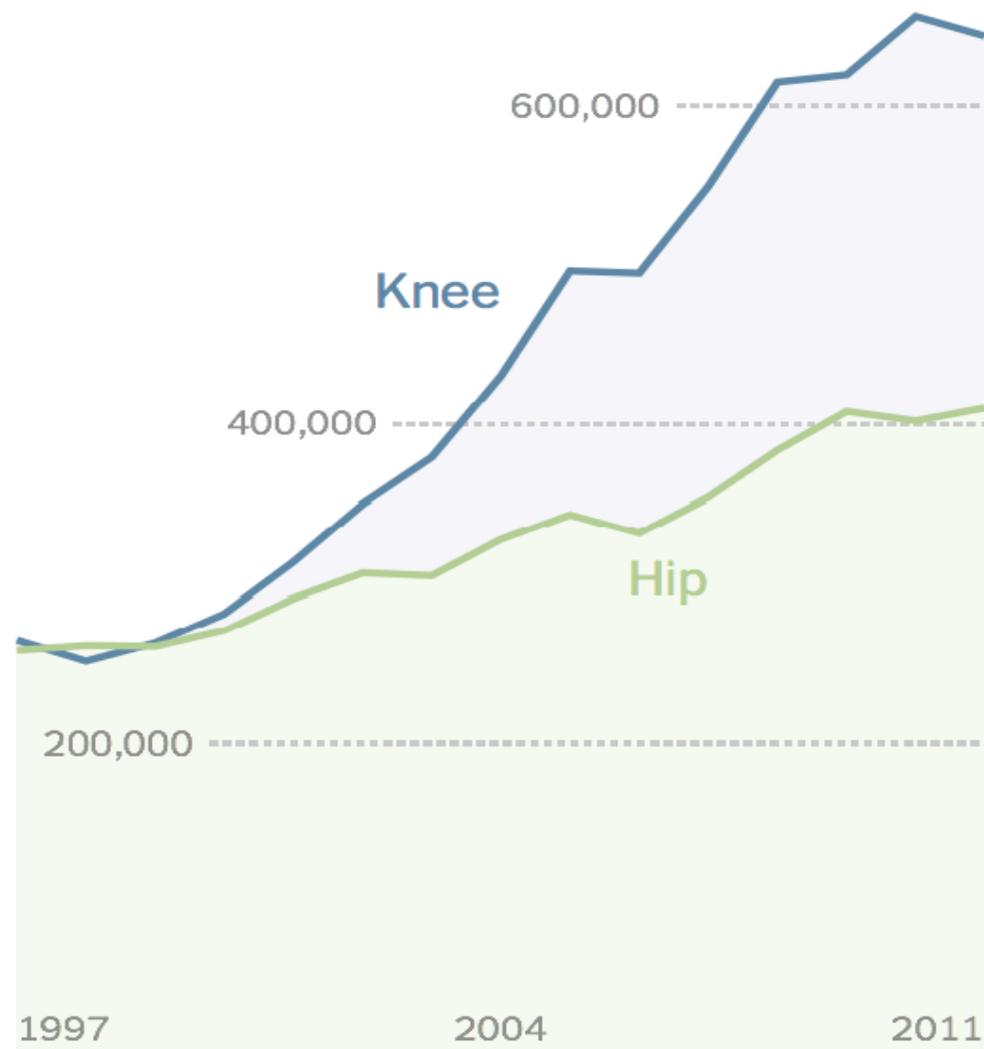


# БЮДЖЕТНОЕ ЭНДОРПОТЕЗИРОВАНИЕ БЕЗ ПОТЕРИ КАЧЕСТВА ?



I. SOLLOGOUB – Nevers - France



Source: Agency for Healthcare Research and Quality

# Очень актуальный вопрос !

Clin Orthop Relat Res  
DOI 10.1007/s11999-012-2774-9

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

SYMPOSIUM: ALIGNING PHYSICIAN AND HOSPITAL INCENTIVES

## Understanding How Orthopaedic Surgery Practices Generate Value for Healthcare Systems

Steven A. Olson MD, Richard C. Mather III MD

Clin Orthop Relat Res  
DOI 10.1007/s11999-012-2757-x

Clinical Orthopaedics  
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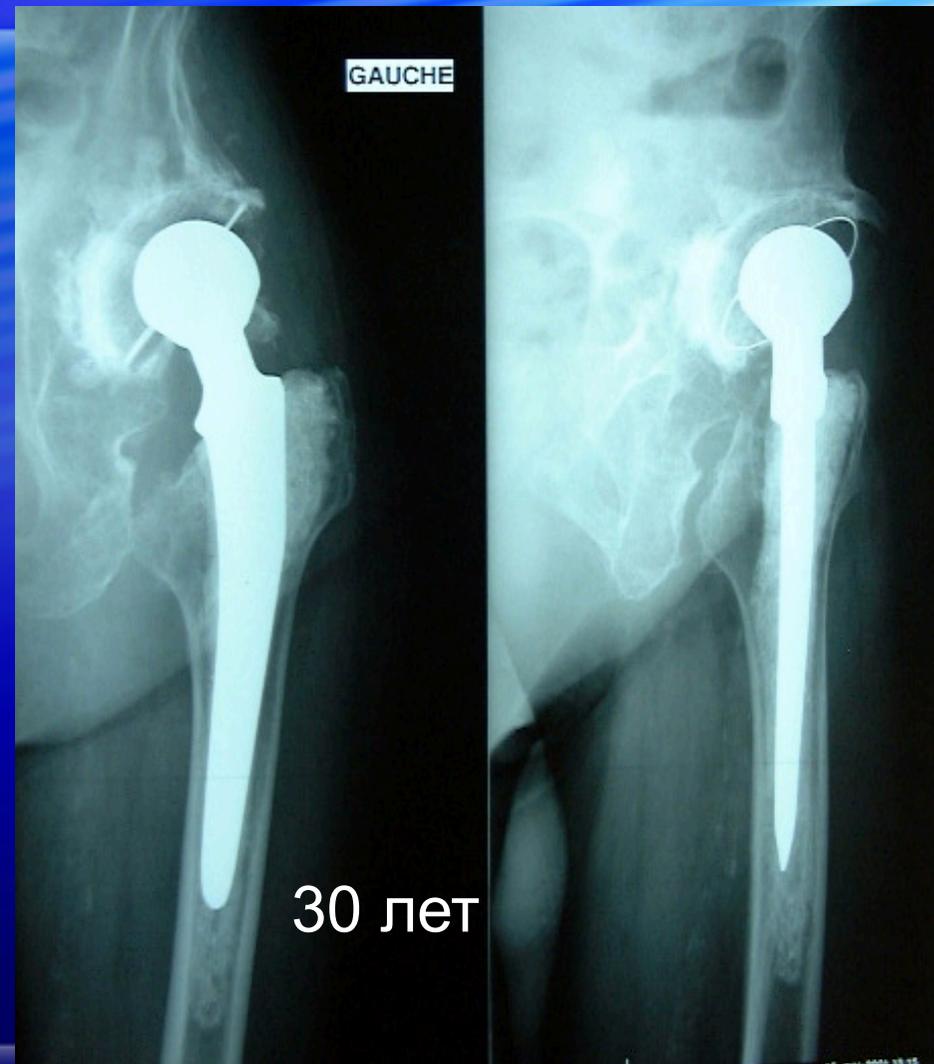
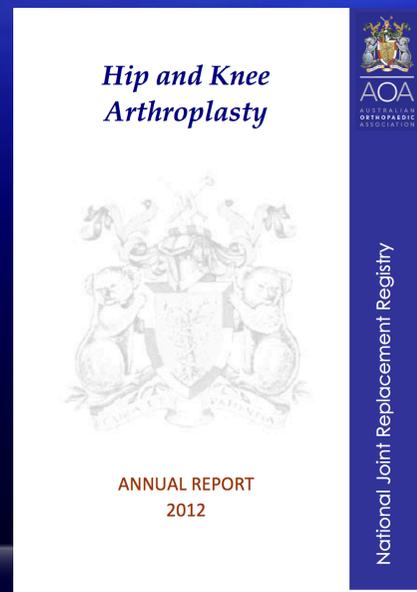
SYMPOSIUM: ALIGNING PHYSICIAN AND HOSPITAL INCENTIVES

## Orthopaedic Surgeons Frequently Underestimate the Cost of Orthopaedic Implants

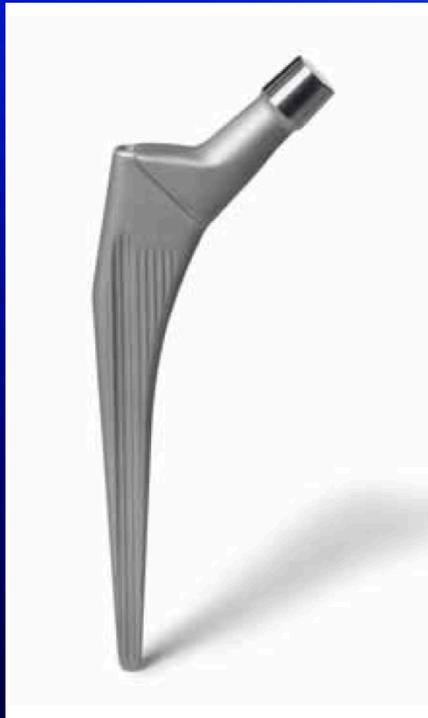
Jonathan J. Streit MD, Ashraf Youssef MD,  
Robert M. Coale MD, James E. Carpenter MD,  
Randall E. Marcus MD

# Качество и деньги: Золотой стандарт ?

- Регистры
- публикации



# Muller...Charnley



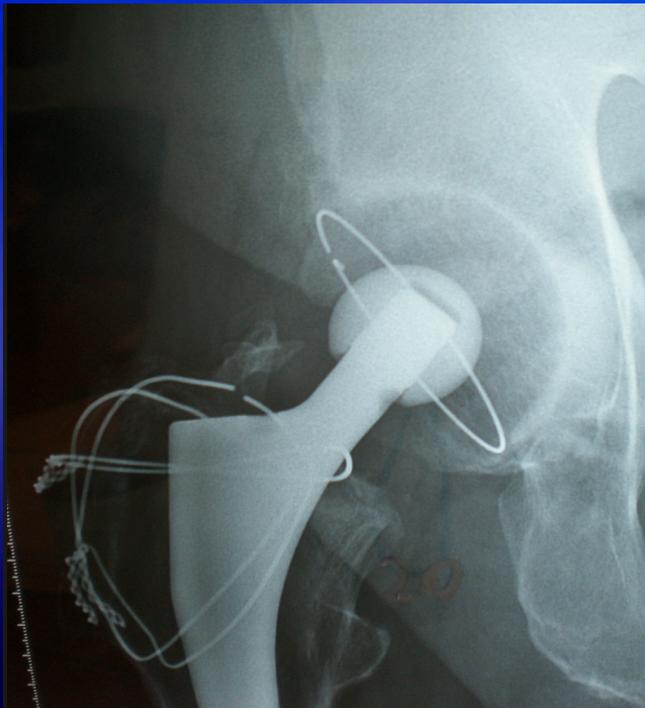
## Résultats cliniques

Année	Auteur	Publié dans	Implant/ Nombre Hanches	Contrôle ultérieur (tous faits confondus)	Taux de survie combiné tige (tous faits confondus)	Taux de survie tige (tous faits confondus)	Taux de survie tige (descellement aseptique)
1989	Wilson-McDonald et al.	Comparison between Straight- and curved-stem <i>Müller</i> femoral protheses. 5- to 10-year results of 545 total hip replacements. Arch Orthop Trauma Surg 1989; 109: 14–20	381	10 ans			97,0%
1995	Brémant	Résultats à 10 ans de la prothèse totale de hanche cimentée autobloquante de <i>M. E. Müller</i> . Rev Chir Orthop 1995; 81: 380–388	193	10 ans		98,3%	
1997	Oosterbos et al.	Prognosis of the <i>Müller Straight Stem</i> . Hip International 1997; 7(3): 101–109	214	10 ans	91,2%		
1997	Sperling et al.	<i>Müller Straight Stem</i> – survival rate after 12 years. Acta Orthop Scand 1997; 68 (Suppl 277): 28	621	12 ans	95,1%		
1997	Träger et al.	10-Jahres-Ergebnisse der <i>Müller- Geradschaft</i> -Prothese im Vergleich zum <i>Müller-Geradschaft</i> in Kombination mit der unbeschichteten unzementierten RM-Pfanne. Paper No. 13, Bremen Norddeutsche Orthopädenvereinigung, Bremen, Juni 1997	158	10 ans		98,0%	
2001	Havinga et al.	Results with the <i>M. E. Müller</i> cemented Straight Stem total hip prosthesis. A ten year historical cohort study in 180 women. J Arthroplasty 2001; 16(1):33–36	180	10 ans	94,0%		
2002	Malchau et al.	Prognosis of Total Hip Replacement. Update of Results and Risk-Ratio Analysis for Revision and Re-revision from the Swedish National Hip Arthroplasty Register 1979–2000	1346	10 ans	97,8%		
2003	Kirschner	20 years of primary hip replacement using <i>M. E. Müller Straight</i> stem. Paper 1232, EFORT, Helsinki, June 2003	200	20 ans		82,5%	
2003	Ochsner	Die Hüfttotalprothese, Implantations- technik und lokale Komplikationen. Springer, Berlin, 2003	401	15 ans		94,3%	

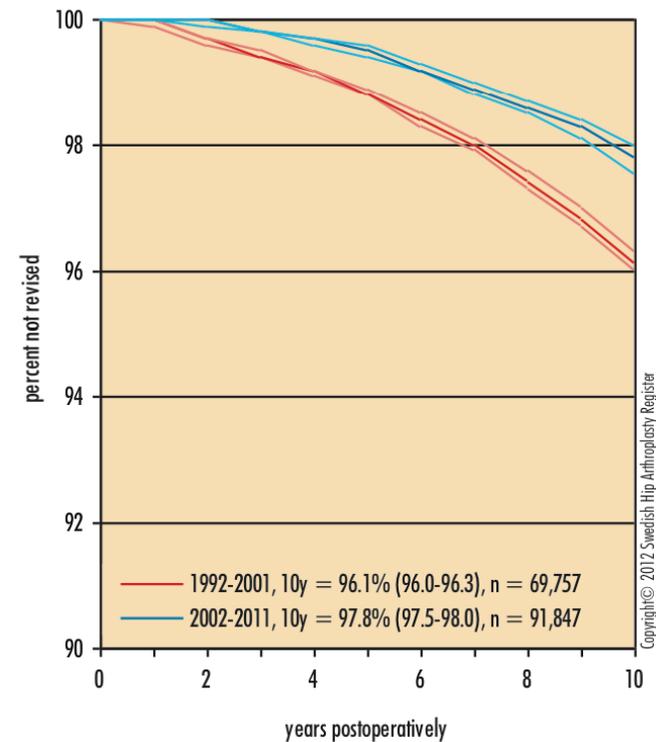


94 %

# Конец доклада...



**All cemented implants**  
primary osteoarthritis and aseptic loosening



**- RESULTS OF CHARNLEY TOTAL HIP ARTHROPLASTY AT A MINIMUM OF THIRTY YEARS: A CONCISE FOLLOW-UP OF A PREVIOUS REPORT.**

J.J. CALLAGHAN et al. *J. BONE JOINT SURG. 2004, (Am.) VOL 86, p. 690/695*

# Критерии выбора...

---

- Привычки
- Качество
- Новшества
- Деньги
- Любопытство
- Давление фирмы
- ....наука !

Clin Orthop Relat Res  
DOI 10.1007/s11999-013-2950-6

Clinical Orthopaedics  
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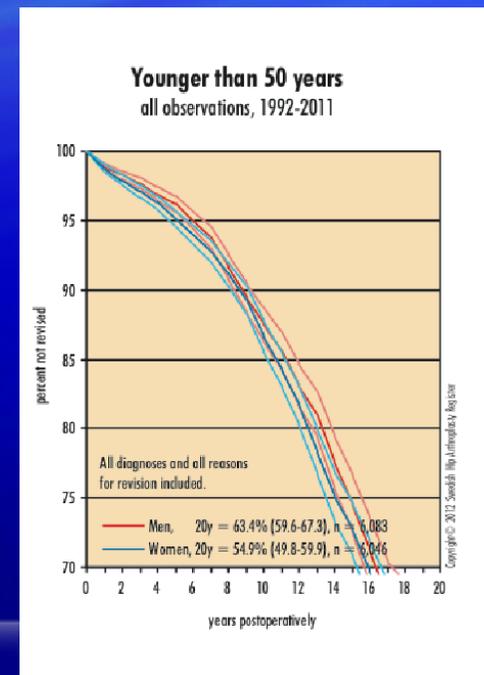
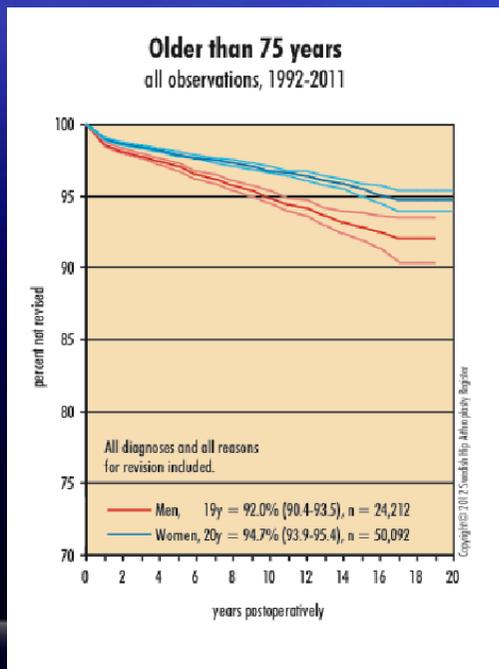
SYMPOSIUM: ALIGNING PHYSICIAN AND HOSPITAL INCENTIVES

## The Orthopaedist's Role in Healthcare System Governance

Robert A. Probe MD

# Почему меняли ?

- Чувствительность к полиэтилену !
- Выживаемость протеза у молодых и активных
- Фирмы должны продать новые продукты -> ЦЕНА !



# Пришли новшества ...1990

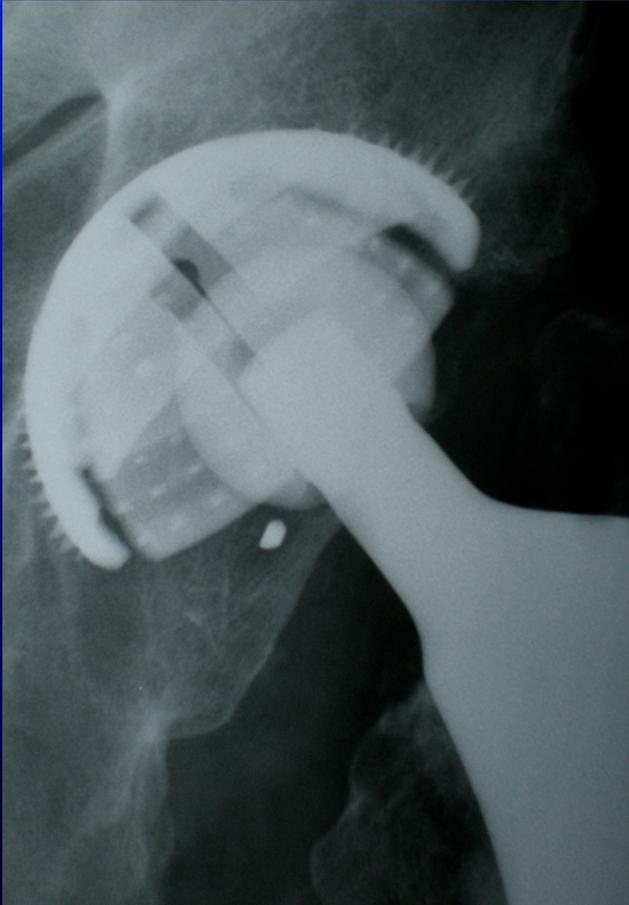
---

- Métal back = метал-бак
- Ножка без цемента
- Новые пары трения
- ---→ конечно цена !

Имеем ли лучшие результаты ?

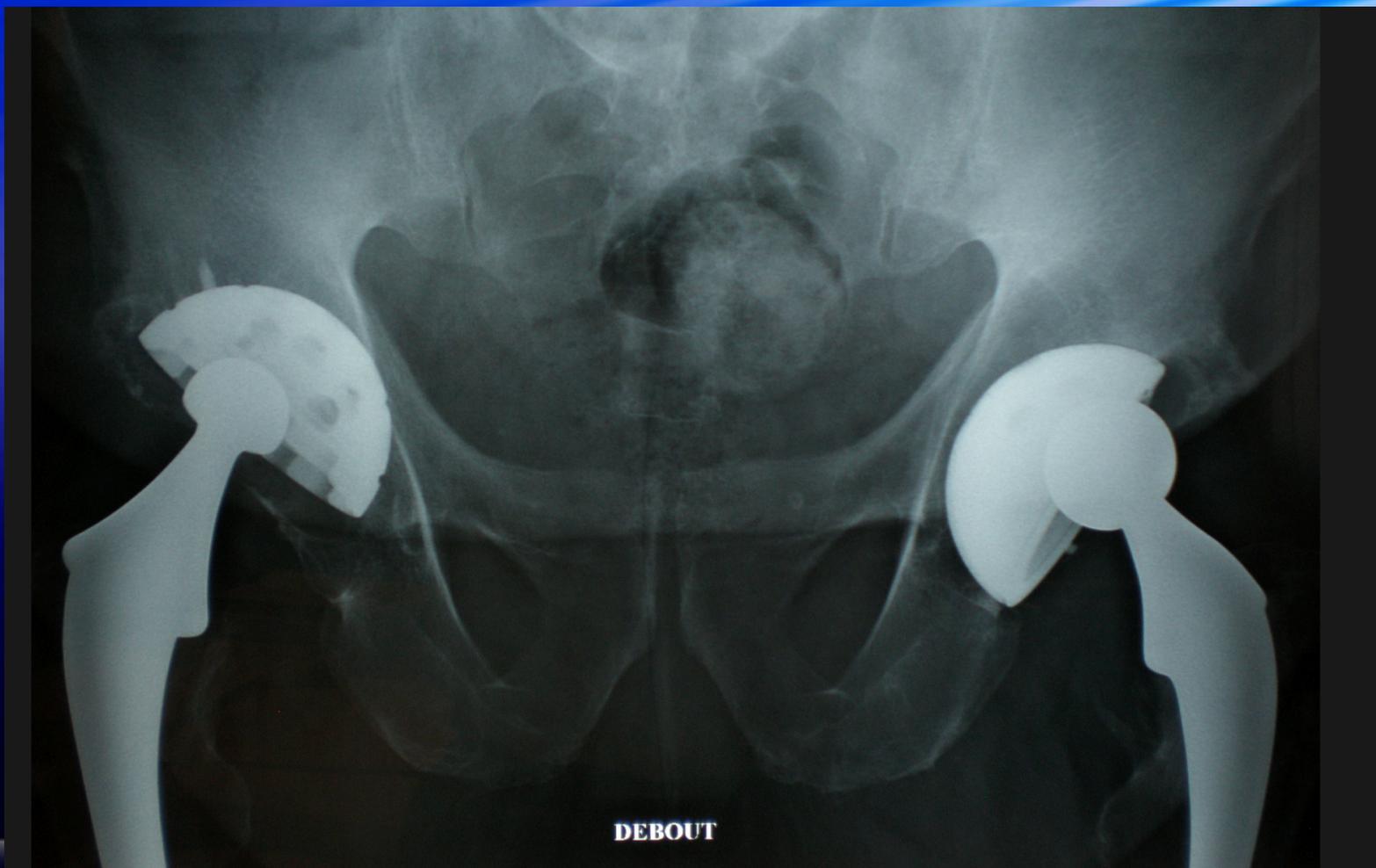
# SPOTORNO HARRIS TRILOGY

---



# Необычный износ

---



# ЛИТЕРАТУРА

## Показатели среднего износа по типам имплантатов МВ/РЕ

**Metal Backed**

**0,14 – 0,32**



**Средний износ : 0,17 мм/год**

**All poly- Charnley 22,2mm**

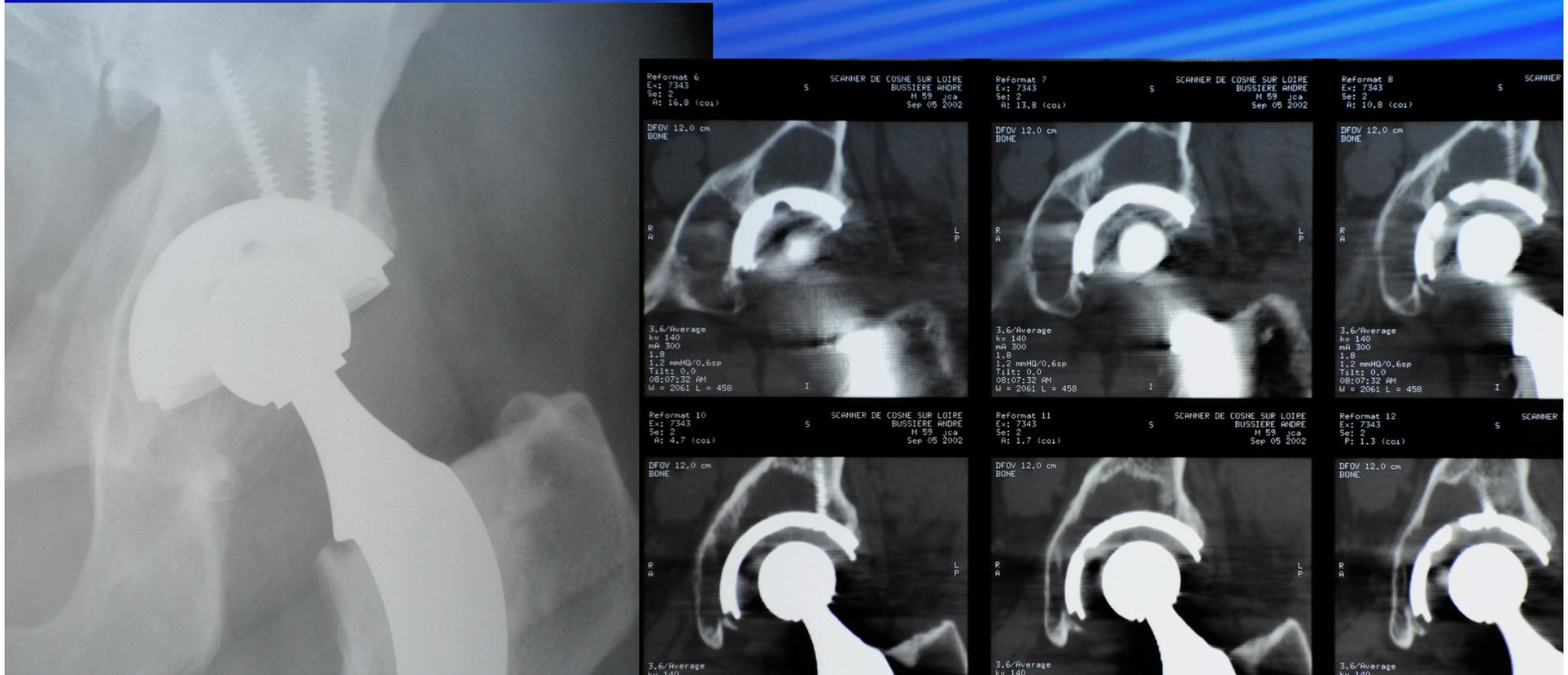
**0,065 – 0,090**



**Средний износ : 0,082 мм/год**

# Остеолиз

- Остеолиз встречается редко при 0.1 мм/год и теоретически отсутствует ниже 0.05 мм/год.



# Новшества

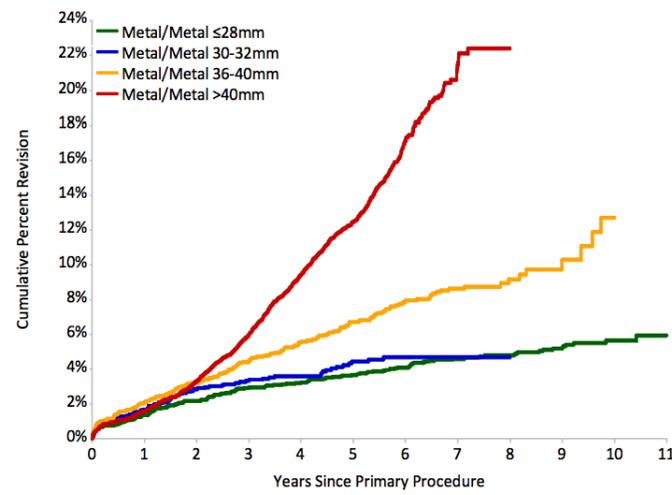
- Все новшества дороже
- Но
- Дают ли они преимущества ?

# METAL – METAL...



Dr Christian Delaunay

**Figure HT22: Cumulative Percent Revision of Metal/Metal Primary Total Conventional Hip Replacement by Head Size (Primary Diagnosis OA)**



HR - adjusted for age and gender

Metal/Metal 30-32mm vs Metal/Metal ≤28mm  
Entire Period: HR=1.22 (0.92, 1.61), p=0.171

Metal/Metal 36-40mm vs Metal/Metal ≤28mm  
Entire Period: HR=1.96 (1.58, 2.43), p<0.001

Metal/Metal >40mm vs Metal/Metal ≤28mm  
0 - 1Yr: HR=1.34 (1.02, 1.76), p=0.034  
1Yr - 2Yr: HR=2.55 (1.88, 3.45), p<0.001  
2Yr - 2.5Yr: HR=4.58 (3.04, 6.92), p<0.001  
2.5Yr - 3Yr: HR=4.07 (2.72, 6.08), p<0.001  
3Yr+: HR=8.73 (6.94, 10.99), p<0.001

Metal/Metal >40mm vs Metal/Metal 36-40mm  
0 - 2Yr: HR=0.90 (0.75, 1.09), p=0.288  
2Yr - 2.5Yr: HR=2.34 (1.58, 3.46), p<0.001  
2.5Yr - 3Yr: HR=2.07 (1.41, 3.04), p<0.001  
3Yr+: HR=4.45 (3.60, 5.50), p<0.001

# Керамика – керамика в два раза дороже

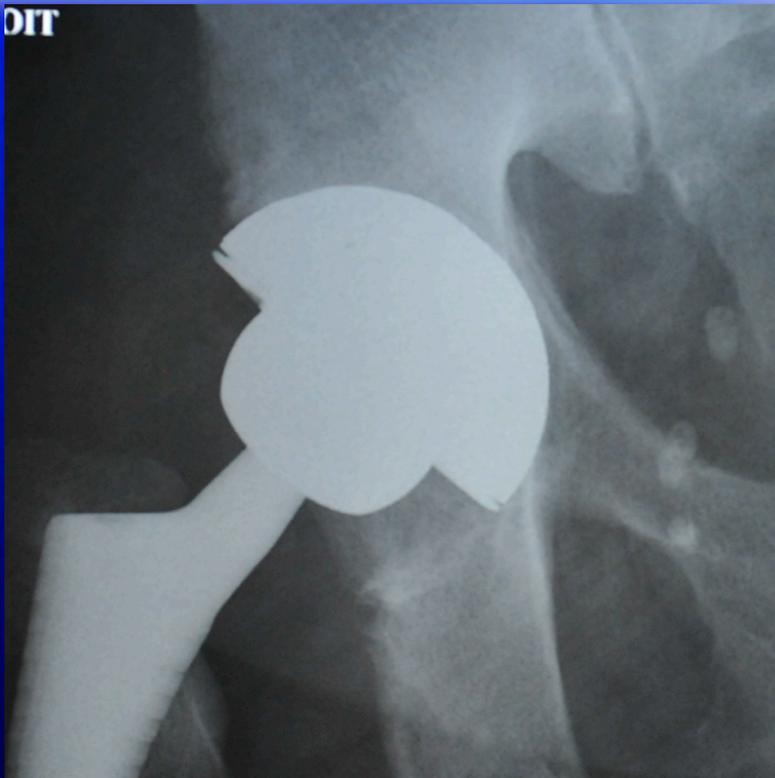
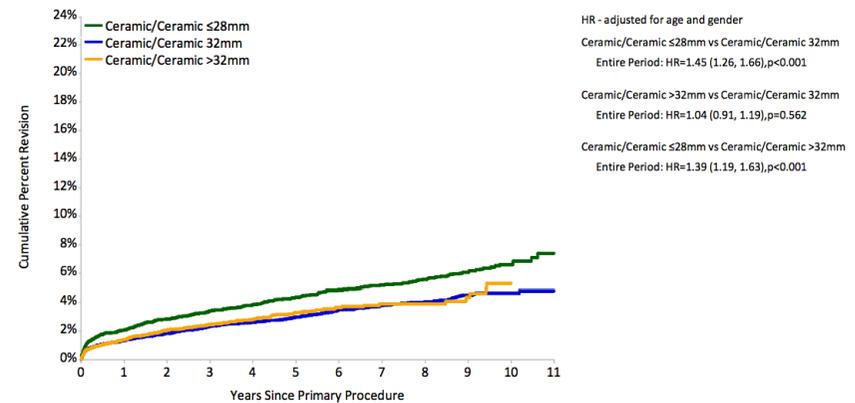
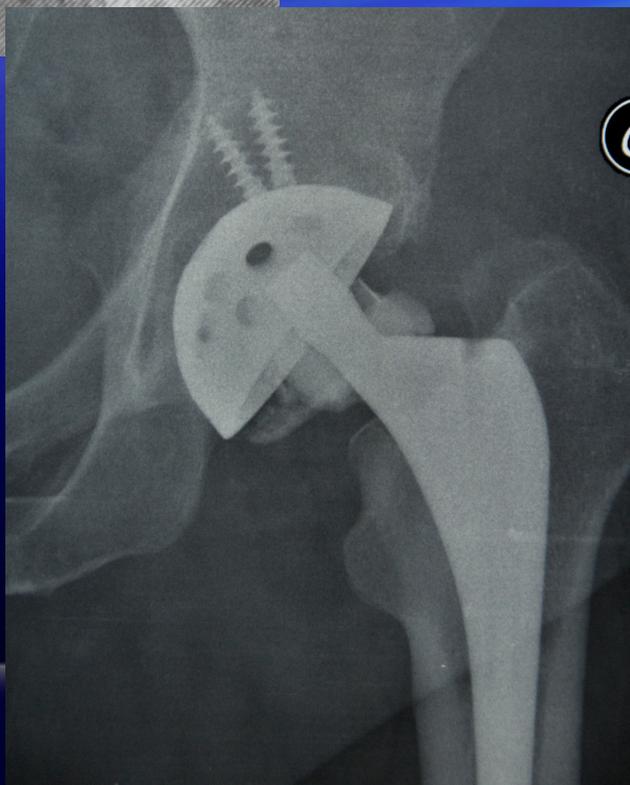


Figure HT32: Cumulative Percent Revision of Ceramic/Ceramic Primary Total Conventional Hip Replacement by Head Size (Primary Diagnosis OA)





# Новые РЕ

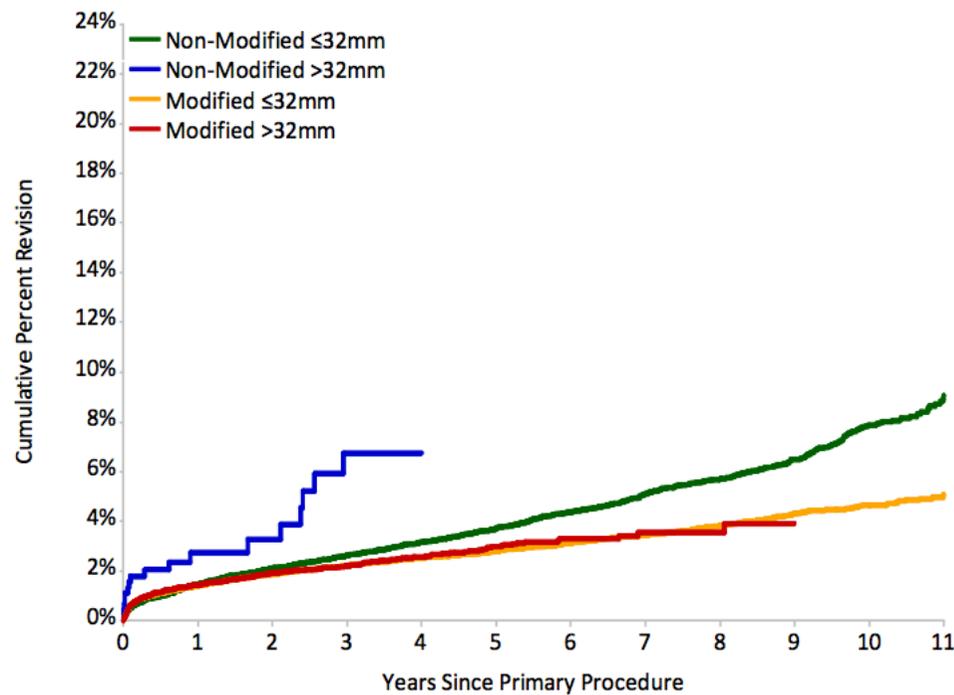
Теоретический прогресс  
Уменьшает износ  
Очень разные кросслинк ПЭ  
Ждем клинических результатов

**EFORT Congress** • Istanbul • 5-8 June 2013

**Vitamin E-enhanced polyethylene liners  
show low wear in THA performed for OA**

# Cross Link PE

**Figure HT30: Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Type of Polyethylene and Head Size (Primary Diagnosis OA)**



HR - adjusted for age and gender

Non-Modified ≤32mm vs Non-Modified >32mm  
Entire Period: HR=0.59 (0.37, 0.93), p=0.024

Non-Modified >32mm vs Modified >32mm  
Entire Period: HR=2.42 (1.51, 3.86), p<0.001

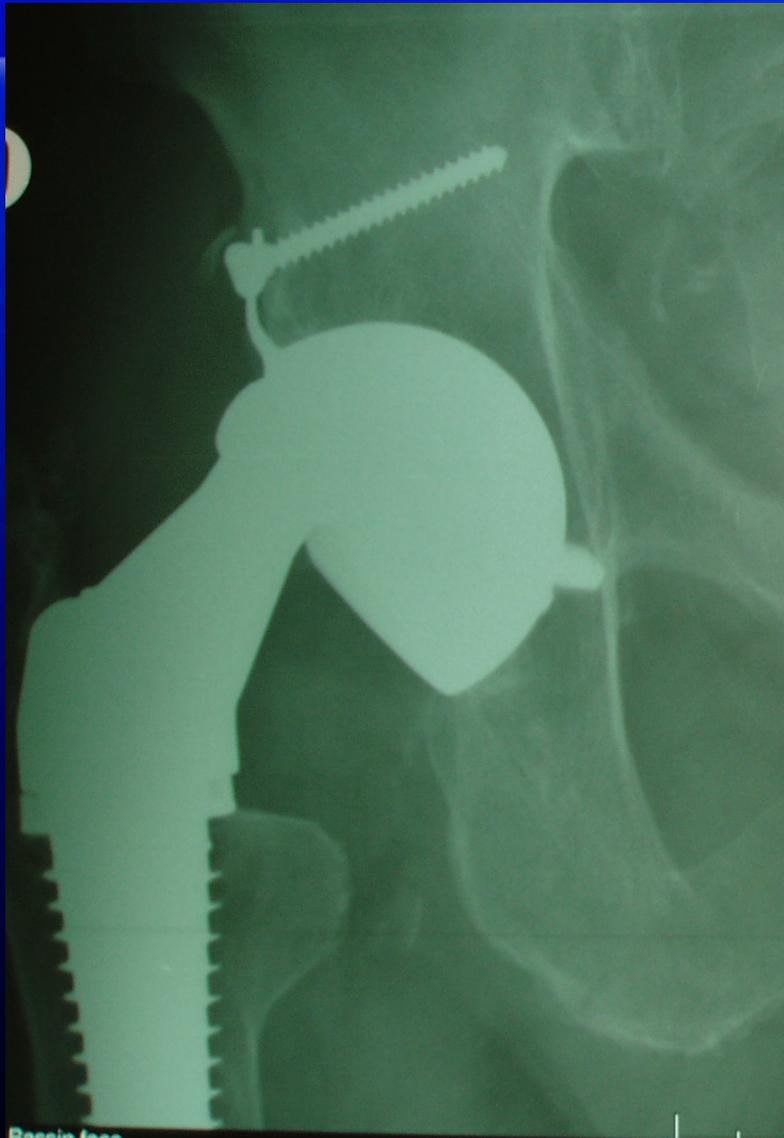
Non-Modified ≤32mm vs Modified ≤32mm  
0 - 3Mth: HR=0.83 (0.70, 0.99), p=0.043  
3Mth - 9Mth: HR=1.29 (1.03, 1.63), p=0.028  
9Mth - 6.5Yr: HR=1.66 (1.50, 1.84), p<0.001  
6.5Yr+: HR=2.34 (1.94, 2.82), p<0.001

Modified ≤32mm vs Modified >32mm  
Entire Period: HR=1.00 (0.90, 1.10), p=0.992

# Слишком много разных материалов



# Двойная мобильность



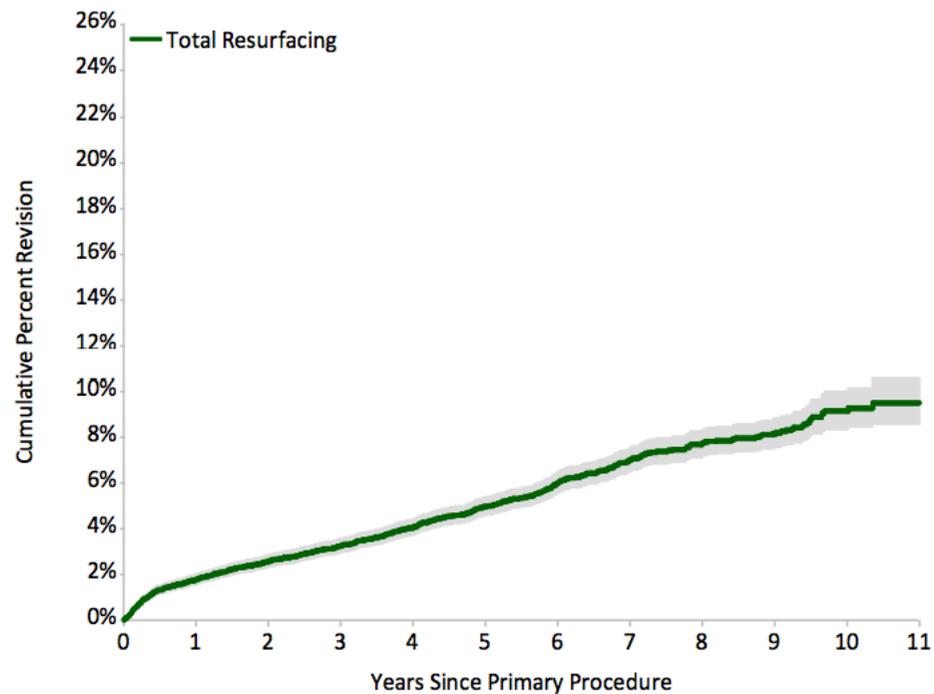
Racine Inc  
07/10/13



Page 21

# Ресурфасинг

Figure HT35: Cumulative Percent Revision of Primary Total Resurfacing Hip Replacement (Primary Diagnosis OA)



# Модулярность - офсэт?

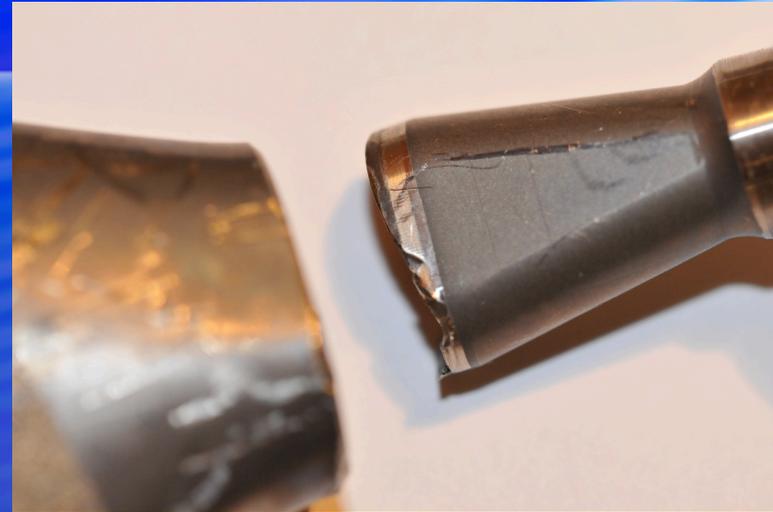
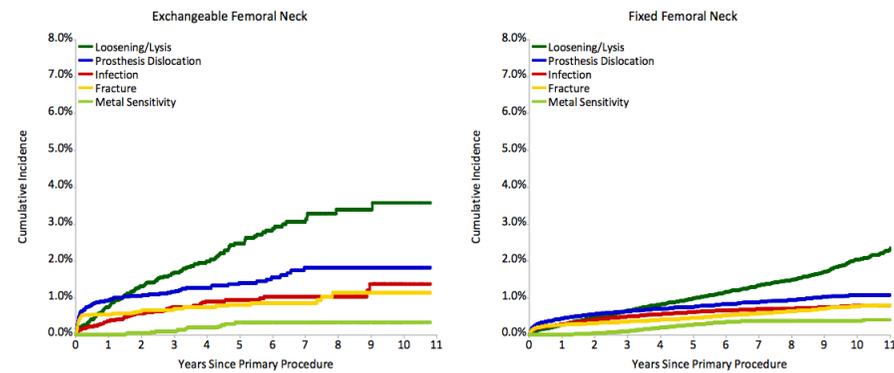


Figure HT18: Revision Diagnosis Cumulative Incidence of Primary Total Conventional Hip Replacement by Type of Femoral Neck (Primary Diagnosis OA)



# Эволюция наших привычек

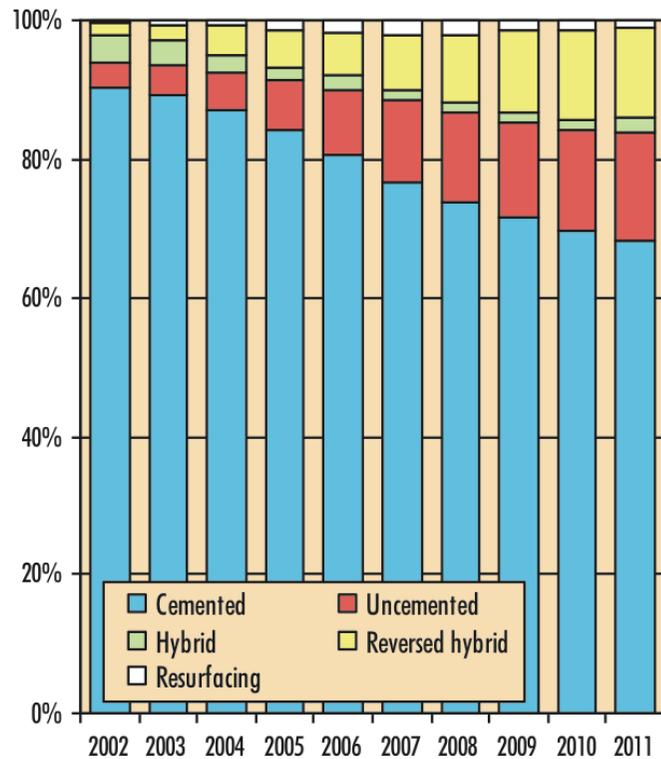


Figure 4. Distribution of prosthetic types 2002-2011. During 2011 the long term trend of frequently using uncemented prostheses continued.

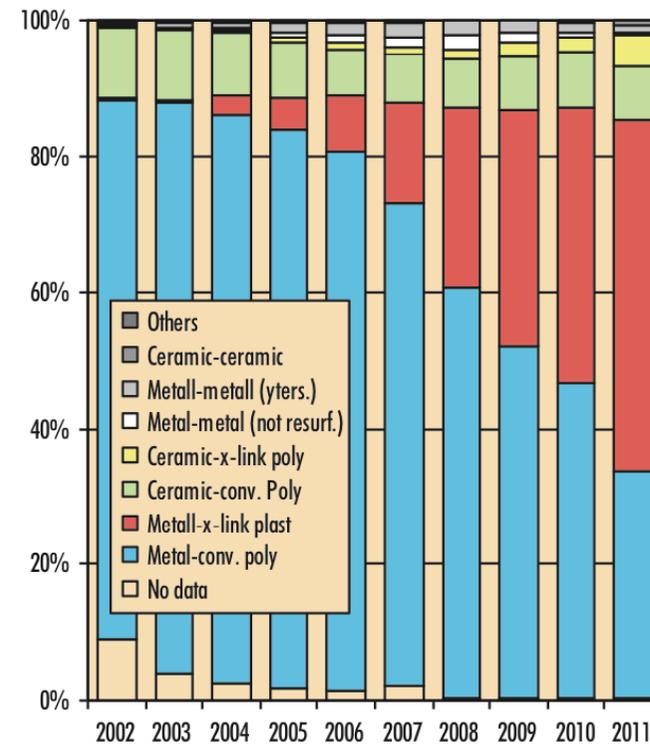
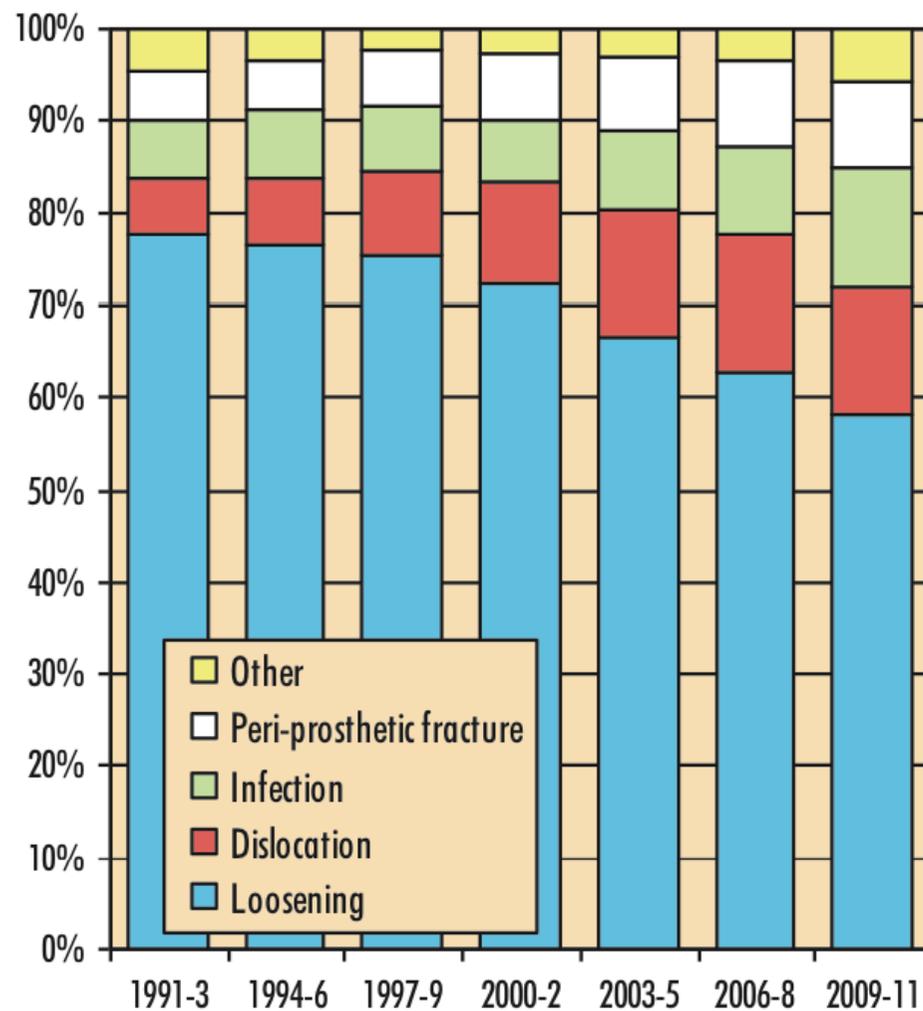


Figure 5. Type of joint inserted during the last 10-year period regardless of implant type. Highly cross-linked polyethylene is used all the more often.

# И приходят новые осложнения...



# Революция

- Хирург – экономически ответственный
- Перед пациентом
- Перед государством...



**HAS**

HAUTE AUTORITÉ DE SANTÉ

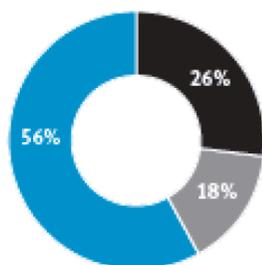
ÉVALUATION DES PROTHÈSES DE HANCHE

*RÉVISION DES DESCRIPTIONS GÉNÉRIQUES DE LA LISTE DE PRODUITS ET  
PRESTATIONS REMBOURSABLES « IMPLANTS ARTICULAIRES DE HANCHE »*

SEPTEMBRE 2007

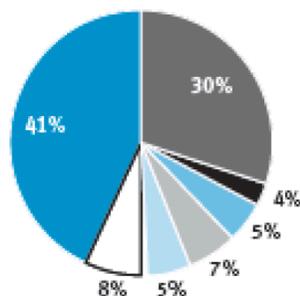
# США : КАРТЕЛЬ...

## Sales by Geographic Segment



	2008	2009	2010	2011	2012	% Change 2011-2012	
						Reported	Constant Currency <sup>(1)</sup>
Americas	\$2,354	\$2,372	\$2,432	\$2,441	\$2,476	1%	2%
Europe	1,179	1,119	1,099	1,214	1,178	-3%	3%
Asia Pacific	588	604	689	797	818	3%	3%
Consolidated	\$4,121	\$4,095	\$4,220	\$4,452	\$4,472	0%	2%

## Sales by Product Category



	2008	2009	2010	2011	2012	% Change 2011-2012	
						Reported	Constant Currency <sup>(1)</sup>
Reconstructive	\$3,162	\$3,120	\$3,202	\$3,344	\$3,331	0%	1%
Knees	1,761	1,756	1,790	1,825	1,815	-1%	1%
Hips	1,280	1,228	1,262	1,356	1,342	-1%	1%
Extremities	121	136	150	163	174	6%	8%
Dental	227	205	219	248	238	-4%	-2%
Trauma	222	235	246	286	308	8%	9%
Spine	230	253	234	225	209	-7%	-6%
Surgical & Other	280	282	319	349	386	11%	12%
Consolidated	\$4,121	\$4,095	\$4,220	\$4,452	\$4,472	0%	2%

# The New York Times

## In Need of a New Hip, but Priced Out of the U.S.

By ELISABETH ROSENTHAL | Published: August 3, 2013

-> New-York: 100 000 \$

-> Бельгия : 13 000 \$

-> такой же протез, такая же операция !

- 350 \$ стоимость производства протеза в США
- 150 \$ в Азии
  
- Специфическое колено « Gender » : + 800 \$
- AAOS: « нету клинических преимуществ »

“Imagine you’re the C.E.O. of Zimmer,” he said. “Why charge \$1,000 for the implant in the U.S. when you can charge \$14,000? How would you answer to your shareholders?”

**The New York Times**

# Цена совсем искусственная

- Средняя цена в США ТБ: 7200 \$ (2010)
- Средняя цена в Германии: 1600 \$
- - и результат лучше в США ?
- ТБ: 4000 \$ в Бельгии -→ 8000 à 12000\$ такой же в США

Robinson et al: Variability in costs associated with total hip and knee replacement implants. JBJS Am. 2012;94:1693-98

# Цена исследования

- Ортопедическая промышленность 5%
- Фармакологическая промышленность : 20 %

undercut the competition. In 2011, all three manufacturers had joint implant sales exceeding \$1 billion and spent about only 5 percent of revenues on research and development, compared with 20 percent in the pharmaceutical industry, said Stan Mendenhall, the editor of Orthopedic Network News. They each paid their chief executives over \$8 million.

**The New York Times**

**заклЮчение**

# Качество : Может ли статистика показать улучшение ?

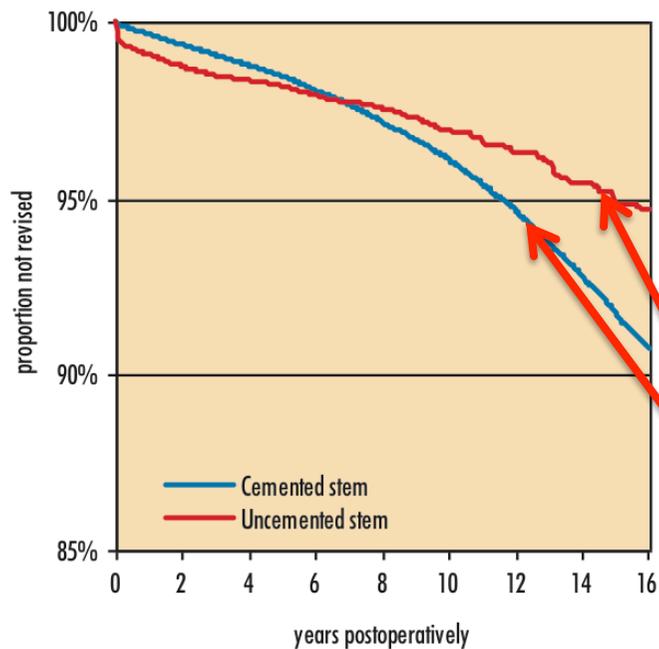


Figure 9. Unadjusted implant survival for cemented and uncemented stem based on stem revision with or without simultaneous cup revision regardless of cause.

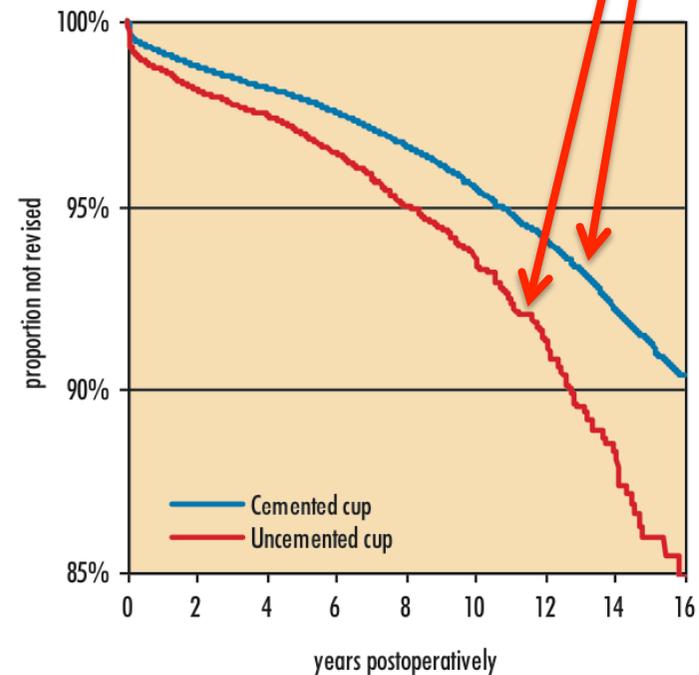
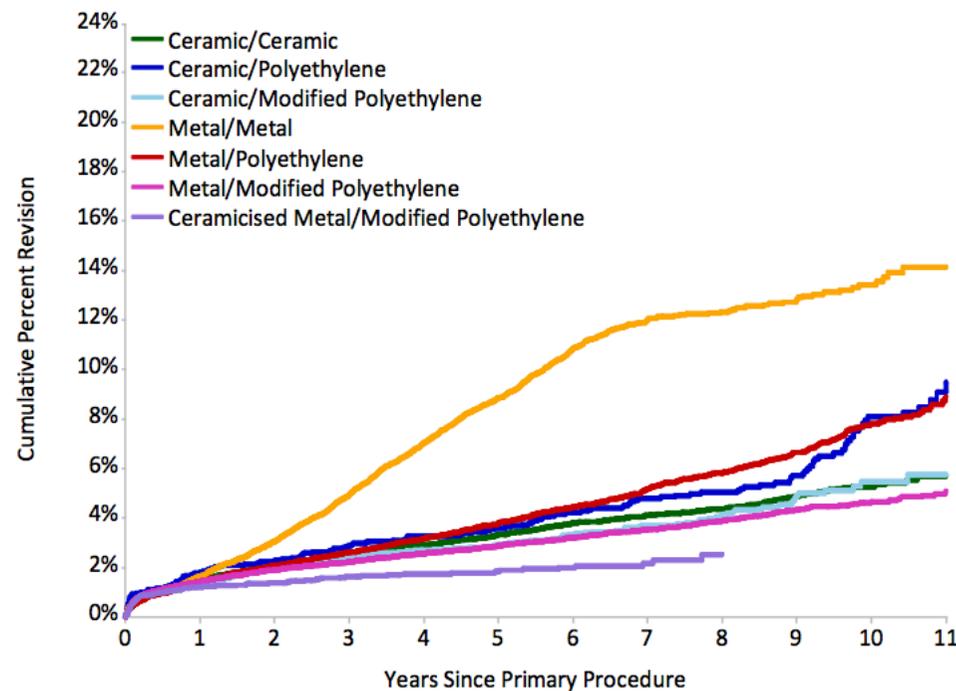


Figure 8. Unadjusted implant survival for cemented and uncemented cup based on cup revision with or without simultaneous stem reoperation regardless of cause.

# Качество : Мы быстро узнаем что плохо !

Figure HT19: Cumulative Percent Revision of Primary Total Conventional Hip Replacement by Bearing Surface (Primary Diagnosis OA)



## Последствия: ужасные... для ортопедов

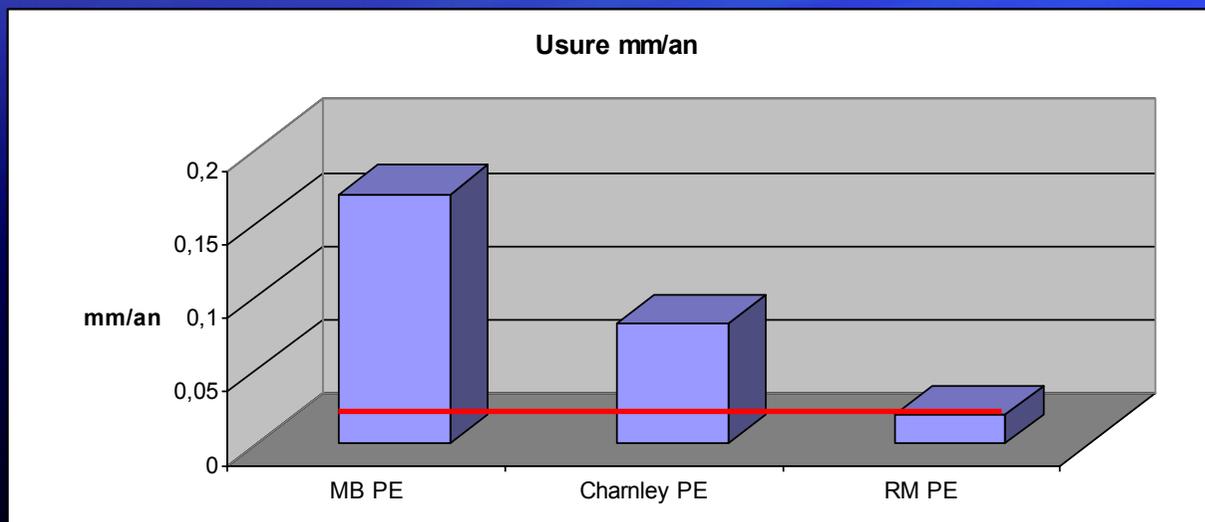
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- Германия: самая низкая цена в Европе, активность снизилась на 10%
- Франция – цены уменьшились на 10 %
- Государство выбирает для нас !!!
- Например для пара трения керамика кросс-линк полиэтилен во Франции государство не возвращает деньги !

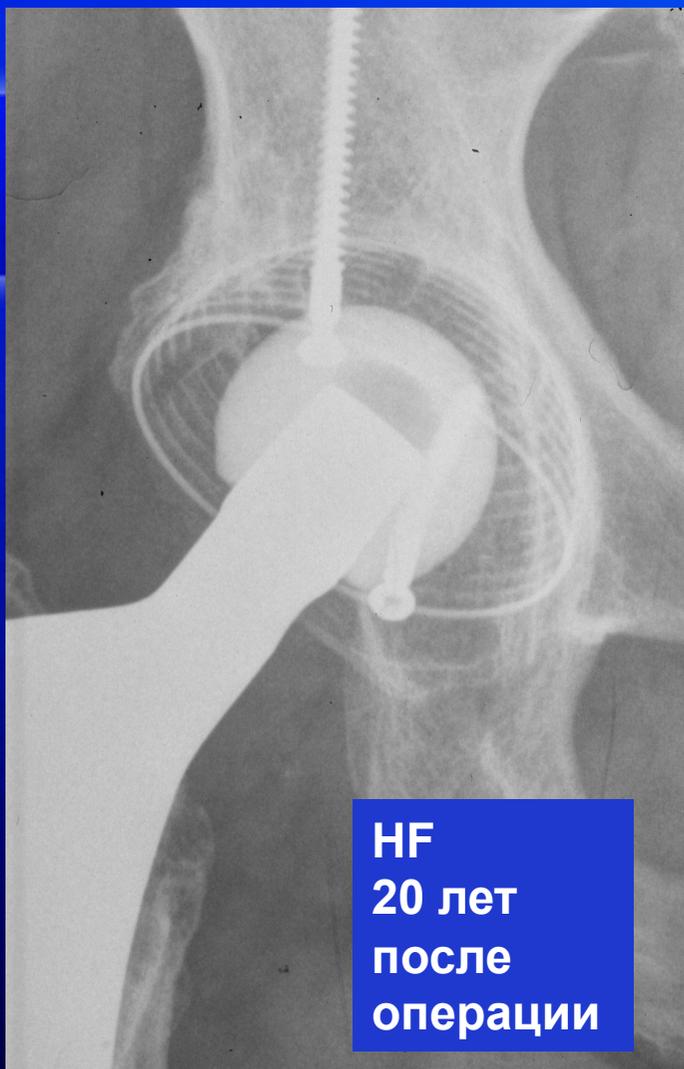
# Решения?



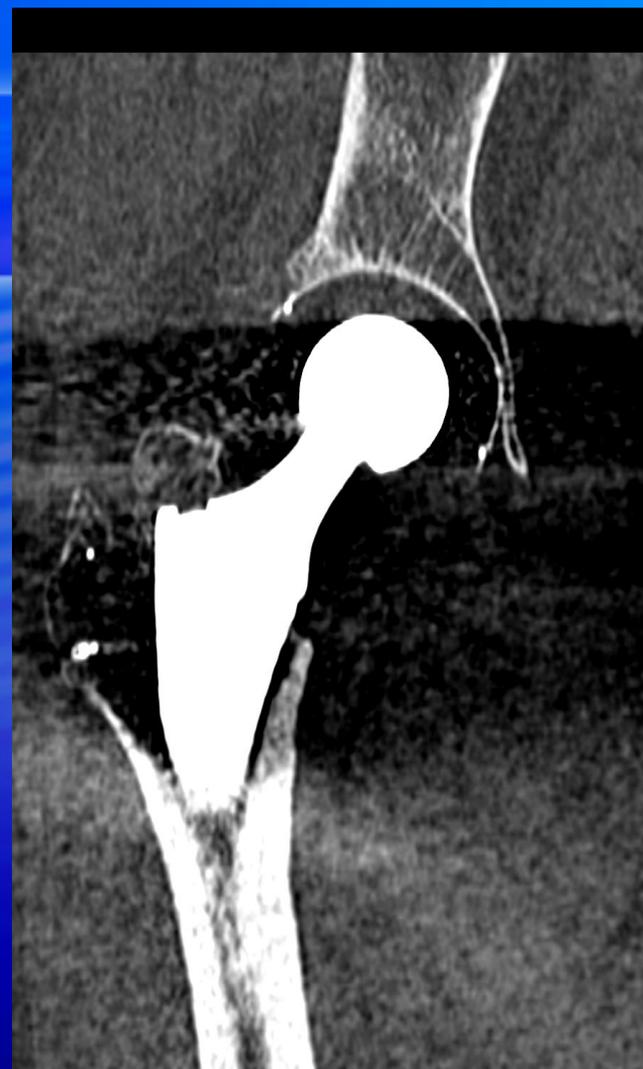
RM 1975–2013



Lemaire (Maîtrise Orthopédique 158 (2), Nov. 2006 )



HF  
20 лет  
после  
операции



Швейцария очень любит Россию, потому что это чашка в два раза дешевле в России чем во Франции

1977

1 400 000



# БЛАГОДАРЮ ЗА ВНИМАНИЕ !

