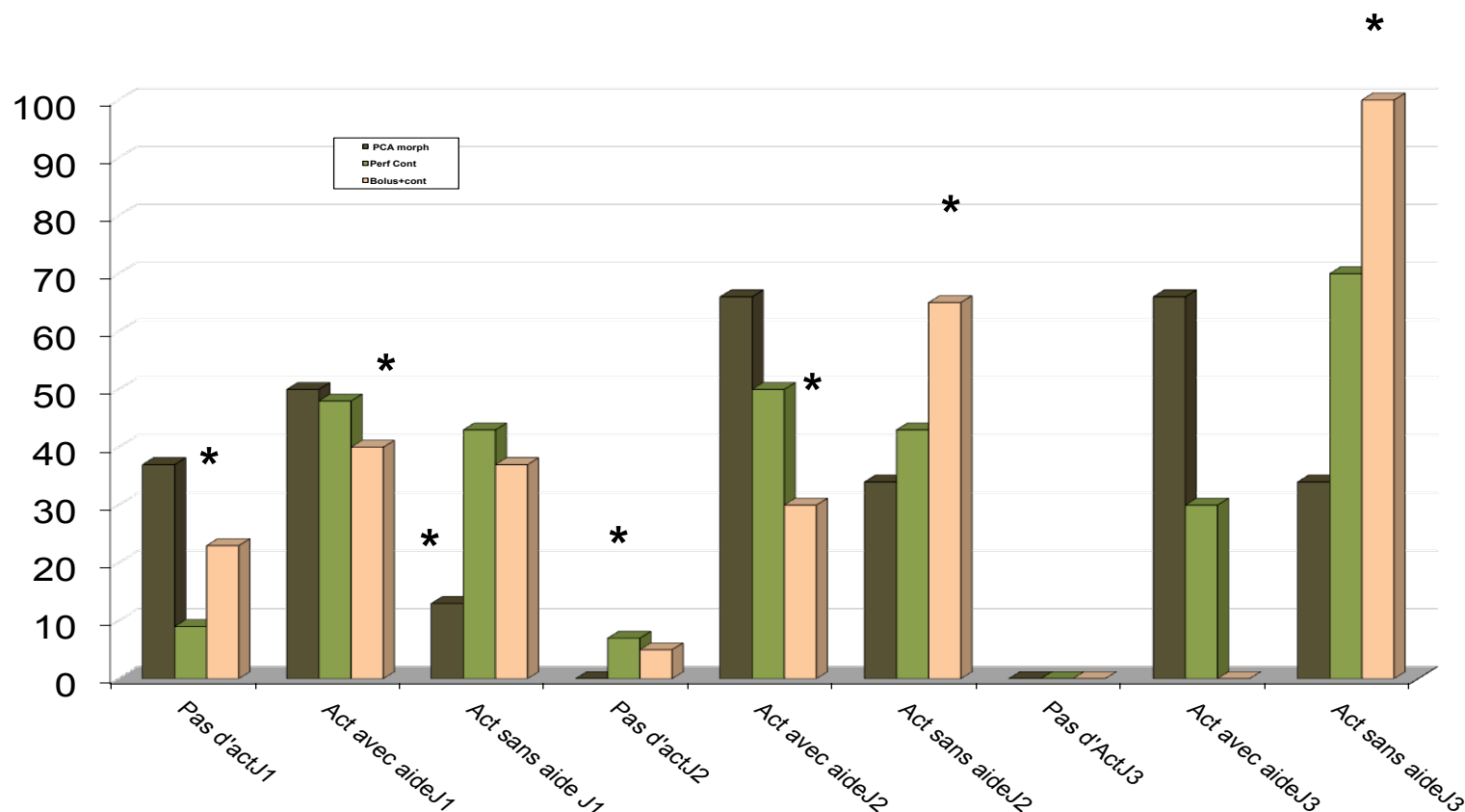


Effect of Patient-controlled Perineural Analgesia on Rehabilitation and Pain after Ambulatory Orthopedic Surgery

Anesthesiology 2006; 105:566-73

A Multicenter Randomized Trial

Xavier Capdevila, M.D., Ph.D.,* Christophe Dedure, M.D.,† Sophie Bringuier, Pharm.D., M.Sc.,‡ Nathalie Bernard, M.D.,† Philippe Biboulet, M.D.,† Elisabeth Gaertner, M.D.,§ Philippe Macaire, M.D.¶

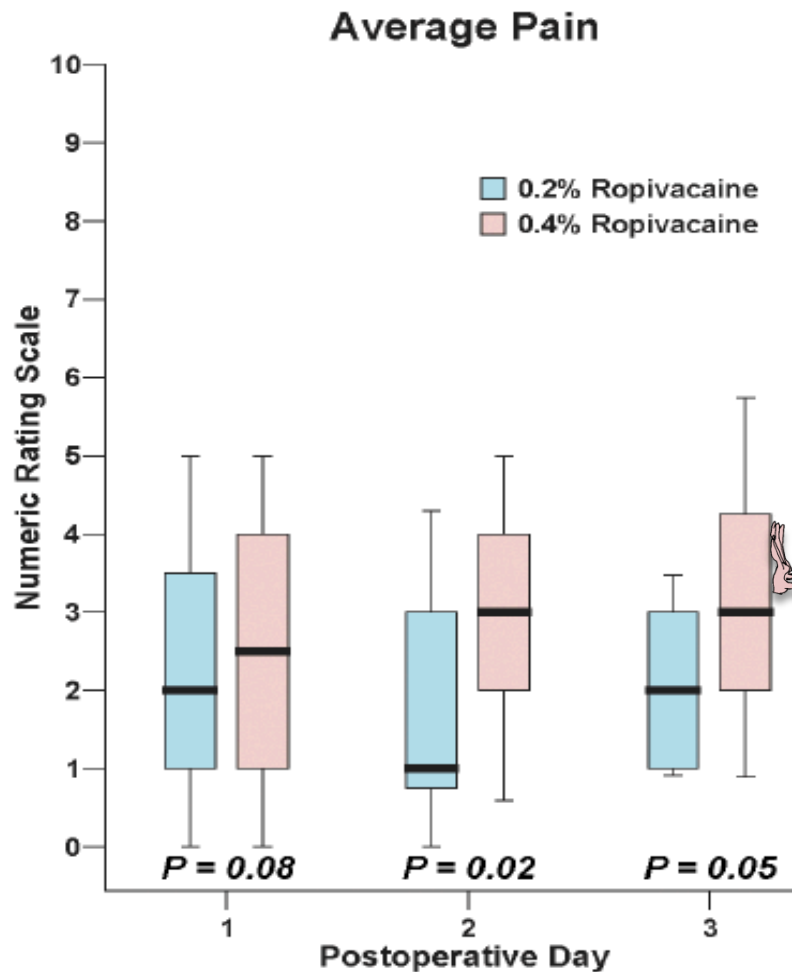


The time for the 10-minutes walking test: PCA morphine group: 40.5(16-44) h, continuous infusion group: 20.5 (17-42)h, and basal-bolus group: 12.5 (4.5-20)h respectively

Effects of Local Anesthetic Concentration and Dose on Continuous Interscalene Nerve Blocks: A Dual-Center, Randomized, Observer-Masked, Controlled Study

Linda T. Le et al *Reg Anesth Pain Med.* 2008 ; 33(6): 518–525

Either 0.2% ropivacaine (basal 8 mL/h, bolus 4 mL) or 0.4% ropivacaine (basal 4 mL/h, bolus 2 mL)



Pain ($p=0.020$) and dissatisfaction ($p=0.011$) were greater in patients given 0.4% ropivacaine



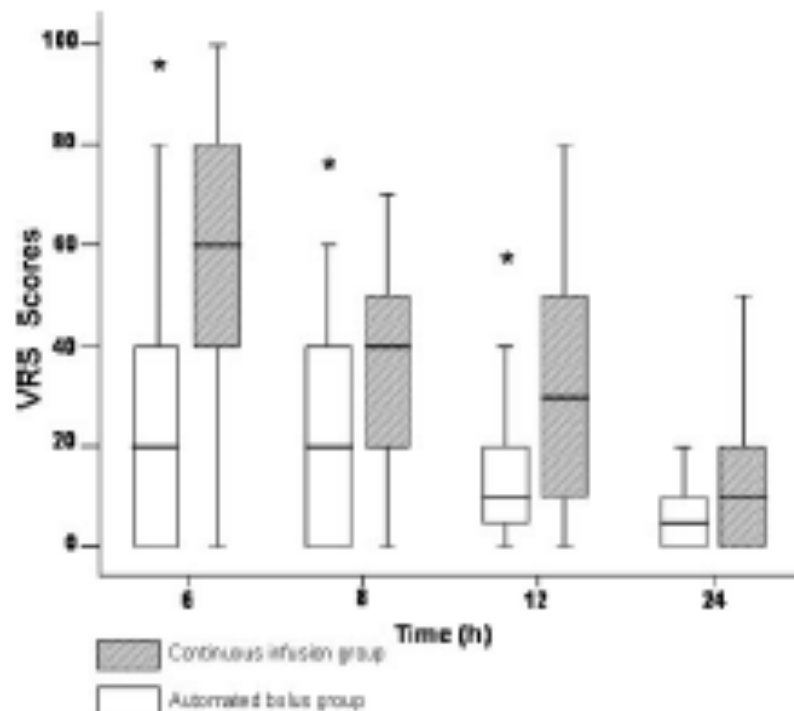
A "New" Automated Bolus Technique for Continuous Popliteal Block: A Prospective, Randomized Comparison with a Continuous Infusion Technique

Anesth Analg 2008;107:1433-7

Comparison of Continuous Infusion versus Automated Bolus for Postoperative Patient-controlled Analgesia with Popliteal Sciatic Nerve Catheters

Anesthesiology 2009; 110:150-4

Manuel Taboada, M.D., Ph.D.,* Jaime Rodríguez, M.D., Ph.D.,* María Bermudez, M.D.,† Marcos Amor, M.D.,† Beatriz Ulloa, M.D.,* Francisco Aneiros, M.D.,* Sergi Sebaste, M.D.,‡ Joaquín Cortés, M.D., Ph.D.,* Julian Alvarez, M.D., Ph.D.,§ Peter G. Atanassoff, M.D.||



	ARB Group (n = 25)	CI Group (n = 25)
Length of the introduced catheter, cm	4.5 ± 0.2	4.6 ± 0.2
Infusion time, h	21.8 ± 1.4	21.4 ± 1.8
Consumption of local anesthetic, ml/h	5.14 (5-5.75)	5.95 (5.05-7.8)
Incremental doses requested from the PCA	1 (0-10.8)	7 (0-88)*
Incremental doses delivered by the PCA	1 (0-5.4)	6.5 (0-20.5)*
Patients not demanding PCA	9 (36%)	3 (12%)
Patients requiring tramadol	1 (4%)	6 (24%)
Motor block at 6 h	5 (20%)	2 (8%)
Satisfaction with the analgesic technique		
Very satisfactory	17 (68%)	15 (60%)
Satisfactory	8 (32%)	7 (28%)
Unsatisfactory	0	3 (12%)

Ultrasound-Guided Continuous Interscalene Block: The Influence of Local Anesthetic Background Delivery Method on Postoperative Analgesia After Shoulder Surgery

A Randomized Trial

Reg Anesth Pain Med 2014;39: 387–393

Mehdi Hamdani, MD, Olivier Chassot, MD,† and Roxane Fournier, MD**

TABLE 2. Primary and Secondary Outcomes

	Continuous Infusion (n = 43)	Automated Bolus (n = 47)	<i>P</i>
Primary outcome			
Ropivacaine boluses at 24 h	16.5 (8–29)	10 (5–15)	0.601
Ropivacaine volume at 24 h, mL	150 (132–166)	143.5 (116–171)	0.466
Ropivacaine boluses at 48 h	18.5 (11–25)	17 (8.5–29)	0.802
Ropivacaine volume at 48 h, mL	299 (255–345)	297 (225–371)	0.588
Secondary outcome			
Patients not requiring morphine at all, %	14 (32%)	16 (34%)	0.582
Patients not requiring morphine 1st night, %	16 (37%)	26 (55%)	0.08
Morphine consumption at 24 h, mg	20 (0–40)	0 (0–30)	0.088
Morphine consumption at 48 h, mg	25 (0–60)	20 (0–40)	0.220
Secondary failure, %	10 (23%)	12 (25%)	0.460
Ancillary analyses			
Median of average VRPS at 24 h	2 (0–3)	2 (0–3)	0.985
Median of worst VRPS at 24 h	4 (3–6)	5 (2–8)	0.185
Median of average VRPS at 48 h	4 (2–6)	3 (2–5)	0.548
Worst VRPS at 48 h	4 (2–6)	3 (2–5)	0.229

Data are presented as n (%) or median with interquartile range. Secondary failure: >20 mg morphine orally per day and/or catheter dislocation visualized by US and/or catheter dislodgement.

VAS indicates visual analog satisfaction scale (0 = dissatisfied; 10 = very satisfied); VRPS, verbal rating pain score (0 = no pain; 10 = worst pain).

Conclusions: In continuous interscalene blockade under ultrasound guidance after shoulder surgery, automated boluses of local anesthetic combined with PRN boluses did not provide any reduction in local anesthetic consumption or rescue analgesia, compared with continuous infusion combined with PRN boluses.

Les systèmes de perfusion d'antalgiques doivent être au service complet du patient.

- **Le système doit être adapté**
- **Le système doit être simple**
- **Le système doit être sûr**



2011



Current Opinion in Anesthesiology 2011,
24:459–462

Telemedicine in anesthesia: an update

Jorge A. Galvez^a and Mohamed A. Rehman^b

Summary

Anesthesiologists have the opportunity to develop telemedicine programs that can improve the delivery of care to patients. Current programs offer services ranging from remote preoperative evaluation to international collaboration for intraoperative management and consultation. Simulation using telemedicine services can provide educational opportunities and test the effectiveness of institutions' communications systems.

2013



JAMA December 11, 2013 Volume 310, Number 22

VIEWPOINT

Can Mobile Health Technologies Transform Health Care?

Steven R. Steinhubl, MD

Scripps Translational Science Institute, La Jolla, California.

Evan D. Muse, MD, PhD

Scripps Translational Science Institute, La Jolla, California.

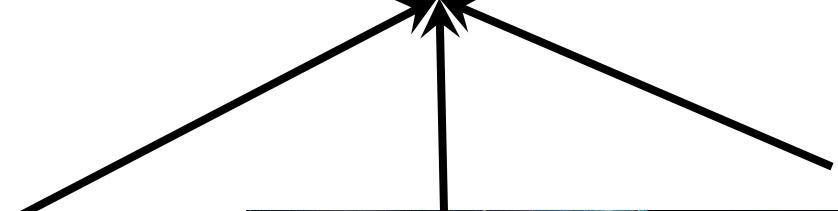
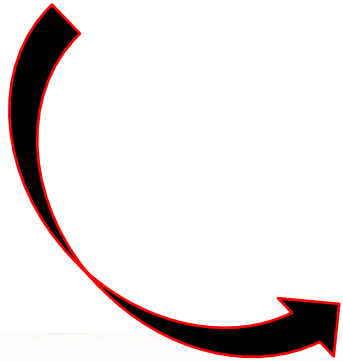
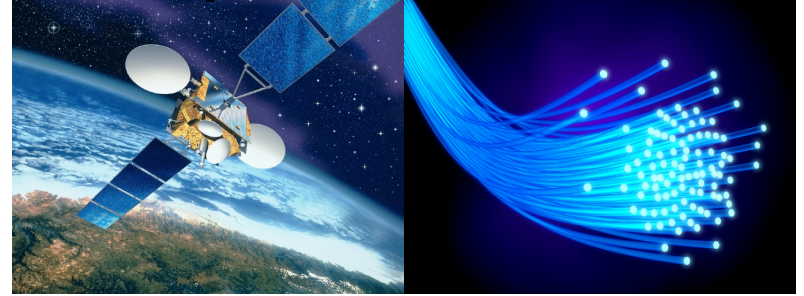
Eric J. Topol, MD

Scripps Translational Science Institute, La Jolla, California.

Télémédecine en anesthésie

?? Réalité ou Science Fiction ??





Intérêt de la Télémédecine en anesthésie-réanimation

➤ Préopératoire :

- Réalisation de **consultation d'anesthésie à distance** par des équipes spécialisées en vue d'une intervention chirurgicale.
 - **Satisfaction** des patients
 - **Satisfaction** des anesthésistes

Wong DT, Kamming D, Salenieks ME, et al. Preadmission anesthesia consultation using telemedicine technology: a pilot study. Anesthesiology 2004;100:1605-1607.

Dick P, Filler R, Pavan A. Participant satisfaction and comfort with multidisciplinary pediatric telemedicine consultations. J Pediatr Surg 1999;34:137-142.

➤ Peropératoire :

- = **Transfert de données en temps réel** : Hémodynamiques, respiratoires...
 - ECG, SpO2, PNI ou PA, Bruits du cœur...
 - Vidéolaryngoscopie, Vidéo du site chirurgicale,
 - Discussion en temps réel.

Fiadjoe J, Gurnaney H, Muralidhar K, et al. Telemedicine consultation and monitoring for pediatric liver transplant. Anesth Analg 2009;108:1212-1214.

Cone SW, Gehr L, Hummel R, Merrell RC. Remote anesthetic monitoring using satellite telecommunications and the internet. Anesth Analg 2006;102:1463-1467.

The promise of telemedicine: Providing curbside consults for chronic care, urgent care, and pain

Videoconferencing can help improve outcomes in underserved areas.
Project ECHO™ paves the way.

■ FIGURE: The multidisciplinary team working with primary care physicians in the Project ECHO™ pain clinic.



The purpose behind Project ECHO™ is to meet the needs of patients who have difficulty obtaining appointments at the medical center or who may have to travel a long distance to get there. However, the main goal of ECHO's pain clinic is to educate rural providers about how to provide comprehensive pain management themselves, to enable a greater degree of confidence and comfort in prescribing pain medications, and to support providers in striking a balance between prescription analgesics and other pain therapies.

Intérêt de la Télémédecine en anesthésie-réanimation

➤ Post-opératoire :

- Gestion de **complications post-opératoires** de chirurgie carcinologique.
- Gestion optimisée de la **douleur en post-opératoire** notamment pour des patients en ambulatoire disposant de cathéter périnerveux.

Cleeland CS, Wang XS, Shi Q et al. Automated Symptom Alerts Reduce Post operative Symptom Severity After Cancer Surgery: A Randomized Controlled Clinical Trial. J Clin Oncol 2011;29:994-1000.

Macaire P, Nadhari M, Greiss H et al. Internet remote control of pump settings for postoperative continuous peripheral nerve blocks: A feasibility study in 59 patients. Ann Fr Anesth Rea 2014;33:e1-e7.

➤ Simulation et entraînement:

Tooley MA, Forrest FC, Mantripp DR. Multimed-remote interactive medical simulation. J Telemed Telecare 1999;5 :119-121.



Protocol

The Effect of Mobile App Home Monitoring on Number of In-Person Visits Following Ambulatory Surgery: Protocol for a Randomized Controlled Trial

Kathleen A Armstrong^{1,2}, MD; Peter C Coyte², MA, PhD; R Sacha Bhatia³, MD, MBA; John L Semple^{1,4}, MD, MSc

Objective: We hope to expand the use of mobile app follow-up care through its formal assessment in a randomized controlled trial. In postoperative ambulatory surgery patients at Women's College Hospital (WCH), can we avert in-person follow-up care through the use of mobile app follow-up care compared to conventional, in-person follow-up care in the first 30 days after surgery.

Conclusions: We hope to show that the use of a mobile app in follow-up care minimizes the need for in-person visits for postoperative patients.

EFFECTIVENESS OF AN INTERACTIVE VIRTUAL TELEREHABILITATION SYSTEM IN PATIENTS AFTER TOTAL KNEE ARTHROPLASTY: A RANDOMIZED CONTROLLED TRIAL

J Rehabil Med 2013; 45: 392–396

Mercè Piqueras, PT^{1,2}, Ester Marco, MD^{1,2}, Maria Coll, PT^{1,2}, Ferran Escalada, MD^{1,2}, Alex Ballester, PT^{1,2}, Carme Cinca, PT^{1,2}, Roser Belmonte, MD^{1,2} and Josep M. Muniesa, MD^{1,2}

Table II. *Change in outcome measures in the follow-up period*

	Difference from baseline after completing rehabilitation (n=142)			Difference from baseline at 3 months follow-up (n=133)		
	Control (n=70) Mean (SD)	IVT (n=72) Mean (SD)	p-value	Control (n=65) Mean (SD)	Control (n=68) Mean (SD)	p-value
Active knee flexion	7.71 (6.89)	8.53 (6.56)	0.298	15.63 (8.82)	18.16 (9.71)	0.193
Active knee extension	0.9 (3.7)	0.2 (2.8)	0.045*	0.8 (3.3)	1.3 (3.1)	0.478
Quadriceps strength	1.64 (2.60)	2.98 (3.15)	0.011*	5.89 (5.17)	8.48 (4.96)	0.018*
Hamstring strength	0.69 (2.22)	1.17 (2.60)	0.278	2.26 (3.30)	2.93 (3.33)	0.349
VAS of pain	−0.61(1.87)	−0.69 (1.44)	0.804	−2.30 (2.03)	−1.79 (2.45)	0.284
Timed Get-up-and Go-test	5.22 (6.25)	−3.36 (5.38)	0.079	−10.86 (8.72)	−7.00 (6.31)	0.020*

*Significance at the $p < 0.05$ level.

IVT: interactive virtual telerehabilitation; VAS: visual analogue scale for pain.



Fig. 2. Patient using the interactive virtual telerehabilitation knee rehabilitation software.

Conclusion: A 2-week interactive virtual telerehabilitation programme is at least as effective as conventional therapy. Telerehabilitation is a promising alternative to traditional face-to-face therapies after discharge from total knee arthroplasty, especially for those patients who have difficulty with transportation to rehabilitation centres.

Intérêt de la Télémédecine en Anesthésie Locorégionale

➤ Améliorer la prise en charge des patients par la **gestion de l'administration des anesthésiques locaux en « temps réel »** :

= Diminution du **délai de réponse** : Infirmier vs télémédecine !!

- Meilleur contrôle de la douleur au repos
- Meilleur contrôle de la douleur au mouvement
- Limiter la survenue de bloc moteur ou d'autres effets adverses

➤ Améliorer la **satisfaction** des patients :

- Douleur aiguë en post-opératoire
- Prise en charge de patients douloureux chroniques

➤ **Augmenter** le nombre de prise en charge en **ambulatoire** :

La chirurgie ambulatoire. Une urgence pour le présent.

Mis en ligne le 18 Août 2012 et modifié le 08 Septembre 2012

Paul Zetlaoui

Membre du Conseil d'Administration SFAR



Avril 2012

*La chirurgie ambulatoire
en 12 questions*

“ Ensemble pour le développement de la chirurgie ambulatoire ”

ANAP
appui santé & médico-social

HAS
HAUTE AUTORITÉ DE SANTÉ

Intérêt de la Télémédecine en Anesthésie Locorégionale



➤ **Diminuer le Temps... Les Coûts** de prise en charge des patients

- Hospitalisation vs Ambulatoire,
- Limitation des besoins en soins infirmiers...

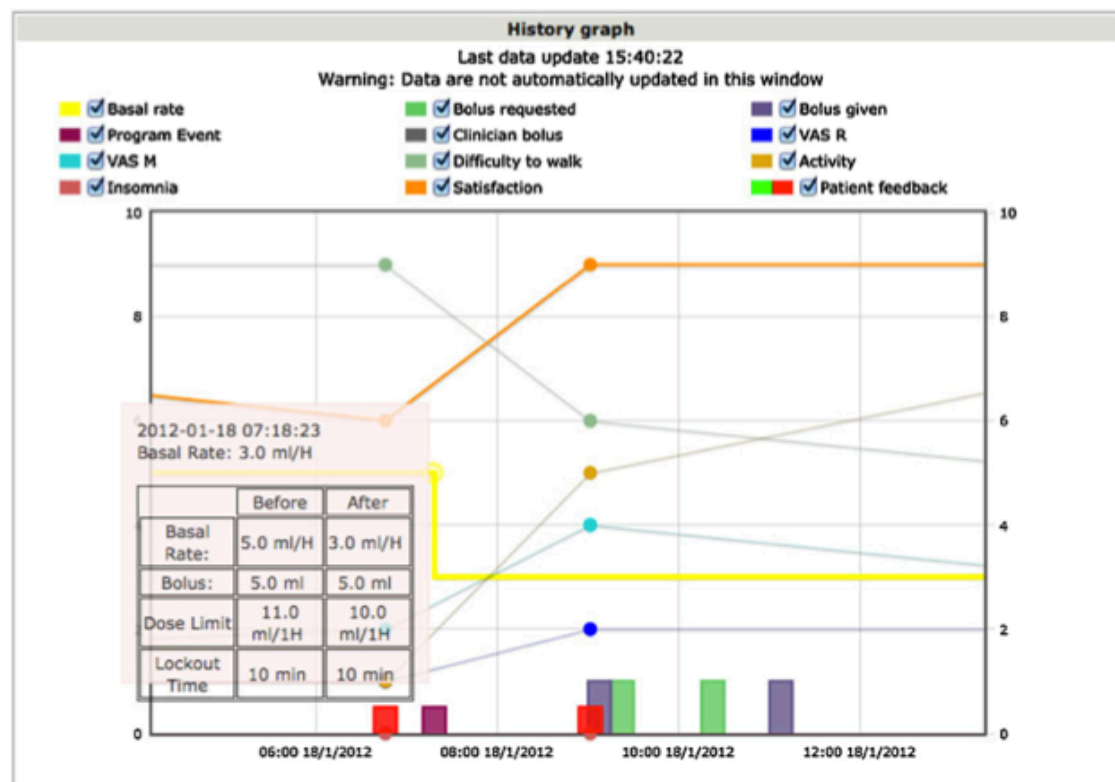
- Gornall J. Does telemedicine deserve the green light? *BMJ* 2012;345:e4622.

- Tilleul P, Aissou M, Bocquet F, Thiriat N, le Grelle O, Burke MJ, et al. Cost-effectiveness analysis comparing epidural, patient-controlled intravenous morphine, and continuous wound infiltration for postoperative pain management after open abdominal surgery. *Br J Anaesth* 2012;108: 998–1005.

- Chung M, Akahoshi M. Reducing home nursing visit costs using a remote access infusion pump system. *J Intraven Nurs* 1999;22:309–14.

Internet remote control of pump settings for postoperative continuous peripheral nerve blocks: A feasibility study in 59 patients

P. Macaire^{a,*}, M. Nadhari^a, H. Greiss^a, A. Godwin^a, O. Elhanfi^a, S. Sainudeen^a,
M. Abdul^a, X. Capdevila^b



Conclusion. – Pour la première fois dans la littérature, nous décrivons la possibilité d'évaluation des paramètres d'une ACP pour BNPC avec modification par Internet des réglages de l'analgésie postopératoire permettant une réelle adaptation aux besoins des patients. Cette adaptation est sûre, se fait avec des durées courtes et sans présence obligatoire du médecin ou de l'infirmière référents du patient.

- Etude **prospective monocentrique** sur 1 an.
- L'objectif étant de prouver une **amélioration du temps de réponse** des soignants (Médecin) aux besoins du patient (Douleur au repos ou mvmt, bloc moteur...).
- Inclusion de **59 patients hospitalisés** en **chirurgie orthopédique** et bénéficiant d'un **cathéter nerveux périphérique**.
- Temps moyen de réponse pour la douleur après demande est de **60min** objectif est d'obtenir une réponse en **30min**.

Layzell M. Improving the management in postoperative pain. Nursingtimes Net 2005;101:34–6.

- **Peropératoire** : Mise en place du **cathéter** sans protocole particulier.
- **Post opératoire** :
 - **Analgésie multimodale** (Paracetamol / Kétoprofène).
 - Mise en place d'une **pompe IPCEA pump, Micrel** : **Basal – bolus** ropi 0,2% pour une durée de 72h en SSPI.
 - En service de chirurgie : **Questionnaire** de 10 questions x3/j minimum (8am, 2pm et 8pm) ou au besoin de patient transmis à la fin par **GPRS**.

Macaire P, Nadhari M, Greiss H et al. Internet remote control of pump settings for postoperative continuous peripheral nerve blocks: A feasibility study in 59 patients. Ann Fr Anesth Rea 2014;33:e1-e7.

Questionnaire sur la Pompe Micrel

VOULEZ-VOUS RÉPONDRE
AU QUESTIONNAIRE ?

NON OUI

DOULEUR AU REPOS?

0 1 2 3 4 5 6 7 8 9 10

DOULEUR AU MOUVEMENT?

0 1 2 3 4 5 6 7 8 9 10

ÊTES-VOUS
TROP ENGOURDI?

NON OUI

DIFFICULTÉ À BOUGER
LE MEMBRE ANESTHÉSIÉ?

NON OUI

DIFFICULTÉ À MARCHER?

0 1 2 3 4 5 6 7 8 9 10

NIVEAU D'ACTIVITÉ?

0 1 2 3 4 5 6 7 8 9 10

NOMBRE D'INSOMNIES?

3

PROBLÈME OU
FUITE DU PANSEMENT?

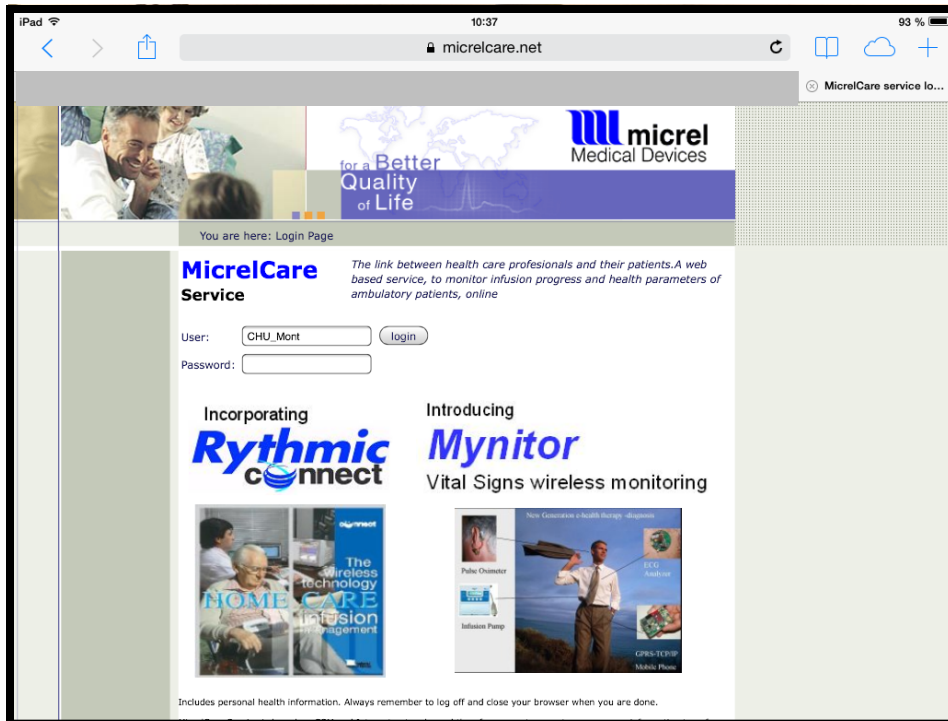
NON OUI

VOTRE SATISFACTION?

0 1 2 3 4 5 6 7 8 9 10

Indicators	Value
VAS at rest (only pain level at the surgical site)	0–10
VAS at mobilization (only pain level at the surgical site)	0–10
Excessive numbness (Yes, when it is uncomfortable for the patient)	Yes/No
Motor blockade (Yes, when the patient was unable to move his limb or the extremities [fingers or toes] due to the block)	Yes/No
Physiotherapy	Yes/No
Difficulty to walk	Yes/No
Activity	0–10
Insomnia (the number of time the patient woke up between 11 PM to 6 AM)	
Swelling dressing (if possible for the patient)	Yes/No
Satisfaction	0–10

Indicators	If value
Pain VAS value at rest (only pain level at the surgical site)	> 4
Pain VAS value during mobilization (only pain level at the surgical site)	> 4
Motor blockade or numbness	Yes
Sensory blockade or insensate limb	Yes
Swelling dressing (if possible for the patient)	Yes



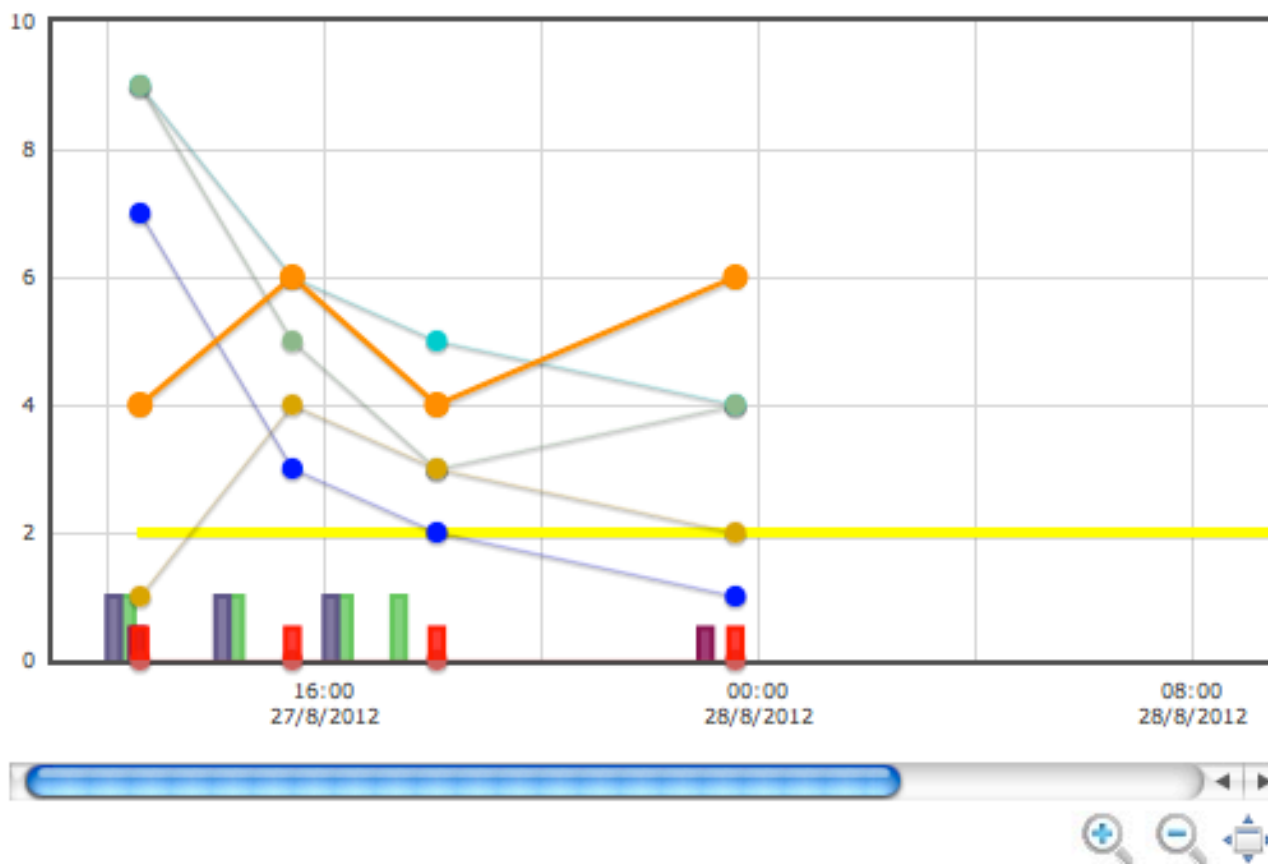
REALITE ANESTHESIQUE



Macaire P, Nadhari M, Greiss H et al. Internet remote control of pump settings for postoperative continous peripheral nerve blocks: A feasibility study in 59 patients. Ann Fr Anesth Rea 2014;33:e1-e7.

History graph

- ☒ Basal rate
- ☒ bolus given
- ☒ Clinician bolus
- ☒ VAS M
- ☒ Activity
- ☒ Satisfaction
- ☒ bolus requested
- ☒ Program Event
- ☒ VAS R
- ☒ Difficulty to walk
- ☒ Insomnia
- ☒ Patient feedback

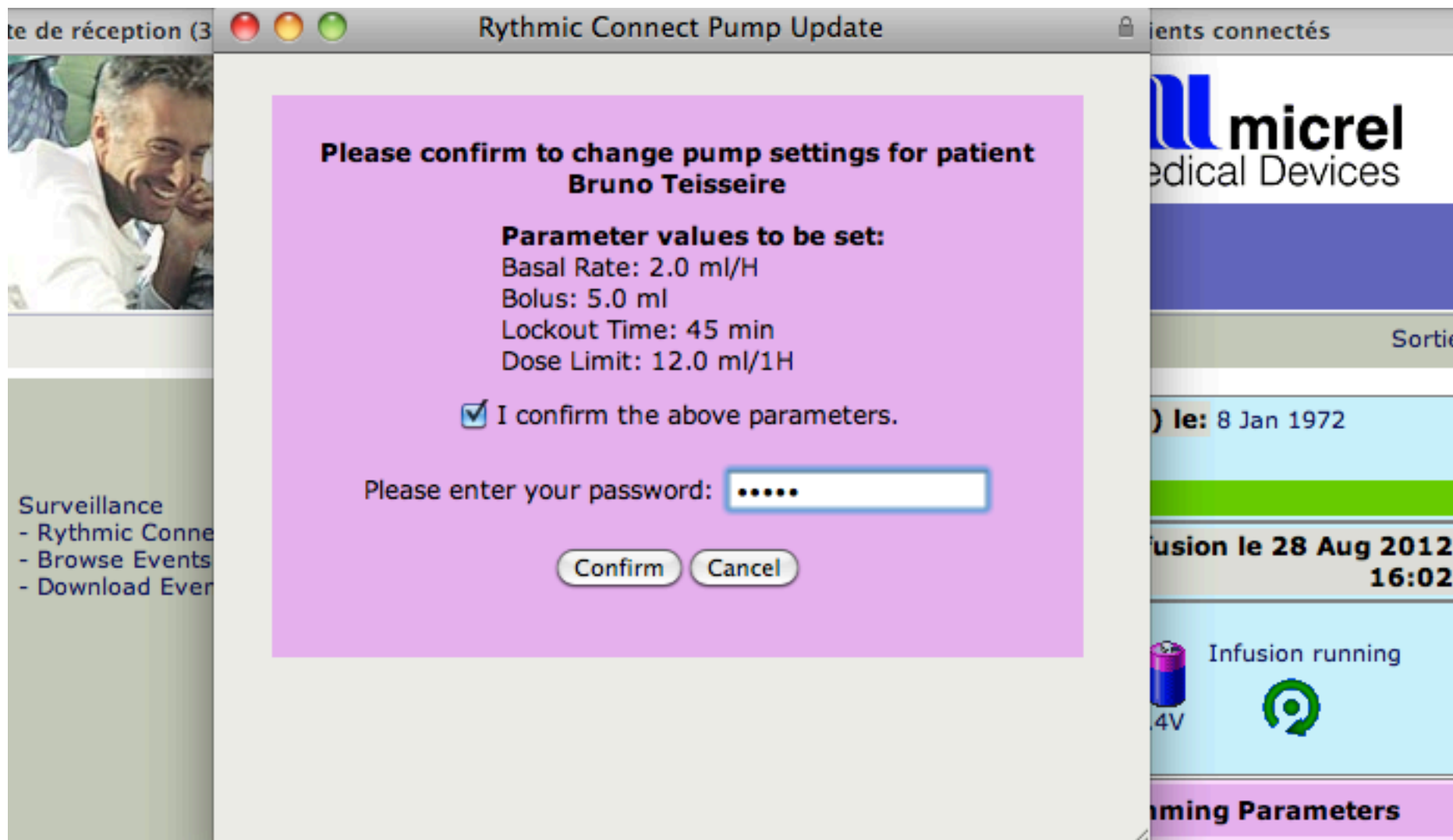


Surveillance
- Rythmic Connect
- Browse Events
- Download Events

Patient: Teisseire Bruno**Né(e) le:** 8 Jan 1972**Information:****Patient-Pump Association: Verified****Rythmic Connect S/N:120631124008/****état de la perfusion le 28 Aug 2012
15:57****Volume perfusé**
77.7 ml**Volume à perfuser**
122.3 mlFin de perfusion estimée le:
31 Aug 2012 05:06:26

Infusion running

**Protocol started at 27 Aug 2012 12:34****Drug/Protocol:** Prépa essai MtpII**Volume per
Reservoir:** 200.0 ml**Basal Rate:** 2 ml/H**Bolus:** 8 ml**Dose Limit:** 20 ml/1H**Loading Dose:** 0 ml**Lockout Time:** 30 min[Edit Protocol](#)



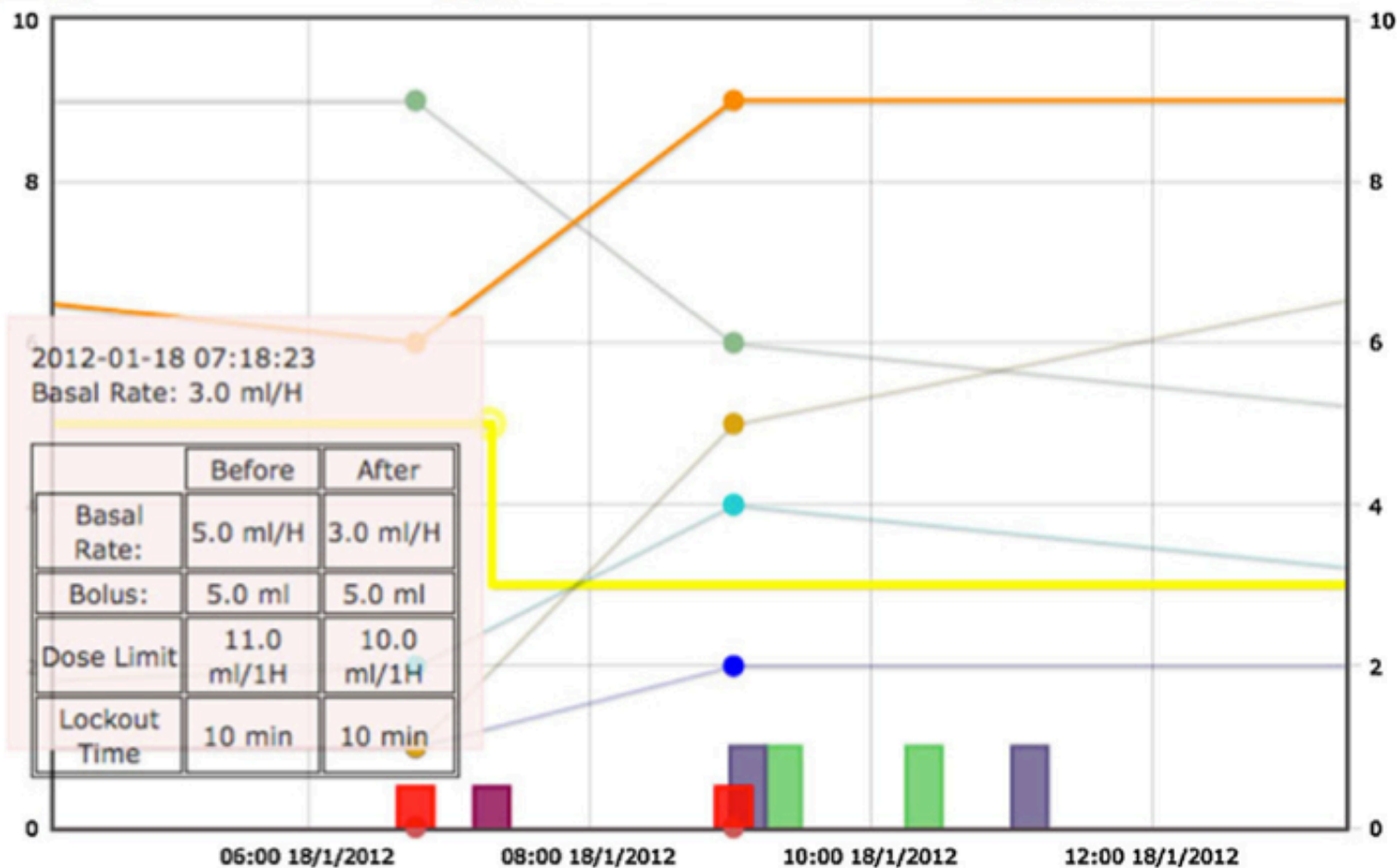
Macaire P, Nadhari M, Greiss H et al. Internet remote control of pump settings for postoperative continuous peripheral nerve blocks: A feasibility study in 59 patients. Ann Fr Anesth Rea 2014;33:e1-e7.

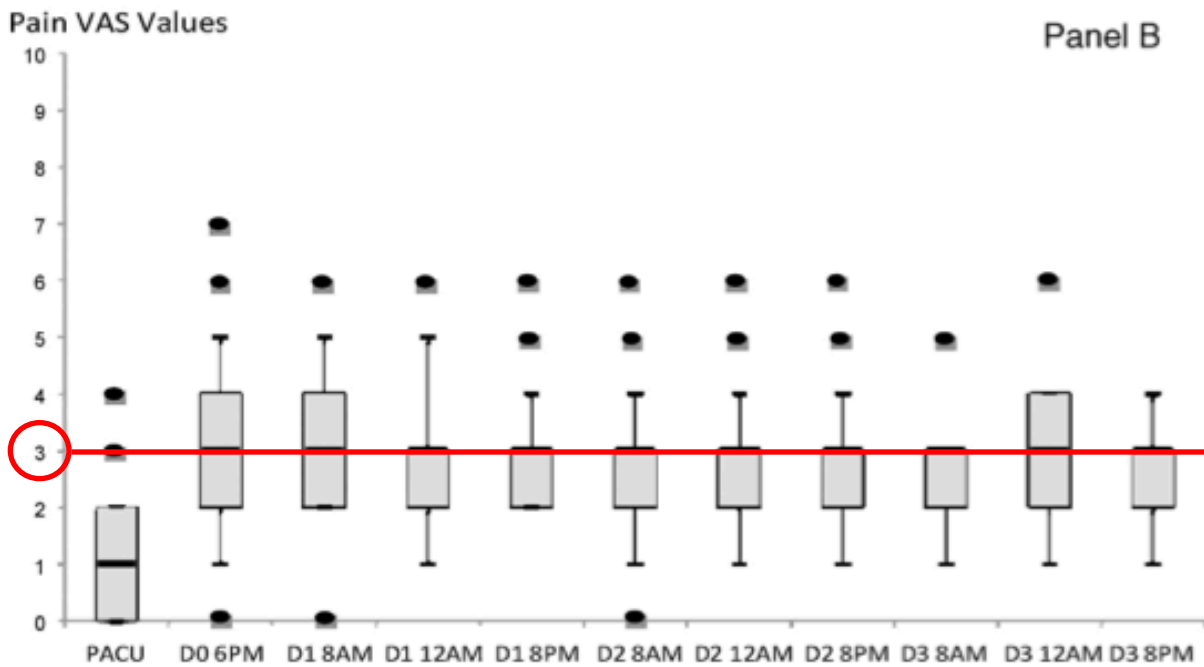
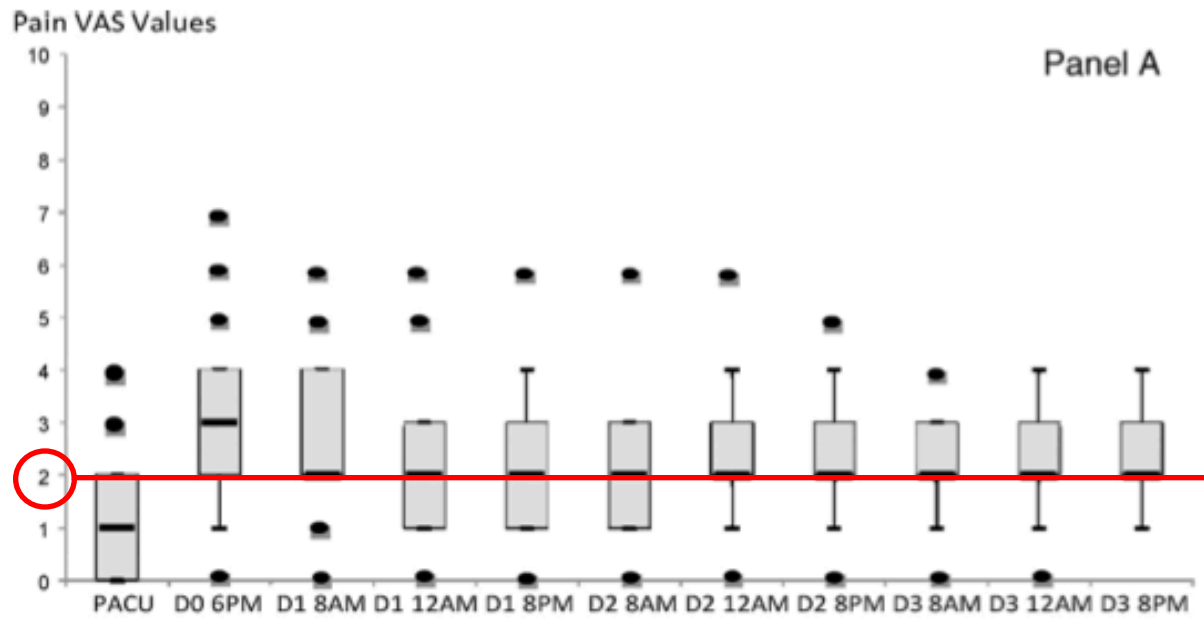
History graph

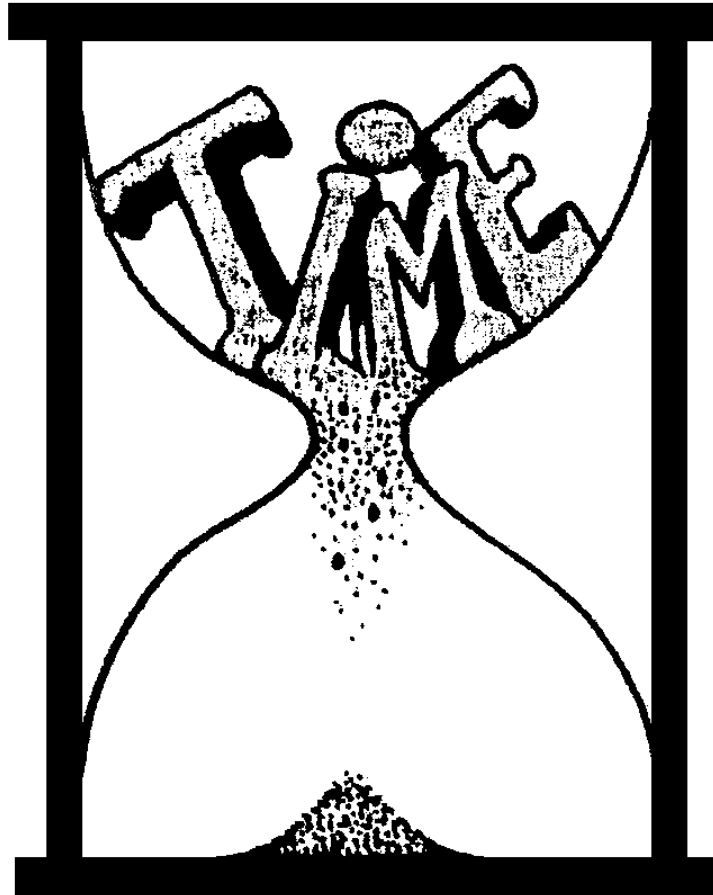
Last data update 15:40:22

Warning: Data are not automatically updated in this window

- ☒ Basal rate
- ☒ Program Event
- ☒ VAS M
- ☒ Insomnia
- ☒ Bolus requested
- ☒ Clinician bolus
- ☒ Difficulty to walk
- ☒ Satisfaction
- ☒ Bolus given
- ☒ VAS R
- ☒ Activity
- ☒ Patient feedback







The mean time of pump settings modification after response to questionnaire or voluntarily patient's alert was 15 (13–16.9) minutes. All changes finally resolved the patients' complains.

Locations

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Recruiting

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Not yet recruiting

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Principal Investigator: Philippe PM **MACAIRE**, MD

Recruiting

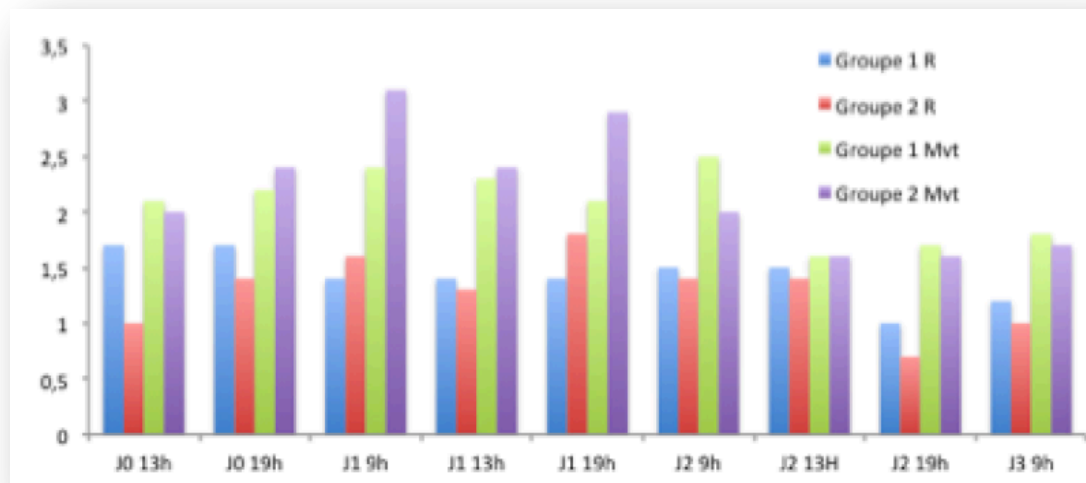
Postoperative Patient-controlled Perineural Analgesia After Orthopedic Surgery by "Remote Control" Versus "Bedside Care" (MICREL)

Arms	Assigned Interventions
Experimental: Remote control For patient randomized in arm "Remote Control", the communication with anesthesiologist will be done by teletransmission. The intervention "Remote control" is assigned to this arm. When evaluated pain values, sensory or motoric blockades are over the selected threshold then, the patient enters the data in the PCA (Patient Control Analgesia) pump, the physician in charge of the patient for the protocol is alerted by SMS on a specific smart phone and makes the necessary settings changes by Remote Control on the Micrel CareTM site.	Other: Remote control When pain or sensory and motor block evaluation exceed the thresholds, the patient enters the data in the PCA (patient Control Analgesia) pump. The investigator is alerted by SMS on his smartphone and makes the necessary programming changes by remote control on the Micrel Care TM site. Systematic assessments via the PCA pump are scheduled for 9:00, 13:00 and 19:00 every day during 48 to 72 hours. The patient can alert his physician through his PCA pump of any additional requests (pain, motor blockade, numbness). The anesthesiologist receives an SMS alert and can make any necessary programming changes to the pump via the remote control.
Active Comparator: At bedside care For patient randomized in arm "At bedside care", the communication with the anesthesiologist in charge of the patient will be done via the nurses and referent physician of the medical unit, as a routine procedures. The necessary changes of pump settings are doing by the anesthesiologist. The intervention "at bedside care" is assigned to arm "at bedside care".	Other: At bedside care When pain or sensory and motor block evaluation exceed the thresholds, the nurse contacts the physician and she will be able to modify the pump settings according to the anesthesiologist prescription. The delay between the call of the patient and the programming changes, the duration of the procedure are reported. Systematic evaluations via the PCA (Patient Control Analgesia) pump are done when the patient arrives in this surgical ward and at 9:00, 13:00 and 19:00 every day for 48 to 72 hours. Throughout the study, if necessary, the nurse or referring physician performs the programming changes directly on the PCA pump and notes the delay in treatment. All the reasons and the duration of any bedside visit are reported.

Gestion au lit du patient versus télétransmission pour l'analgésie régionale par cathéters nerveux périphériques après chirurgie orthopédique: Etude prospective, randomisée, multicentrique

Nathalie Bernard¹, Sophie Bringuier¹, Philippe Macaire², Michel Carles³, Xavier Capdevila¹

¹DAR Lapeyronie, Hôpital Lapeyronie, Montpellier, ²dar, rachid hospital, dubaï, ³dar, hôpital l'Archer, Nice, France



Résultats et Discussion : 55% cathéters poplités, 32% fémoraux et 13% interscaléniques étaient suivis chez les patients, d'âge moyen 37 ans et sexe ratio F/H 32/68%. La douleur (repos, mouvement) ne différait pas entre les groupes (Fig), comme la durée de cathéterisme, et les antalgiques de secours. Le médecin était alerté par 37% des patients versus 9% motivant un nouveau réglage de la pompe chez 17% des patients versus 7% respectivement dans les groupes télétransmission vs IDE ($p < 0.001$). Les reprogrammations/patient étaient plus élevées dans le groupe télétransmission: 2,10(3,4) versus 0,60(0,77) ($p < 0.05$). Le délai de réactivité médicale entre requête et prescription était de 7 min dans le groupe télétransmission versus 42 min. Les signalements bloc moteur (26% vs 7%), dysesthésies (20% vs 13%), fuites d'AL au niveau du pansement (7% vs 1.5%) étaient plus fréquents dans le groupe télétransmission. La consommation totale de ropivacaine était diminuée dans le groupe télétransmission: 220 (89) mL versus 272 (88) mL ($p = 0.03$).

Study Identification

Unique Protocol ID: 9677

Brief Title: Remote Controlled Analgesia on Patient Experience (R-CAPE)

Official Title: Effect of Perineural Catheter Analgesia on Patient Experience After Orthopedic Surgery

Brief Summary: The main objective of this study is to compare the efficacy of continuous nerve blocks with single injection in terms of perioperative patient satisfaction after scheduled orthopedic ambulatory surgery. Subgroup analyses will be performed, a priori, according to patients Pain Catastrophizing Scale (PCS) and type of surgery.

Secondary objectives comprise the assessment of pain, readmission rates, patient mobilization, quality of sleep and heart rate collected by an activity tracker. Scales about quality of recovery will be performed on day 1, about quality of life on day 45 and presence of neuropathic pain will be screened at 3 months. An economic study will also be conducted, including work resumption at 3 months.

This is a multicentric prospective study. Three hundred patients will be randomized in two parallel groups: continuous nerve blocks delivered thru remote-controlled electronic pump versus single local anesthetics injection.

The primary endpoint is the EVAN-G patient satisfaction scale, scored at day 2. Secondary endpoints will include assessment of pain, opiates consumption, sensitivity and motricity scores, rate of catheter falls at home, hospital readmission, patient mobilization, sleep and heart rate as assessed by an activity tracker, PCS before the surgery and Quality of Recovery (QoR-40) scale at day 1, Short-Form 36 (SF36) at day 45 and Neuropathic Pain assessment (DN4) at day 90.

LA Télémédecine



"The future depends on what you do today."
— **Mahatma Gandhi**

tags: action, carpe-diem, future, present

The connected patient!

