2nd Insight – Amsterdam – 6-8 October 2016

16:38-16:46
Perioperative management : Preventing 30-day readmissions

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Elvire Servien*

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RESEARCH ARTICLE

Thirty-Day Readmission Rates in Orthopedics: A Systematic Review and Meta-Analysis

James T. Bernatz*, Jonathan L. Tueting, Paul A. Anderson

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Public Health, Madison, Wisconsin, United States of America

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4.6%

Table 3. Arthroplasty 30-Day Readmission Rates Stratified by Subspecialty.

Subspecialty	Studies	Patients	Readmission (%)*
All Joints	3	14197	4.5
THA	5	6653	6.2
TKA	5	71852	4.6
Total	13	92702	4.6

CI = 95% Confidence Interval.

*No difference present between all joints, THA, and TKA, p-value = 0.679.

doi:10.1371/journal.pone.0123593.t003

The Journal of Arthroplasty 31 (2016) 2099–2107

Contents lists available at ScienceDirect

The Journal of Arthroplasty

journal homepage: www.arthroplastyjournal.org

Health Policy and Economics

Which Hospital and Clinical Factors Drive 30- and 90-Day Readmission After TKA?

Steven M. Kurtz, PhD [a, b, *], Edmund C. Lau, MS [c], Kevin L. Ong, PhD [a], Edward M. Adler, MD [d], Frank R. Kolisek, MD [e], Michael T. Manley, FRSA, PhD [f]

952,593 older patients (65þ) with a primary TKA

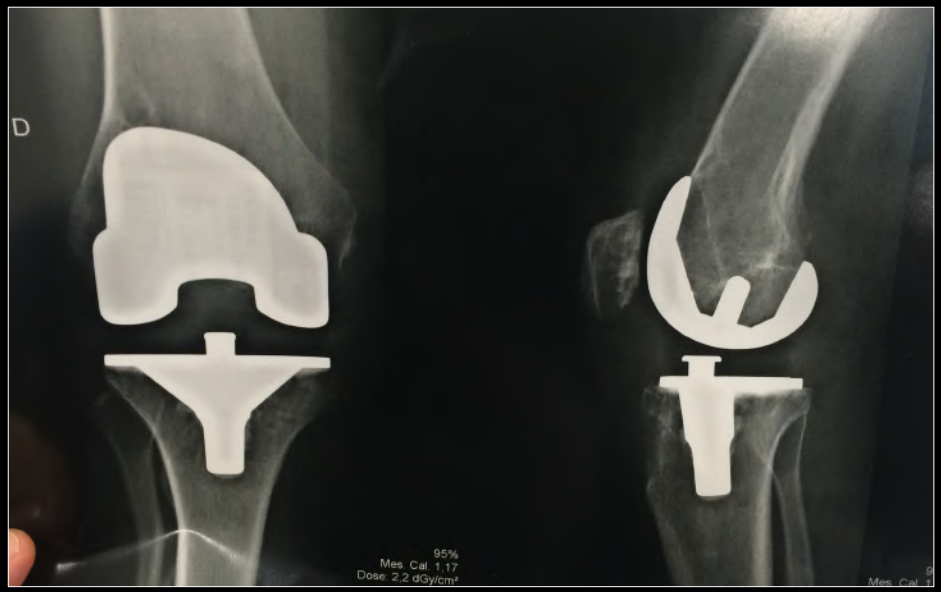
October 2016

Clinical factors :
perioperative transfusion (13% greater risk)

« …» The ***top 5*** most frequently reported primary reasons for 30- or 90-day readmission in TKA were **surgery and medical related**: wound infection, deep infection, atrial fibrillation, cellulitis and abscess of leg, or pulmonary embolism « …»

n°1

Wound related Superficial Site infection



The Journal of Arthroplasty 29 (2014) 465–468

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Total Joint Arthroplasty Readmission Rates and Reasons for 30-Day Hospital Readmission

Victoria Avram, MD, FRCSC [a,b,c], Danielle Petruccelli, MLIS, MSc [a], Mitch Winemaker, MD, FRCSC [a,b,c], Justin de Beer, MD, FRCSC [a,b,c]

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[c] Department of Surgery, Hamilton Health Sciences, Hamilton, Ontario, Canada

n°2

Non infectious wound problems
and /or
Bleeding

n°3

Limited motion

n°4 Medical Complications

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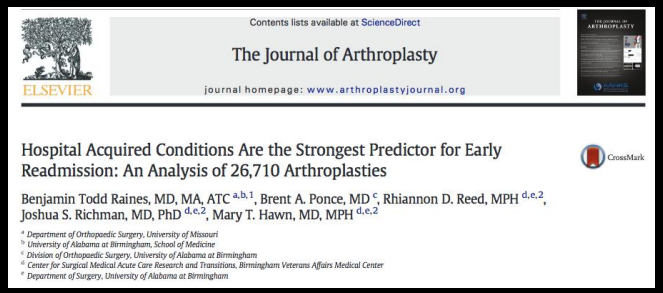
[a] Hamilton Arthroplasty Group, Hamilton Health Sciences Juravinski Hospital, Hamilton, Ontario, Canada
[b] McMaster University, Faculty of Health Sciences, Hamilton, Ontario, Canada
[c] Department of Surgery, Hamilton Health Sciences, Hamilton, Ontario, Canada

Septic complication related to operative joint	22	23.2%
Cardiovascular event	16	16.8%
Diagnoses unrelated to TJA procedure	16	16.8%
Cellulitis	14	14.7%
Thrombo-prophylaxis complication	8	8.4%
Other (i.e. anemia, constipation, hypotension)	8	8.4%
Failure to cope	5	5.3%
Periprosthetic fracture	5	5.3%
Implant failure	1	1.1%



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Hospital Acquired Conditions Are the Strongest Predictor for Early Readmission: An Analysis of 26,710 Arthroplasties

Benjamin Todd Raines, MD, MA, ATC [a,b,1], Brent A. Ponce, MD [c], Rhiannon D. Reed, MPH [d,e,2], Joshua S. Richman, MD, PhD [d,e,2], Mary T. Hawn, MD, MPH [d,e,2]

[a] Department of Orthopaedic Surgery, University of Missouri
[b] University of Alabama at Birmingham, School of Medicine
[c] Division of Orthopaedic Surgery, University of Alabama at Birmingham
[d] Center for Surgical Medical Acute Care Research and Transitions, Birmingham Veterans Affairs Medical Center
[e] Department of Surgery, University of Alabama at Birmingham

VTE ?

n°5

Reason for readmission :

- limited motion (18.2%),
- wound complication (14%),
- surgical site infection (9.9%),
- bleeding (9.9%).

- VTE was less common (3.3%), and all occurred despite adequate prophylaxis.

«…» The cost of bleeding, wound complications, infection, and limited motion each exceeded the cost of VTE. These results challenge the identification of VTE as a "never event. «…»

Emerging Topics in Healthcare Reform

Preventing Readmissions

Anticoagulants and Readmission Reduction Strategies

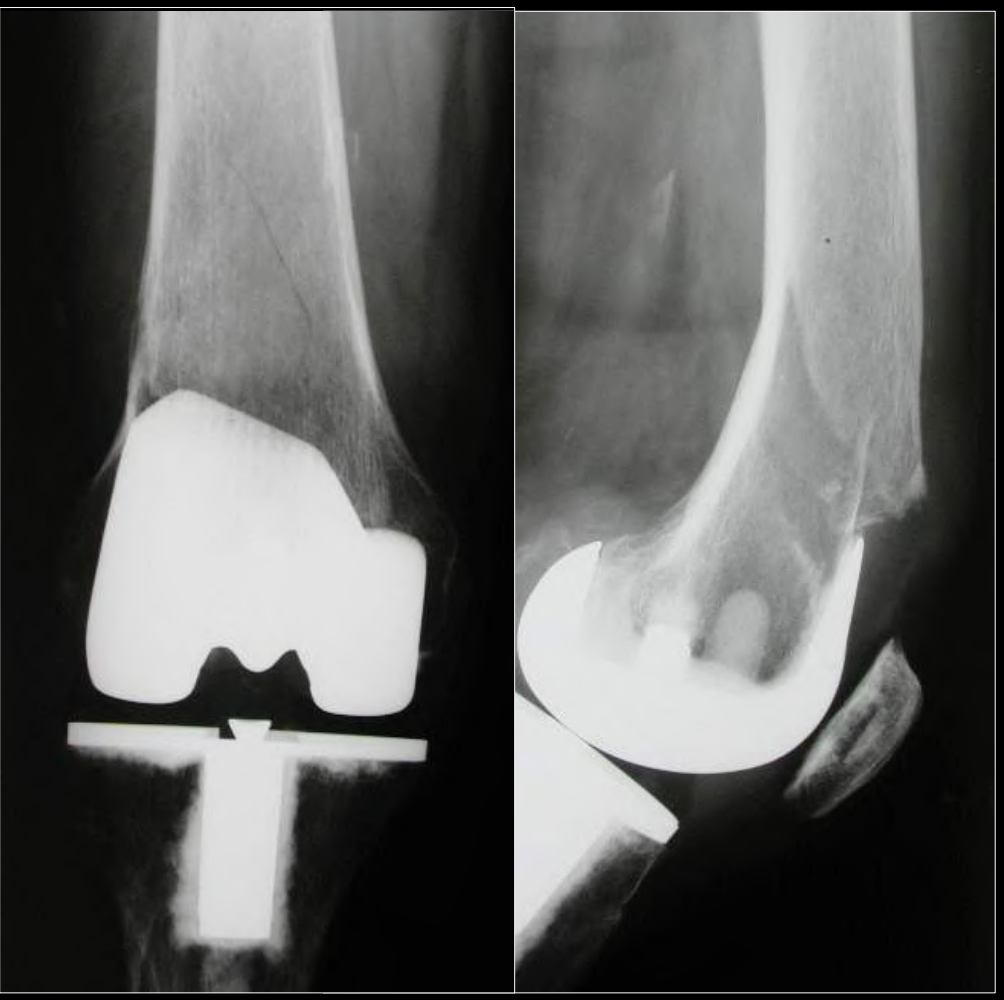
Several readmission diagnoses CMS is targeting and testing involve some form of anticoagulation therapy. Warfarin, one of the most commonly used anticoagulants, can be difficult to manage because of its narrow therapeutic index and variability in dosing requirements.[16] In an Agency for Healthcare Research and Quality (AHRQ) study, about 20% to 25% of patients discharged on warfarin were readmitted within 30 days because of adverse drug events.[17] Novel oral anticoagulants offer potential benefits over warfarin, including a reduction in the frequency of testing and dose adjustments.[16]

A Pilot Study Comparing Hospital Readmission Rates In Patients Receiving Rivaroxaban or Enoxaparin After Orthopedic Surgery

Melissa A. Herschman, PharmD, BCPS; Frank S. Rigelsky, PharmD, BCPS; and Sandra S. Axtell, PharmD, BCPS

n°6

Periprosthetice fracture



Preventing 30-days readmission

« OPTIMIZATION »

Patient

Surgery

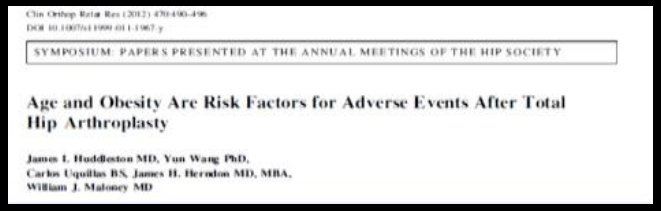
Perioperative managament

Patient Optimization
Modifiable Risk Factors

- 1. Diabetes
- 2. Obesity
- 3. Malnutrition
- 4. Smoking
- 5. Mental health
- 6. MRSA Screening

Obesity

Modifiable



SYMPOSIUM: PAPERS PRESENTED AT THE ANNUAL MEETINGS OF THE HIP SOCIETY

Age and Obesity Are Risk Factors for Adverse Events After Total Hip Arthroplasty

James I. Huddleston MD, Yun Wang PhD, Carlos Uquillas BS, James H. Herndon MD, MBA, William J. Maloney MD

Orthopaedics & Traumatology: Surgery & Research 100 (2014) S91–S97

Available online at ScienceDirect www.sciencedirect.com

Elsevier Masson France EM|consulte www.em-consulte.com/en

Review article

Obesity in orthopedics and trauma surgery

S. Parratte[a,*], S. Pesenti[b], J.-N. Argenson[a]

[a] Institut du Mouvement et de l'Appareil Locomoteur, Hôpital Sainte-Marguerite, UMR 6233, Aix-Marseille University, 270, boulevard Sainte-Marguerite, 13009 Marseille, France

[b] Service de Chirurgie Pédiatrique Orthopédique, Hôpital d'Enfants de la Timone, 13009 Marseille, France

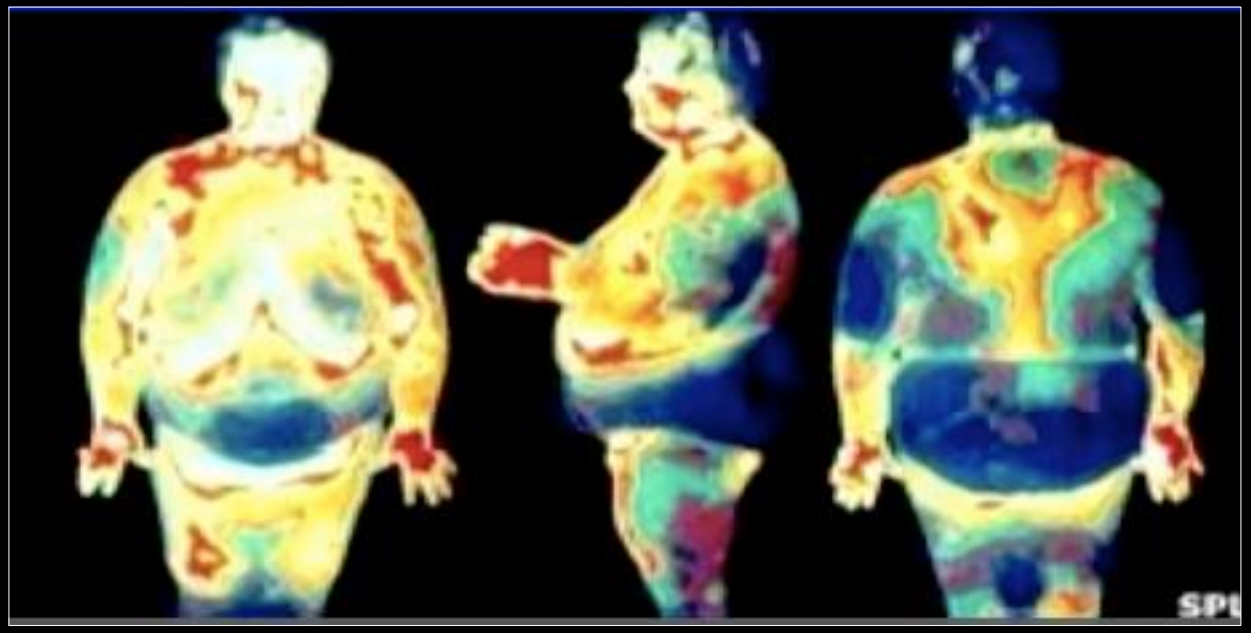
AAHKS 2014

« It is our concensus opinion that consideration should be given to delaying total joint arthroplasty in a patient with a **BMI > 40**, especially when associated with other co-morbid conditions, such as poorly controlled diabetes or malnutrition.

Mechanical / Biological

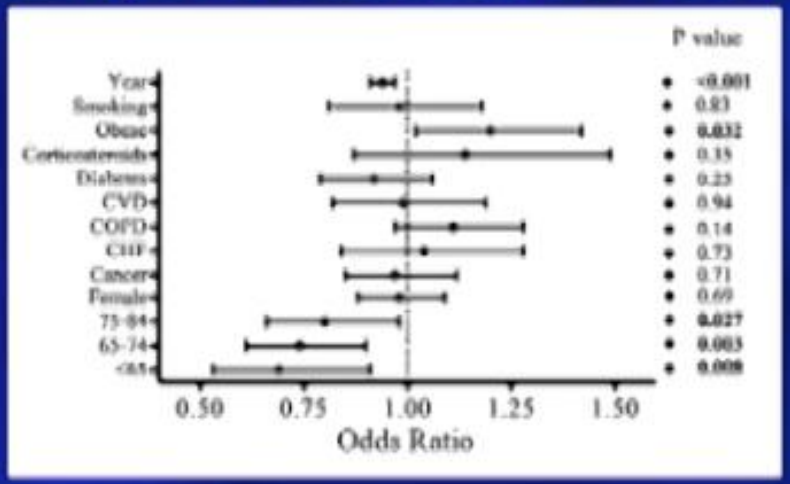
Real problem is biology : Fat degradation products (Leptine Adiponectine)

→ low grad inflammation status



Superficial wound infection
Deep periprosthetic joint infection

- **Friedman et al, CORR, 2013**
  - **Obese patients → increased infections (surgical and extra-surgical sites)**
- **Huddleston et al, CORR, 2012**
  - **Obesity increases adverse events (OR = 1.20)**



Current smoking

Modifiable

Systemic effects of smoking and Nicotine

Local Tissue Hypoxia :
- micro-vascular constriction
- Increase carboxyhemoglobin

Decreased collagen production
- Wound healing

Decreased T cell function
- Infection

Smoking cessation 4-8 weeks prior surgery

Decrease complications but not normalize

Cochrane Database 2005 – Moeller Lancet 2002

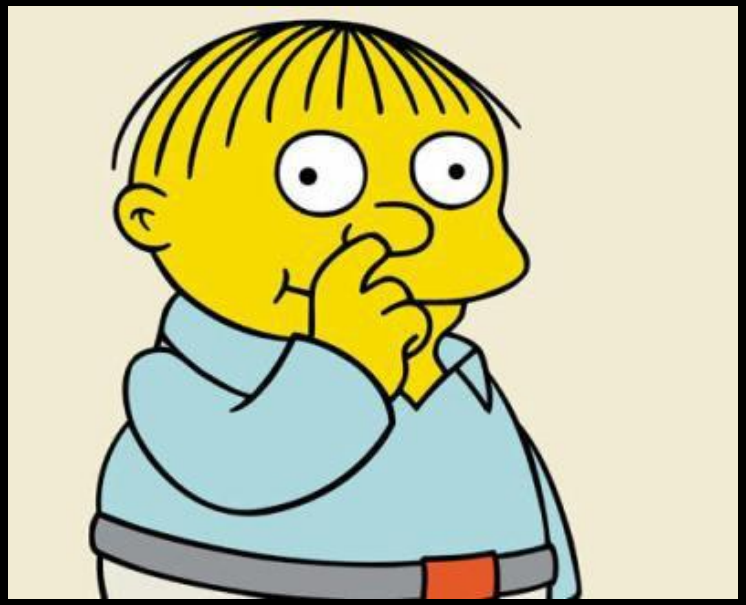
Modifiable

Nasal carriage of staphylococcus Aureus

Preop screening MRSA and MSSA

30% population MSSA carriers
4% MRSA carriers

Goal :
Decrease the incidence of postoperative S aureus SS by eliminating S aureus nasal carriage from the patient prior to surgery



Springer 2014 – Metanalysis 16 studies / 56711 patients

Nasal decolonization resulted in 54,6% decrease in the risk of SSI compared to controls

Blood status

Modifiable

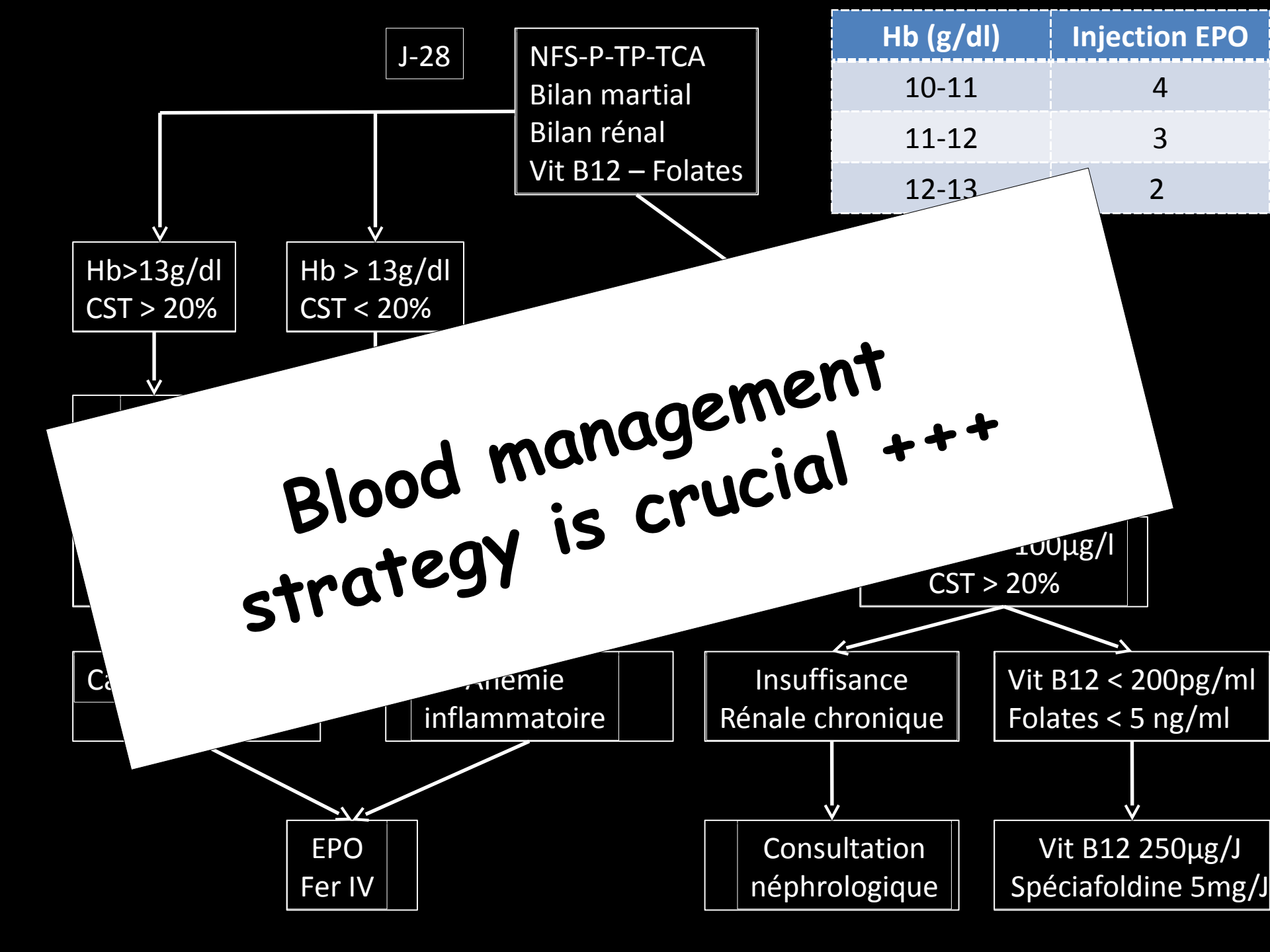
British Journal of Anaesthesia Page 1 of 14
doi:10.1093/bja/aes139

Patient blood management in Europe

A. Shander[1*], H. Van Aken[2], M. J. Colomina[3], H. Gombotz[4], A. Hofmann[5], R. Krauspe[6], T. Richards[8], R. Slappendel[9] and D. R. Spahn[10]

Allogenic blood transfusion
Blood Loss > 1L

Pulido et al. CORR 2008


J-28
NFS-P-TP-TCA
Bilan martial
Bilan rénal
Vit B12 – Folates
Hb>13g/dl
CST > 20%
Hb > 13g/dl
CST < 20%
Hb (g/dl)
Injection EPO
10-11
4
11-12
3
12-13
2
Blood management strategy is crucial +++
100µg/l
CST > 20%
Anémie inflammatoire
Insuffisance Rénale chronique
Vit B12 < 200pg/ml
Folates < 5 ng/ml
EPO
Fer IV
Consultation néphrologique
Vit B12 250µg/J
Spéciafoldine 5mg/J

How to prevent 30dys readmission?

Rule n°1

Patient selection

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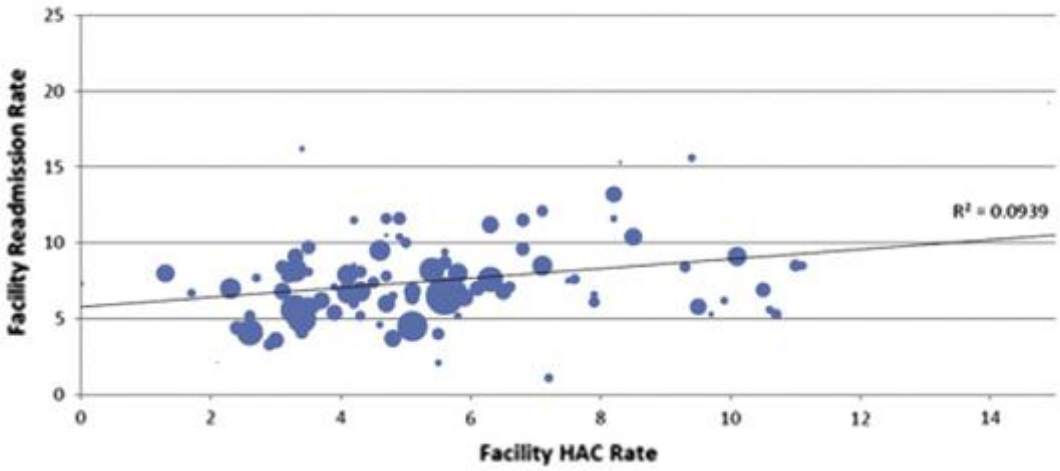

Team Work

Length of Hospitalization ?

J Arthroplasty. 2016 Aug 9. pii: S0883-5403(16)30448-X. doi: 10.1016/j.arth.2016.07.026. [Epub ahead of print]

Length of Hospitalization After Joint Arthroplasty: Does Early Discharge Affect Complications and Readmission Rates?

Otero JE[1], Gholson JJ[1], Pugely AJ[1], Gao Y[1], Bedard NA[1], Callaghan JJ[1].

⊕ Author information

OUTPATIENT SURGERY ?

IMPLICATIONS OF OUTPATIENT VS. INPATIENT TOTAL JOINT ARTHROPLASTY ON HOSPITAL READMISSION RATES

Paper 367, presented at the AAOS 2014 Annual Meeting, March 11-15, 2014, New Orleans, Louisiana.

Authors

David N. Vegari, MD; Jeffrey G. Mokris, MD; Susan M. Odum, PhD; Bryan D. Springer, MD

No statistical difference for readmission

Clinical Pathway

The Effect of a Clinical Pathway Strategy for Managing Care in Total Joint Replacement: The Impact on Perioperative Outcomes

Schwarzkopf R[1*], Zamansani T[2], Houng M[2] and Bridgeman T[2]

1. Division of Adult Reconstruction, Department of Orthopaedic Surgery, NYU Langone Medical Center Hospital for Joint Diseases, NY, USA
2. University of California Irvine Medical Center, Orange, CA, USA

« … » guidelines that consider
patient-centered care processes « … »

Clin Orthop Relat Res (2014) 472:1619–1635
DOI 10.1007/s11999-013-3398-4

Clinical Orthopaedics and Related Research®
A Publication of The Association of Bone and Joint Surgeons®

CLINICAL RESEARCH

Developing a Pathway for High-value, Patient-centered Total Joint Arthroplasty

Aricca D. Van Citters MS, Cheryl Fahlman PhD, Donald A. Goldmann MD, Jay R. Lieberman MD, Karl M. Koenig MD, MS, Anthony M. DiGioia III MD, Beth O'Donnell MPH, John Martin MPH, Frank A. Federico RPh, Richard A. Bankowitz MD, Eugene C. Nelson DSc, MPH, Kevin J. Bozic MD, MBA

Preoperative Surgical Visit

Processes to improve care	Techniques to reduce waste	Techniques to avoid communication pitfalls
Identify, evaluate, and mitiga factors that could delay conduct a standardized multispecialty evalu candidates for TJ comorbid condi cardiac, diabe anticoagula undiagno infectio may ex d	Reduce duplication in history, physical examination, and imaging between surgical practice and hospital	Provide verbal and written communication on risks, be and expectations for care of stay, discharge desti recovery timeline, an of-pocket and oppo

Establish level of risk present
Establish a plan to mitigate risk

Written communication

Preoperative Preparation

Processes to improve care	Techniques to reduce waste	Techniques to avoid communication pitfalls
Require patients to participate i… preoperative education pro… g, books, online, video, did… class) that is customized for… ts undergoing TJA; st… encourage family or caregiv… cipation; allow exemptio… ccommodate patient-speci… es such as attendance … evious TJA class	Combine patient visits (eg, preoperative testing and education) and dovetail activities (eg, initiate discharge planning and care management and identify necessary home supports during preoperative education)	Encourage patients and family/ caregivers to ask questions throughout the care process (eg, give permission to ask "why?")

Preoperative Education

Inpatient preparation/ operation

Processes to improve care	Techniques to reduce waste	Techniques to avoid communication pitfalls
Follow surgical site infectio prevention protocols, v thromboembolism pr protocols, and cor gery protocols	Assess patient and material flow and establish staff availability guidelines to ensure on-time surgical starts and minimize patient waiting	Streamline flow and communication using standardized handoffs and communication tools between admissions, preoperative area, OR, PACU, and inpatient floor

Infection prevention
Thromboembolism prevention

Inpatient stay and discharge process

Processes to improve care	Techniques to reduce waste	Techniques to avoid communication pitfalls
Maximize early mobilization … group physical therapy, … the family/caregiver i… provide day of surg… therapy, when per… patient's physic…	Establish a protocol that includes standard criteria for when to request medical consultation and who should receive medical/surgical comanagement	Use a checklist that covers is… address before discharge… identifies when a patie… discharge based on … milestones

Early mobilization
Group physical therapy

Checklist before discharge

Post discharge rehabilitation and followup care

Processes to improve care	Techniques to reduce waste	Techniques to avoid communication pitfalls
Postdischarge care provi follow a standardiz care and rehabili therapy, wound thromboemb surgical ar	Use an algorithm with specific criteria to determine discharge readiness for patients admitted to acute rehabilitation, a skilled nursing facility, or home health services	Ask patients to complete a journal that documents progress toward recovery and helps to engage and hold the patient accountable for their recovery

Standardised Pathway
Rehabilitation
Wound monitoring
VTE prophylaxis

Etapes	Acteur	Actions	Outils	Protocole de référence	A formaliser	Indicateurs
Objectifs cliniques		Patient préparé en vue de l'intervention chirurgicale				
Objectifs patient		Confort physique et psychologique- Information adaptée				
J-1 HOSPITALISATION	ASD	Installation du patient				
		Présentation équipement de la chambre et du fonctionnement de l' unité	Fiche présentation de l'unité			
	IDE	Validation admission en temps réel	GEMA	Les bonnes pratiques liées au parcours du patient		
		Vérification de tous les éléments portés sur la fiche administrative et validation par une signature				
		Pose du bracelet d'identification du patient		GED- DICS Identification du patient au cours du parcours de soins Cf protocole interne pour côté à opérer		
		Entretien d'accueil du patient	DDS			
		Poids, taille et IMC	DDS			
J0 Unité de soins	ASD	Préparation cutanée pré opératoire et vérification du respect de la procédure	Diagramme activités	GED-		
				GED- chirur		
		Pose bas de contention	Diagramme activités			
		Consigne/ absence bijoux, vêtement, prothèse dentaire/auditive et vérification avant transfert bloc		GED-		
	IDE	Vérification dossier patient avant départ au bloc				
		Paramètres vitaux (FC, TA, T°, saturation en O2)	DDS			
		Administration prémédication sur prescription médicale	DDS			
		Check list préopératoire				
		Macrocible "Départ au bloc"	DDS			
	Brancardier bloc	Vérification/fiche identité patient	IPOP			
		Transfert patient unité de soins- bloc				
	ASD	Entretien environnement du patient	Diagramme activités	GED- SSRV SHEP- Bio nettoyage de la chambre		
		Préparation chambre d'opéré	?	Protocole unité?		
	IADE	Vérification identité patient				
J0 Bloc	ASD					
	MAR					
	IBODE- CI					
	IADE					
	IBODE- CI					
	IADE - MA					
	CHIRURG					
	CHIRURG					
	IADE- ASC					
	SSPI					
JO Post op	IDE					
J2 et jusqu'à la veille de la sortie	IDE	NFP 2/sem	DDS			
	CHIRURGIEN	Visite et consignes post opératoires				
	INTERNE	Actualisation des prescriptions	DDS			
	IDE	Macrocible "Consigne du tour"	DDS			
		Paramètres vitaux: TA, FC, T°, sat 3/24h	DDS			
		Douleur:				
		. Evaluation par EN 4/24h	DDS			
		Administration:				
		. Traitement antalgique selon protocole	DDS			
		. Prévention des ETEV (Rivaroxaban)	DDS			
		. traitement personnel selon prescription	DDS			
		Ablation VVP	Diagramme activités			
		Ablation sonde vésicale	Diagramme activités			
		Surveillance locale et risque hématome:3/24h	Diagramme activités			
		Surveillance pansement	Diagramme activités			
	ASD	Alimentation normale	DATAMEAL			
	IDE/ASD	Aide à la toilette sur siège réhaussé	Diagramme activités			
		Surveillance et SPE 3/24h	Diagramme activités			
		Pose et surveillance vessie de glace (site opératoire) 3/24h	Diagramme activités			
J2 et jusqu'à la veille de la sortie	IDE	NFP 2/sem	DDS			
	CHIRURGIEN	Visite et consignes post opératoires				
	INTERNE	Actualisation des prescriptions	DDS			
	IDE	Macrocible "Consigne du tour"	DDS			
		Paramètres vitaux: TA, FC, T°, sat 3/24h	DDS			
		Douleur:				
		. Evaluation par EN 4/24h	DDS			
		Administration:				
		. Traitement antalgique selon protocole	DDS			
		. Prévention des ETEV (Rivaroxaban)	DDS			
		. traitement personnel selon prescription	DDS			
		Ablation VVP	Diagramme activités			
		Ablation sonde vésicale	Diagramme activités			
		Surveillance locale et risque hématome:3/24h	Diagramme activités			
		Surveillance pansement	Diagramme activités			
	ASD	Alimentation normale	DATAMEAL			
	IDE/ASD	Aide à la toilette sur siège réhaussé	Diagramme activités			
		Surveillance et SPE 3/24h	Diagramme activités			
		Pose et surveillance vessie de glace (site opératoire) 3/24h	Diagramme activités			
		Bas de contention	Diagramme activités			
	IDE	Evaluation risque thombo embolique	Diagramme activités			
		Education et macrocible "Education"	Diagramme activités			
		. auto soins/ plaies chirurgicales	Diagramme activités			
		. auto soins/bas de contention (1 mois)	Diagramme activités			
		Evaluation reprise transit	Diagramme activités			
	IDE/MKDE	Lever et mise au fauteuil 3/24h	Diagramme activités			
	Kinésithérapeute	Retrait attelle de ZIMMER	Fiche rééducation	Protocole à transmettre		
		Marche et rééducation selon protocole	Fiche rééducation	Protocole à transmettre		
	ASD	Entretien de l'environnement du patient	Diagramme activités	GED- SSRV SHEP- Bio nettoyage de la chambre		
	Secrétaire médicale	Programme RDV post opératoire à 2 mois	DRDV			
		Edite les ordonnances de sortie sur prescription	GULPER			
		Adresse le CRH au médecin traitant ou SSR				
		Edite CRO et CRH pour patient	GULPER			
	IDE	Evaluation qualité du sommeil	DDS			
Sortie	Chirurgien	Visite et consignes post opératoires	DDS			
		Confirme la sortie				
		Signe les ordonnances de sortie?				
	Interne	Réactualise et remet les ordonnances de sortie :				
		. ordonnance Paracétamol pendant 3 semaines	GULPER			
		. ordonnance RIVAXOXAVAN pendant 1mois	GULPER			
		. ordonnance ablation agrafes à J15 par IDE libérale	GULPER			
		. CRH et CRO	GULPER			
		Prescription arrêt de travail .. mois				

Randomized controlled trials have shown that improvement in the following areas can ***directly reduce readmission rates***:

- quality of care during the initial admission;
- improvement in communication with patients, their caregivers, and their clinicians;
- patient education;
- pre-discharge assessment;
- coordination of care after discharge.

Randomized controlled trials have shown that improvement in the following areas can ***directly reduce readmission rates***:

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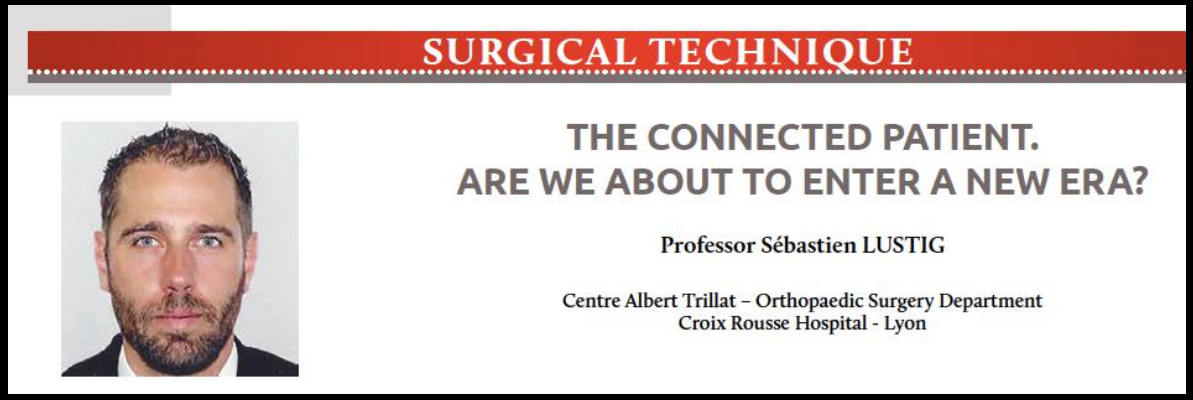
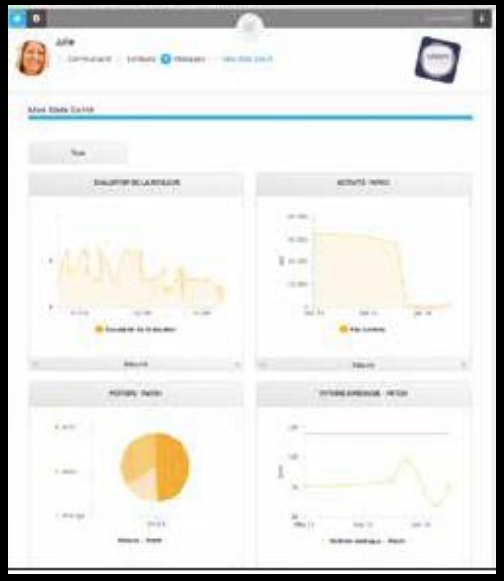
« Digital Health Programs »





Take home message

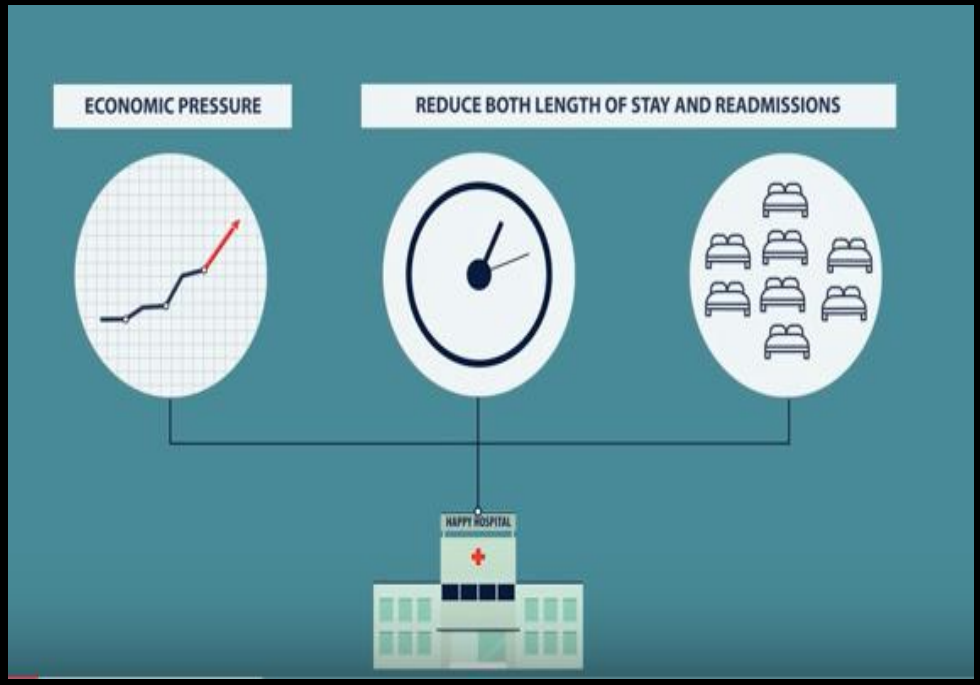
Preventing 30-day readmissions

Patient selection

Patient optimization

Clinical Pathways

Digital platform ?



Thank You

sebastien.lustig@gmail.com