



# When to Choose DAIR :

Evidence-Based Approaches for  
Infection Resolution

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# Disclosures



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University of Airlangga,  
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DePuy Synthes  
Zimmer Biomet  
Gruppo Bioimpianti

## Editorial Board / Reviewer

Bone Joint Journal, CORR, BJO,  
J Arthroplasty, AJSM, OJSM, VJSM, KSSTA,  
JISAKOS, Knee, JOS, KSRR



## First Vice President | 2024 - 2025

Asia Pacific Orthopaedic Association  
(APOA)

## Founding Godfather

ISAKOS Global Connection

## President | 2019 - 2022

Arthroplasty Society in Asia (ASIA)

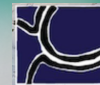
## President | 2019 - 2022

Asia Pacific Knee Society (APKS)

## President | 2020 - 2022

Asia Pacific Arthroplasty Society (APAS)

# Treatment Options For PJI



**Antibiotics Suppression Alone**

**Debridement, Antibiotics, & Implant Retention (DAIR)**

**Single Stage Revision**

**Two Stage Revision**



**Resection  
Arthroplasty**



**Arthrodesis**



**Amputation**





# One Stage Revision in Appropriate Patients

## Social and economic advantages :

- Only one operation
- Shorter hospitalization
- Earlier return to activity
- Higher satisfaction rates
- Better early function
- No price to pay in terms of reinfection thus far

**Eradication rate : 83-93%**

If patients are given the odds, they will choose to have a single procedure

**Mostly popular in Europe**







# One Stage

## Exchange Arthroplasty



### Indications

- **Effective antibiotics**
- **No sepsis**



### Relative Contraindications

- **No identified organisms**
- **Presence of sinus tract**
- **Severe soft tissue involvement which needs flap coverage**



## ■ ARTHROPLASTY

# One-stage revision is as effective as two-stage revision for chronic culture-negative periprosthetic joint infection after total hip and knee arthroplasty

A RETROSPECTIVE COHORT STUDY

J. van den Kieboom,  
V. Tirumala,  
H. Box,  
R. Oganessian,  
C. Klemm,  
Y-M. Kwon

### Conclusion:

One-stage revision arthroplasty demonstrated **similar outcomes including reinfection, re-revision & readmission** rates for the treatment of chronic culture-negative PJI after TKA and THA compared to two-stage revision

**Culture negativity may not be a contraindication to one-stage revision**

# One Stage Exchange

## Pitfalls



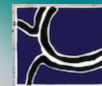
- **How radical a debridement is necessary ?**
- **Are fully cemented stems required ?**



**Fully cemented stems are difficult and destructive to remove**



# One Stage vs Two Stage Revision



## Complications - Infection

### Is 2-Stage Septic Revision Worth the Money? A Cost-Utility Analysis of a 1-Stage Versus 2-Stage Septic Revision of Total Knee Arthroplasty

Charles E. Okafor, MPharm<sup>a, b, \*</sup>, Son Nghiem, PhD<sup>c</sup>, Joshua Byrnes, PhD<sup>a, b</sup>

<sup>a</sup> Centre for Applied Health Economics, School of Medicine and Dentistry, Griffith University, Queensland, Australia

<sup>b</sup> Menzies Health Institute, Griffith University, Queensland, Australia

<sup>c</sup> Department of Health Services, Research and Policy, Australian National University, Canberra, Australia

*J Arthroplasty, 2022*

### Single vs 2-Stage Revision for the Treatment of Periprosthetic Joint Infection

Beau J. Kildow, MD<sup>a</sup>, Craig J. Della-Valle, MD<sup>b</sup>, Bryan D. Springer, MD<sup>a, \*</sup>

<sup>a</sup> OrthoCarolina Hip and Knee Center, Charlotte, North Carolina

<sup>b</sup> Department of Orthopaedic Surgery, Rush University, Chicago, Illinois

*J Arthroplasty, 2020*

## Conclusions

**The adoption of one-stage septic knee revision is the optimal choice** for patients who have a PJI and who do not have a compelling need for a two-stage exchange arthroplasty


**One-stage exchange for PJI should be advocated**

# One Stage Exchange Arthroplasty Gaining Popularity in US




The Journal of Arthroplasty 37 (2022) 936–941

Contents lists available at [ScienceDirect](#)



The Journal of Arthroplasty

journal homepage: [www.arthroplastyjournal.org](http://www.arthroplastyjournal.org)



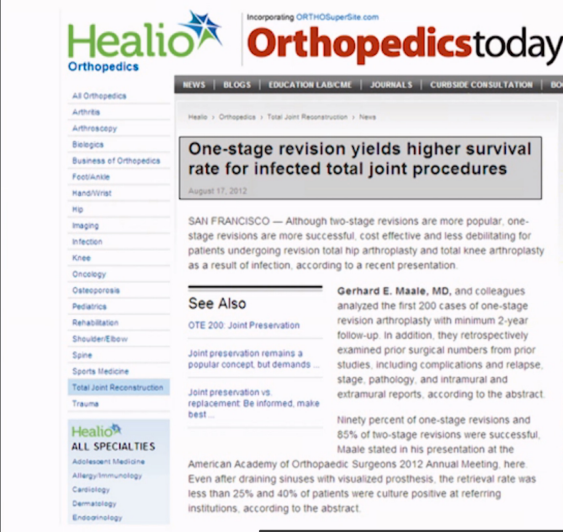
Complications - Infection

## Survival and Outcomes of 1.5-Stage vs 2-Stage Exchange Total Knee Arthroplasty Following Prosthetic Joint Infection

Austin Nabet, DO, Oliver C. Sax, DO, MS, Roni Shanoada, BS, Janet D. Conway, MD, Michael A. Mont, MD, Ronald E. Delanois, MD, James Nace, DO\*

*Rubin Institute for Advanced Orthopedics, Sinai Hospital of Baltimore, Baltimore, MD*

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### One-stage revision yields higher survival rate for infected total joint procedures

August 17, 2012

SAN FRANCISCO — Although two-stage revisions are more popular, one-stage revisions are more successful, cost effective and less debilitating for patients undergoing revision total hip arthroplasty and total knee arthroplasty as a result of infection, according to a recent presentation.

**See Also**

- OTE 200 Joint Preservation
- Joint preservation remains a popular concept, but demands...
- Joint preservation vs. replacement: Be informed, make best...

**Gerhard E. Maale, MD,** and colleagues analyzed the first 200 cases of one-stage revision arthroplasty with minimum 2-year follow-up. In addition, they retrospectively examined prior surgical numbers from prior studies, including complications and relapse, stage, pathology, and intramural and extramural reports, according to the abstract.

Ninety percent of one-stage revisions and 85% of two-stage revisions were successful, Maale stated in his presentation at the American Academy of Orthopedic Surgeons 2012 Annual Meeting, here. Even after draining sinuses with visualized prosthesis, the retrieval rate was less than 25% and 40% of patients were culture positive at referring institutions, according to the abstract.

**A 1.5-stage exchange TKA is an effective alternative to the traditional 2-stage protocols with noninferior infection eradication and absence of radiographic complications**



# Question :

## What Will You Do?

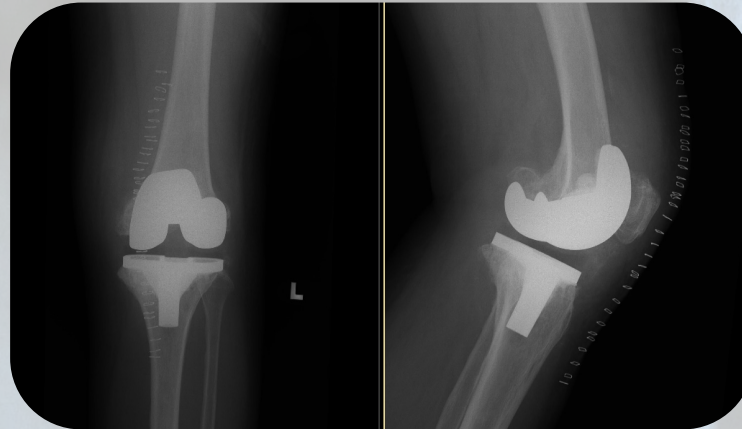
Two weeks post op primary TKR

**Female, 65 years old**

**Swollen knee, redness & warmth**

**CRP 106, ESR 120**

**Leukocyte 12.000**







# Single Stage Revision

VS

# Debridement, Antibiotics & Implant Retention (DAIR)

**Timing is very important**

# Revision Arthroplasty **for PJI**



***Significant challenge to both surgeons & patients***

- Reduce mobility & significant anesthetic
- Surgical risk

## ***Challenges for the surgeons :***

Removing a well-fixed prosthesis

Potentially compromise soft tissue envelope

Difficult reconstruction

Increase risk of peri / postoperative complication

**Implant retention without infection is the ideal end result of PJI treatment**

# Is DAIR The Solution ?



Clin Orthop Relat Res (2011) 469:3043–3048  
DOI 10.1007/s11999-011-1910-2

SYMPOSIUM: PAPERS PRESENTED AT THE 2010 MEETING OF THE MUSCULOSKELETAL  
INFECTION SOCIETY

## Infection Control Rate of Irrigation and Débridement for Periprosthetic Joint Infection

Loukas Koyonos MD, Benjamin Zmistowski BS,  
Craig J. Della Valle MD, Javad Parvizi MD, FRCS

***... performed at relatively high rates despite an inability to consistently control infection***

***... the use of I&D for PJI is still a source of controversy***

***“... should be performed for acute post-op & acute delayed infections...”***



# Is DAIR **The Solution** ?



Why surgeons prefer DAIR?



**1**

**Lower morbidity**

**2**

**Bone preserving procedure**

**3**

**Reduce hospital LOS**

**4**

**Less technical demand than one stage / two stage**

**5**

**Significant decrease in economic burden**

# Irrigation & Debridement (**DAIR**)



Must **decrease burden of biofilm** so perioperative antimicrobial therapy can eradicate all remaining infection

Crucial to **identify culprit agent** through aspiration prior to surgery

**Antibiotics withheld** until representative samples identified

# Imaging Investigation Is Very Important !!!

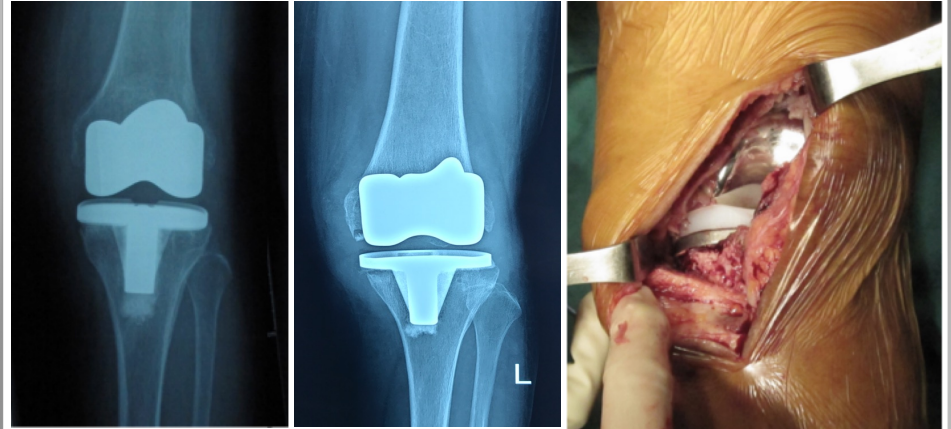


Rarely show evidence of infection

Periosteal reaction

Loose implants

Bone resorption may indicate  
compromised prosthetic  
stability





# DAIR on Early PJI



Journal of ISAKOS xxx (xxxx) xxx



Contents lists available at ScienceDirect

Journal of ISAKOS

journal homepage: [www.elsevier.com/locate/jisakos](http://www.elsevier.com/locate/jisakos)



Systematic Review

Debridement, antibiotics, and implant retention (DAIR) for the early prosthetic joint infection of total knee and hip arthroplasties: a systematic review

Umile Giuseppe Longo<sup>a,b,\*</sup>, Sergio De Salvatore<sup>a,b</sup>, Benedetta Bandini<sup>a,b</sup>, Alberto Lalli<sup>a,b</sup>, Bruno Barilà<sup>a,b</sup>, Nicolaas Cyrillus Budhiparama<sup>c</sup>, Sebastien Lustig<sup>d</sup>



## CONCLUSIONS:

- DAIR is still considered **an effective option for early post-operative or acute hematogenous PJI**
- Success rates for the DAIR treatments **ranged from 55.5% up to a maximum of 90% (mean value of 71%)**
- **There are only few studies, especially RCTs, comparing DAIR with one- and two-stage revisions for early PJIs, showing a need for more high-quality research**

# DAIR Success Rate



## Highly variable due to :

- Lack of consistency for definition of acute infection
- No consecutive series
- Multiple surgeons in a single study

Author	Number of infected joints	Weeks to irrigation	Polyexchange performed	Retention rate
Brandt et al., 1999 [3]	33	23 pts > 4, 10 pts < 4		12 (36%)
Burger et al., 1991 [5]	39	14.3 (0.14–114.4)		7 (18%)
Chiu and Chen, 2007 [6]	40	73.7 (1.29–311.76)	40	12 (30%)
Deirmengian et al., 2003 [9]	31	104 (2.28–364)	10	11 (35%)
Mont et al., 1997 [19]	24	10 pts < 4, 14 pts 26–307	21	20 (83%) [10(100%) early infx, 10(71%) late infx]
Morrey et al., 1989 [21]	10			8 (80%)
Rasul et al., 1991 [22]	15 (6 superficial, 9 deep)	21.3 (1–156)		9 (60%) [6(100%) superficial, 3(33%) deep]
Segawa et al., 1999 [26]	41	30 pts < 4, 11 pts > 4	41	24 (59%) [23(77%) early, 1 (9%) late]
Tsukayama et al., 1996 [29]	41	< 4	41	28 (68%)

# Decision to **Retain Implant**



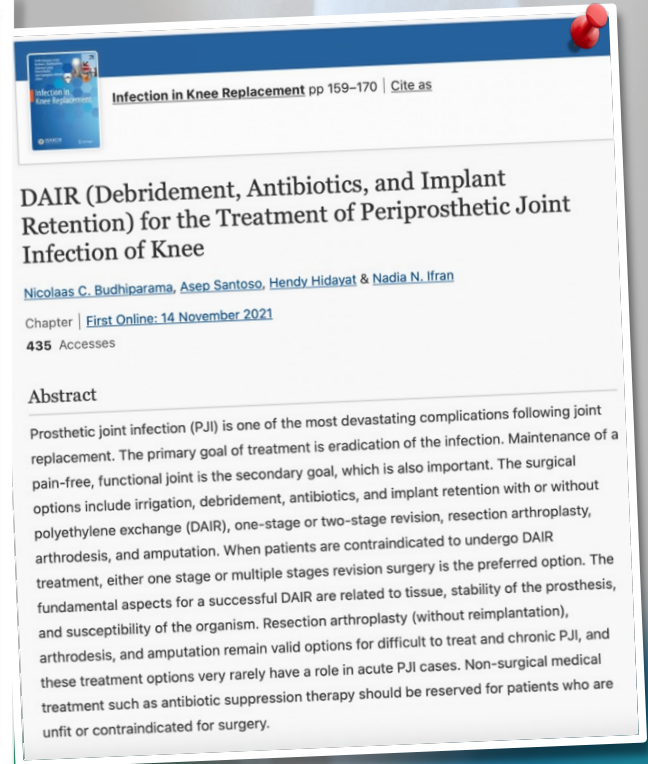
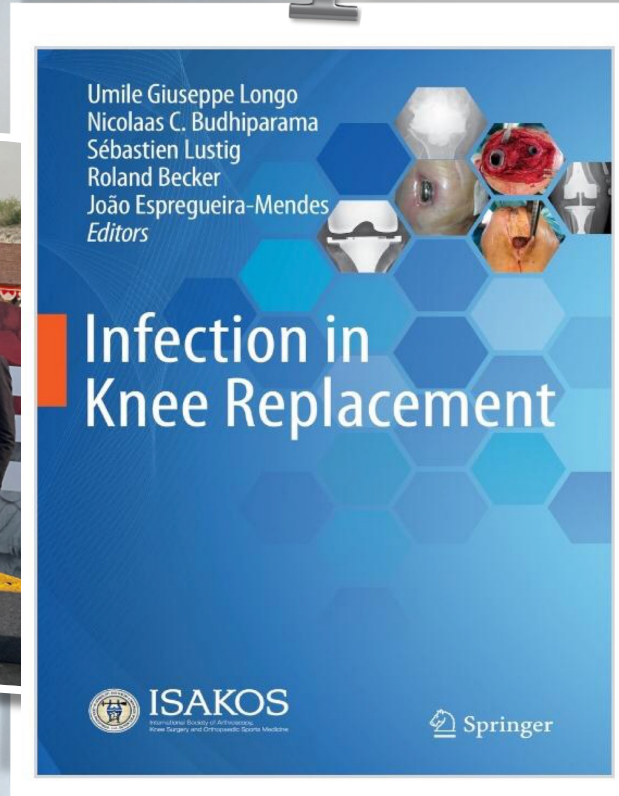
**Depends on :**

- **Not immunocompromised**
- **PJI caused by low virulent organism**
- **Biofilm containment**

***Crucial to eradicate biofilm within a short time frame  
before it attaches to the implant***



# Predictor of DAIR Success



# International Consensus Meeting 2018



The Journal of Arthroplasty xxx (2018) 1–21



Contents lists available at [ScienceDirect](#)

The Journal of Arthroplasty

journal homepage: [www.arthroplastyjournal.org](http://www.arthroplastyjournal.org)



## Hip and Knee Section, Treatment, Debridement and Retention of Implant: Proceedings of International Consensus on Orthopedic Infections

Jean Noël Argenson <sup>1</sup>, Marius Arndt <sup>12</sup>, George Babis <sup>1</sup>, Andrew Battenberg <sup>2</sup>, Nicolaas Budhiparama <sup>2</sup>, Fabio Catani <sup>3</sup>, Foster Chen <sup>4</sup>, Brian de Beaubien <sup>5</sup>, Ayman Ebied <sup>9</sup>, Silvano Esposito <sup>7</sup>, Christopher Ferry <sup>5</sup>, Henry Flores <sup>3</sup>, Andrea Giorgini <sup>3</sup>, Erik Hansen <sup>8</sup>, K.D. Hernugrahanto <sup>2</sup>, Choe Hyonmin <sup>6</sup>, Tae-Kyun Kim <sup>9</sup>, In Jun Koh <sup>9</sup>, Georgios Komnos <sup>10</sup>, Christian Lausmann <sup>12</sup>, Jeremy Loloï <sup>5</sup>, Jaime Lora-Tamayo <sup>11,12</sup>, I. Lumban-Gaol <sup>2</sup>, F. Mahyudin <sup>2</sup>, Mikel Mancheno-Losa <sup>11,12</sup>, Camelia Marculescu <sup>9</sup>, Sameh Marei <sup>6</sup>, Kimberly E. Martin <sup>5</sup>, Prashant Meshram <sup>9</sup>, Wayne G. Paprosky <sup>4</sup>, Lazaros Poultsides <sup>3</sup>, Arjun Saxena <sup>3</sup>, Evan Schwechter <sup>4</sup>, Jay Shah <sup>8</sup>, Noam Shohat <sup>6</sup>, Rafael J. Sierra <sup>1</sup>, Alex Soriano <sup>13</sup>, Anna Stefánsdóttir <sup>10</sup>, Linda I. Suleiman <sup>4</sup>, Adrian Taylor <sup>9</sup>, Georgios K. Triantafyllopoulos <sup>3</sup>, Dwikora Novembri Utomo <sup>2</sup>, David Warren <sup>12</sup>, Leo Whiteside <sup>5</sup>, Marjan Wouthuyzen-Bakker <sup>6,13,14</sup>, Jean Yombi <sup>14</sup>, Benjamin Zmistowski <sup>11</sup>

## Proceedings of the Second International Consensus Meeting on Musculoskeletal Infection

Chairmen:

Javad Parvizi, MD, FRCS  
Thorsten Gehrke, MD



# Indications for DAIR



**Patients with an acute infection (<3 weeks) or acute hematogenous infection of TKA <2 weeks of onset**

**Well fixed and well positioned prosthesis**

**Good soft tissue envelope**

**Patients with high risk of complication in more aggressive surgery**



# International Consensus Meeting 2018



## Delegates:

Wouthuyzen-Bakker, Marjan  
Ebied, Ayman  
Hyonmin, Choe  
Shohat, Noam

## Editor:

Parvizi, Javad

Co-Authors: Sameh Marei

HK-111 - DAIR INDICATIONS

HK-111 - What are the indications and contraindications of using debridement, antibiotics, and implant retention with modular components for the management of PJI?

## Rationale / Recommendation

- DAIR only performed when acute PJI exists < 3 weeks
- **KLIC and CRIME80 scores may help in stratifying risk (only for DAIR patients)**
- Extending the antibiotic before debridement does not increase the chance for cure

Delegate vote : Agree 80%; Disagree 18%; Abstain 2%

Super  
Majority →  
Strong  
Consensus

# AI as Predictor of DAIR Success Rate



N. Shohat,  
K. Goswami,  
T. L. Tan,  
M. Yayac,  
A. Soriano,  
R. Sousa,  
M. Wouthuyzen-  
Bakker,  
J. Parvizi,



■ THE HIP SOCIETY

**2020 Frank Stinchfield Award: Identifying  
who will fail following irrigation and  
debridement for prosthetic joint infection**

A MACHINE LEARNING-BASED VALIDATED TOOL

2020

**Risk Scores and Machine Learning  
to Identify Patients With Acute  
Periprosthetic Joints Infections  
That Will Likely Fail Classical  
Irrigation and Debridement**

Marjan Wouthuyzen-Bakker<sup>1\*</sup>, Noam Shohat<sup>2,3</sup>, Javad Parvizi<sup>4</sup> and Alex Soriano<sup>5</sup>

Frontiers, 2021

## Conclusions

**The developed algorithm provides the  
medical profession with a tool that can  
be employed in clinical decision-making  
and improve patient care**

**The use of machine learning as a tool for  
predicting outcomes following I&D  
surgery is beneficial**

# International Consensus Meeting **2018**



**Delegates:**  
Koh, In Jun  
Taylor, Adrian  
Kim, Tae-Kyun

**Editor:**  
Parvizi, Javad

**Coauthors:** Prashant Meshram

**HK-23 - MODULAR EXCH & DAIR SUCCESS**

**HK-23 - Does exchange of all modular components during debridement, antibiotic, and implant retention (DAIR) reduce the rate of SSI/PJI recurrence?**

## **Rationale / Recommendation**

- **86% success rate with modular component exchange** & 4x increase in eradication rate
- Better visualization in the posterior knee

Delegate vote : Agree 94%; Disagree 4%; Abstain 2%

**Super  
Majority →  
Strong  
Consensus**





M. Gerritsen,  
A. Khawar,  
H. Scheper,  
R. van der Wal,  
J. Schoones,  
M. de Boer,  
R. Nelissen,  
B. Pijls

From Leiden University  
Medical Center, Leiden,  
the Netherlands

BJO



## ■ SYSTEMATIC REVIEW

# Modular component exchange and outcome of DAIR for hip and knee periprosthetic joint infection

A SYSTEMATIC REVIEW AND META-REGRESSION ANALYSIS

BJO, 2021

## Conclusion

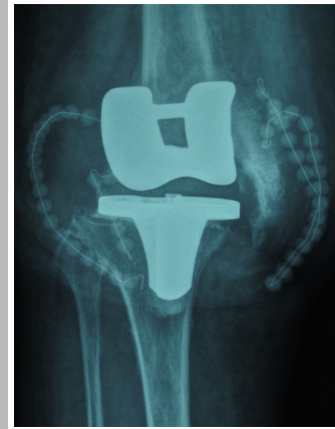
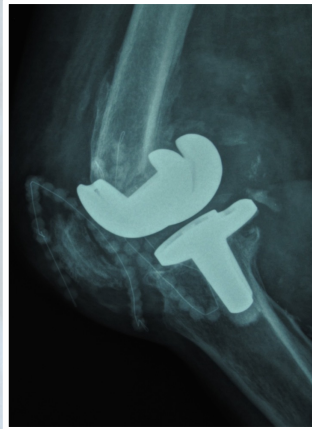
- **Study found no benefit of modular component exchange on reduction of PJI failure**
- **This suggests the effect seen after 2004 may reflect a more rigorous, evidence-based, approach to the infected implant compared to the years before**

# Controversies of DAIR



1. Failure in DAIR Effecting Subsequent Revision ?

2. Antibiotic Duration ?



# International Consensus Meeting **2018**



**Authors:** Fabio Catani, Lazaros Poultsides, Henry Flores, Andrea Giorgini, Georgios K. Triantafyllopoulos, Arjun Saxena

**QUESTION 11:** How many debridement, antibiotics and implant retention (DAIR) procedure(s) are acceptable in management of patients with acute periprosthetic joint infection (PJI) of a primary arthroplasty before removal of components needs to be performed?

**RECOMMENDATION:** After one failed DAIR procedure, strong consideration should be given to removal of components.

**LEVEL OF EVIDENCE:** Limited

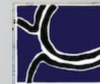
**DELEGATE VOTE:** Agree: 86%, Disagree: 13%, Abstain: 1% (Super Majority, Strong Consensus)

**After one failed DAIR procedure**

- Strong consideration should be given to **removal of components**



# Second DAIR Should be Considered



The Journal of Arthroplasty 35 (2020) 2204–2209



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The Journal of Arthroplasty

journal homepage: [www.arthroplastyjournal.org](http://www.arthroplastyjournal.org)



Complications - Infection

A Second Surgical Debridement for Acute Periprosthetic Joint Infections Should Not Be Discarded

Check for updates

Marjan Wouthuyzen-Bakker, MD, PhD <sup>a,\*</sup>, Claudia A.M. Löwik, PhD <sup>b</sup>,  
Joris J.W. Ploegmakers, MD, PhD <sup>b</sup>, Bas A.S. Knobben, MD <sup>c</sup>, Baukje Dijkstra <sup>d</sup>,  
Astrid J. de Vries <sup>e</sup>, Glen Mithoe, MD <sup>e</sup>, Greetje Kampinga, MD, PhD <sup>a</sup>,  
Wierd P. Zijlstra, MD, PhD <sup>d</sup>, Paul C. Jutte, MD, PhD <sup>b</sup>, on behalf of the Northern  
Infection Network Joint Arthroplasty (NINJA)



## CONCLUSION

- 455 DAIR, 144 underwent 2<sup>nd</sup> debridement, 37/144 **(25.7%) failed**
- **A second DAIR had a low failure rate** therefore, a second DAIR should not be discarded in acute PJI

# Second DAIR Should Be Considered



Complications - Infection

*The Journal of Arthroplasty* 34 (2019) 1214–1220

Failed Debridement and Implant Retention Does Not Compromise the Success of Subsequent Staged Revision in Infected Total Knee Arthroplasty

Katy Kim, BSc <sup>a</sup>, Mark Zhu, MBChB <sup>b</sup>, Alana Cavadino, PhD <sup>c</sup>,  
Jacob T. Munro, FRACS, PhD, MBChB <sup>b</sup>, Simon W. Young, FRACS, MD, MBChB <sup>a,\*</sup>

<sup>a</sup> Department of Orthopaedics, North Shore Hospital, Auckland, New Zealand

<sup>b</sup> Department of Orthopaedics, Auckland Hospital, Auckland, New Zealand

<sup>c</sup> Section of Epidemiology and Biostatistics, The University of Auckland, Auckland, New Zealand

- 75 patients with 2 stage rTKA, 228 with a prior I&D
- After 6.2 years, success rate 72% for I&D group vs 81% w/o I&D group

## Conclusion :

**Study suggested that a previously failed DAIR does not compromise the success rate of subsequent staged revision**

# Second DAIR

## Success Rate ??



**JB&JS**  
ESSENTIAL SURGICAL TECHNIQUES

### SUBSPECIALTY PROCEDURES

## THE DOUBLE DAIR: A 2-STAGE DEBRIDEMENT WITH PROSTHESIS-RETENTION PROTOCOL FOR ACUTE PERIPROSTHETIC JOINT INFECTIONS

Kade S. McQuivey, MD, Joshua Bingham, MD, Andrew Chung, DO, Henry Clarke, MD, Adam Schwartz, MD, Jordan R. Pollock, BS, Christopher Beauchamp, MD, Mark J. Spanghel, MD

## Conclusions :



**Approximately 5 to 6 days later, a second debridement is performed,** and the new modular, sterile components are implanted



**Through debridement is key to successful infection control**



# International Consensus Meeting 2018



**Delegates:**  
Lora-Tamayo, Jaime  
Warren, David

**Editor:**  
Citak, Mustafa  
Frommelt, Lars

**Co-Authors:** Mikel Mancheno-Losa,  
Marius Arndt, Christian Lausmann

**HK-138 - ABX AFTER DAIR**

**HK-138 - What is the optimal length of antibiotic treatment following debridement, antibiotics, and implant retention (DAIR) for acute PJI?**

## **Rationale / Recommendation**

**6 - 8 weeks of antibiotic therapy** seems to be sufficient in most PJI cases treated by DAIR

Delegate vote : Agree 91%; Disagree 9%; Abstain 1%

**Super  
Majority →  
Strong  
Consensus**

# Antimicrobial Management

## Post DAIR



### Staphylococcal Species

- 300-450 mg oral rifampicin twice daily + initial IV antibiotic
- Post IV: oral rifampicin + another antibiotics (ciprofloxacin / levofloxacin for 3-6 months for TKA)

### Antibiotic Duration


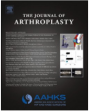
- **DAIR may require longer antibiotic use than in revision procedure**
- **Duration depends on the virulence of offending pathogen, the need for repeat procedures & host factors**



# Experience in a Large US Health Care System

The Journal of Arthroplasty xxx (2022) 1–8

Contents lists available at ScienceDirect

 The Journal of Arthroplasty 

journal homepage: [www.arthroplastyjournal.org](http://www.arthroplastyjournal.org)

Is There Harm in Debridement, Antibiotics, and Implant Retention Versus Two-Stage Revision in the Treatment of Periprosthetic Knee Infection? Experiences Within a Large US Health Care System

Stephen J. Huffaker, MD, PhD<sup>a</sup>, Heather A. Prentice, PhD<sup>b,\*</sup>, Matthew P. Kelly, MD<sup>c</sup>, Adrian D. Hinman, MD<sup>d</sup>

Although DAIR had a higher risk of septic re-revision, **they failed to observe a difference in risk following DAIR-F when compared to those who initially underwent 2-stage revision**

Do it for the right reason – **NOT** because it is easier





# DAIR vs Two Stage Revision in PJI Less Than 12 Weeks

A comparison study between debridement, antibiotics, and implant retention and two-stage revision total knee arthroplasty for the management of periprosthetic joint infection occurring within 12 weeks from index total knee arthroplasty



Yanchao Zhang<sup>1,2,3†</sup>, Zhisen Gao<sup>2,3†</sup>, Ti Zhang<sup>2,3,4</sup>, Yu Dong<sup>2,3,4</sup>, Zhuoqi Sheng<sup>1,2,3</sup>, Fei Zhang<sup>1,2,3</sup>, Yonggang Zhou<sup>2,3\*</sup> and Lingfei Guo<sup>2,5\*</sup>

JOSR, 2022

**DAIR as a choice for patients with current infection within 12 weeks after primary TKA**

**For MRSA and fungal infections, two-stage rTKA might be preferred**


**DAIR demonstrated comparable effectiveness with two-stage rTKA**

# DAIR in Acute Culture Negative



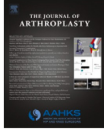
The Journal of Arthroplasty 36 (2021) 1087–1093

Contents lists available at [ScienceDirect](#)

 **ELSEVIER**


The Journal of Arthroplasty

journal homepage: [www.arthroplastyjournal.org](http://www.arthroplastyjournal.org)



Complications - Infection

Outcome of Debridement, Antibiotics, and Implant Retention With Modular Component Exchange in Acute Culture-Negative Periprosthetic Joint Infections



Venkatsaiakhil Tirumala, MS, Evan Smith, MD, Hayden Box, MD, Janna van den Kieboom, MD, Christian Klemt, PhD, Young-Min Kwon, MD, PhD \*

Bioengineering Laboratory, Department of Orthopaedic Surgery, Massachusetts General Hospital, Harvard Medical School, Boston, MA  
Department of Orthopaedic Surgery, Massachusetts General Hospital, Harvard Medical School, Boston, MA

**7% - 23% of PJIs have been reported to yield negative culture results**

DAIR for acute culture-negative PJI was associated with similar reinfection rates compared to acute culture-positive PJI, **suggesting that culture negativity may not be a contraindication to DAIR in patients with acute PJI**

# Take Home Message

## Lack of International Consensus for DAIR



**Comparing DAIR with one-stage and two-stage revision protocols** in the setting of early PJIs, there is a lack of studies, **in particular randomized control trials (RCTs)**, reflecting the necessity to conduct further high-quality studies to face the burden of early PJI

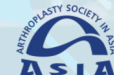


**No international consensus has been reached regarding the best approach for early prosthetic knee and hip infections**





# Thank You For Your Attention



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ICMI is a non-profit organization whose mission is to engage experts from around the world to create compendiums of up to date recommendations, related to various fields in orthopedics, that will improve patient care

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