

XXVI CONGRESSO
NAZIONALE SITOP

10, 11, 12
OTTOBRE 2024

Centro Congressi
IRCCS Ospedale Galeazzi - Sant'Ambrogio
MILANO



LE INFEZIONI

ANTONIO V. PELLEGRINI, VIRGINIA SUARDI
ASST PINI-CTO, MILANO

LE INFEZIONI MUSCOLO-SCHELETRICHE IN ETA' PEDIATRICA

- **Primitive**

- **Secondarie** ad intervento chirurgico
 - Traumatologico
 - Ortopedico



LE INFEZIONI SECONDARIE A CHIRURGIA ELETTIVA



Foot and Ankle Surgery
Volume 30, Issue 7, October 2024, Pages 535-545



Outcomes of the “Calcaneo-stop” procedure for treating symptomatic flexible flatfoot in children: A systematic review and meta-analysis of 2394 feet

María Galán-Olleros ^{a,1}  , Laura del Baño Barragán ^b, María Jesús Figueroa ^{a,c},
Carlos H. Prato de Lima ^d, Manuel Fraga-Collarte ^a, Beltrán Torres-Izquierdo ^a,
Pooya Hosseinzadeh ^e, Ignacio Martínez-Caballero ^a

«The C-Stop procedure is effective for treating FFF in children, offering significant clinical, radiological, and functional improvements with high patient satisfaction and a low complication rate.»

Superficial infection → 0,7%

LE INFEZIONI SECONDARIE A CHIRURGIA ELETTIVA



*World Journal of
Orthopedics*

Submit a Manuscript: <https://www.iapublishing.com> *World J Orthop* 2021 June 18; 12(6): 433-444
DOI: 10.5312/wjo.v12.i6.433 ISSN 2218-5836 (online)

SYSTEMATIC REVIEWS

Arthroereisis in juvenile flexible flatfoot: Which device should we implant? A systematic review of literature published in the last 5 years

Andrea Vescio, Gianluca Testa, Mirko Amico, Claudio Lizzio, Marco Sapienza, Piero Pavone, Vito Pavone

1102 C-Stop procedure →
**superficial infection rate
0.64%**

LE INFEZIONI SECONDARIE A CHIRURGIA ELETTIVA

È una complicanza rara

LE INFEZIONI SECONDARIE A CHIRURGIA ELETTIVA

REVIEW ARTICLE WITH CRITICAL ANALYSIS COMPONENT

Infection Control in Pediatric Spinal Deformity Surgery A Systematic and Critical Analysis Review

Mistovich, R. Justin MD; Jacobs, Lloydine J. MD; Campbell, Robert M. MD; Spiegel, David A. MD; Flynn, John M. MD;
Baldwin, Keith D. MD, MSPT, MPH

[Author Information](#)

JBJS Reviews 5(5):p e3, May 2017. | DOI: 10.2106/JBJS.RVW.16.00071

BUY

DISCLOSURES

Metrics

- The rates of SSI have ranged from 0.5% for patients with adolescent idiopathic scoliosis to > 25% for patients with neuro-muscular scoliosis (malattie sindromiche)

LE INFEZIONI SECONDARIE A CHIRURGIA IN URGENZA

> [J Pediatr Orthop B. 2017 May;26\(3\):222-226. doi: 10.1097/BPB.0000000000000417.](#)

Risk of infection and secondary displacement in pediatric supracondylar or lateral condyle fractures treated with unburied Kirchner-wires removed before complete bone healing

Sylvain Aubret ¹, Thibaut Lecoite, Mounira Mansour, Marie Rousset, Antonio Andreacchio, Bruno Pereira, Yann Philippe Charles, Federico Canavese

Affiliations + expand

PMID: 27902636 DOI: [10.1097/BPB.0000000000000417](#)

- The distal end of the humerus is the second most frequent location for fractures in children and yet the **most common indication for surgery**.
- Of the 105 patients treated surgically, osteomyelitic infectious complications occurred in two (1.9%) children: a MSSA and a Cronobacter sakazakii infection
- The absence of any further pin-site care until long-arm cast and K-wire removal is not a factor for infection.

LE INFEZIONI SECONDARIE A CHIRURGIA IN URGENZA

Randomized Controlled Trial > J Am Acad Orthop Surg. 2024 May 1;32(9):410-416.

doi: 10.5435/JAAOS-D-23-00795. Epub 2024 Feb 28.

Effect of Antibiotic Prophylaxis on Infection Rates in Pediatric Supracondylar Humerus Fractures Treated with Closed Reduction and Percutaneous Pinning: A Prospective Double-Blinded Randomized Controlled Trial

Sumit K Gupta ¹, Ennio Rizzo Esposito, Rachel Phillips, Pierre-Emmanuel Schwab, Emily V Leary, Daniel G Hoernschemeyer

Affiliations + expand

PMID: 38422496 DOI: 10.5435/JAAOS-D-23-00795

- 160 patients were enrolled in the study. 82 patients were randomized to receive antibiotics, and 78 patients were randomized to placebo.
- The presence of pin-site infection, erythema, drainage, septic arthritis, and osteomyelitis was recorded.
- No difference was seen in the rate of infection between the treatment groups.

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È una complicanza rara

LE INFEZIONI SECONDARIE A CHIRURGIA IN URGENZA

ORTHOPEDICS: EDITED BY DANIEL W. GREEN

Evidence-based update on the surgical treatment of pediatric tibial shaft fractures

Cruz, Aristides I. Jr.^a; Raducha, Jeremy E.^b; Swarup, Ishaan^c; Schachne, Jonathan M.^c; Fabricant, Peter D.^c

Author Information 

Current Opinion in Pediatrics 31(1):p 92-102, February 2019. | DOI: 10.1097/MOP.0000000000000704

BUY

 Metrics

- Existing literature does not show an identifiable difference in infection rate between types of surgical intervention but there is a consistently increased risk of infection with open fractures, with higher Gustilo – Anderson grade fractures having increased rates of infection

LE INFEZIONI SECONDARIE A CHIRURGIA IN URGENZA

Review > Acta Orthop Belg. 2016 Dec;82(4):673-680.

A meta-analysis of external fixation and flexible intramedullary nails for femoral fractures in children

Y-T Zhang, D Jin, J Niu, Z-J Li, S Fu, Z-L Zou

PMID: 29182105

- 338 cases of femoral fractures of children treated by external fixation (128 cases) and flexible intramedullary nails (210 cases) were included in the meta-analysis.
- Results showed that flexible **intramedullary nails was superior** to external fixation in less time to union, **lower postoperative infection rate** and refracture rate. It may not increase delayed union, Limb-length discrepancy , pain and bursitis

LE INFEZIONI SECONDARIE A CHIRURGIA IN URGENZA

Pediatric Open Fractures



Arianna Trionfo, MD^{a,*}, Priscilla K. Cavanaugh, MD^b,
Martin J. Herman, MD^b

KEYWORDS

- Pediatric fractures • Open fracture • Pediatric trauma • Irrigation and debridement
- Type 1 open fracture

KEY POINTS

- Open fractures pose a risk for contamination and can lead to significant complications in children.
- These fractures often have a better prognosis in children as compared with adults.
- Open fractures in children differ from open fractures in adults, with faster and more reliable bone healing, greater potential for periosteal bone formation, and lower reported infection rates.

- Open fractures constitute between 0.7% and 2% of all pediatric fractures
- Young children possess greater fracture stability and experience more rapid and reliable fracture healing compared with adults because of a thicker, more vascular periosteum.

LE INFEZIONI SECONDARIE A CHIRURGIA IN URGENZA

Review > J Surg Orthop Adv. 2022 Summer;31(2):73-75.

Infections After Open Fractures in Pediatric Patients: A Review of 288 Open Fractures

Derek Kelly ¹, Benjamin Sheffer ¹, Robert Elrod ¹, Lauren Piana ¹, Naveen Pattisapu ¹,
Vikki Nolan ¹, David Spence ¹, Jeffrey Sawyer ¹

Affiliations + expand

PMID: 35820090

- Was no significant association between the development of infection and mechanism of injury ($p = 0.33$), time to surgical debridement ($p = 0.93$), or type of empiric antibiotic given ($p = 0.66$).
- The most commonly identified organisms on culture were methicillin-sensitive staphylococcus aureus ($n = 3$) and pseudomonas ($n = 3$).
- **Obesity** is a significant risk factor for the development of infection after an open fracture in the pediatric population..

L. S. 14 anni frattura biossea gamba esposta

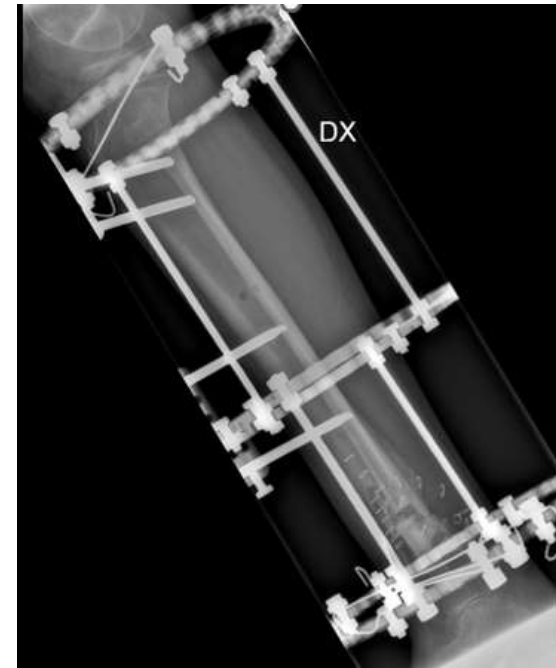
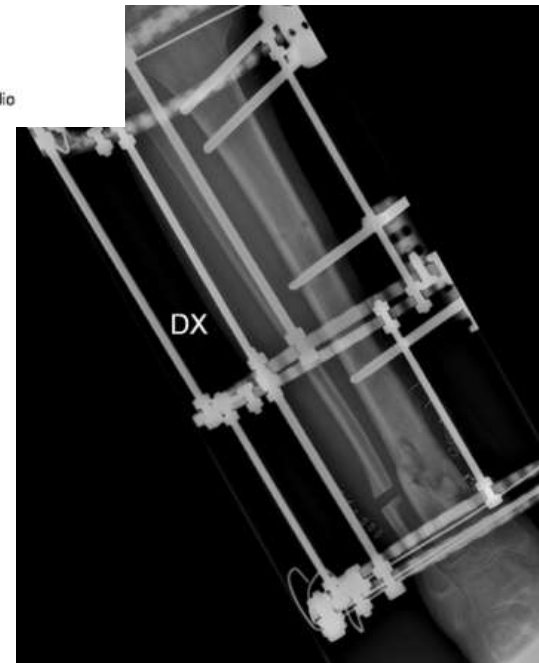
Esame	Risultato	
Esame colturale []	Positivo	
	Enterococcus faecium	
Antibiogramma		
Ampicillina	<=2	S
Amoxicillina/A.clav.	<=2	S
Ciprofloxacina	1	S
Kanamycin High Level (synergy) SYN-S		S
Streptomycin High Level ;synergy SYN-S		S
Imipenem	<=1	S
Levofloxacina	2	S
Linezolid	2	S
Quinupristin/Dalfopristin	4	R
Tigecyclina	<=0,12	S
Teicoplanina	1	S
Vancomicina	2	S

Legenda: S = Sensibile ; R = Resistente ; I = Intermedio

Agosto 2019

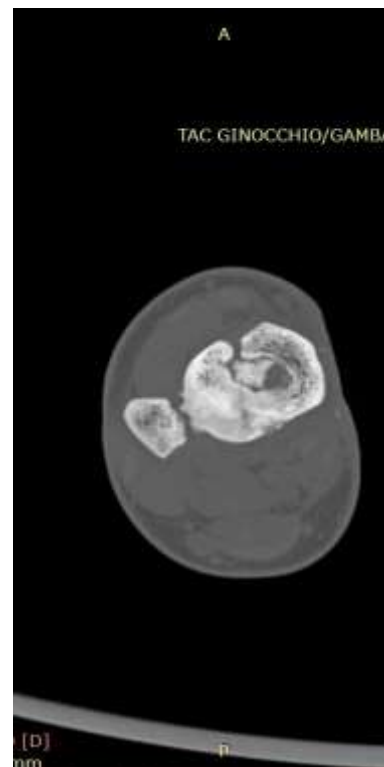


Dicembre 2019



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Aprile 2020



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Sostituti ossei sintetici: Ceramiche di Calcio-Solfato

Vantaggi

Ottima biocompatibilità

Buone capacità osteoconduttiva e di osteointegrazione

Profilo di degradazione simile alla neoformazione ossea (circa 4-8 settimane)

Reazione isoteramica: utilizzo di antibiotici termolabili



L. S. 14 anni frattura biossea gamba esposta

Luglio 2020



Ottobre 2020



TAKE-HOME MESSAGES

- infectious complications in paediatric orthopaedic surgery are a uncommon event
- the most commonly isolated germ is staphylococcus aureus
- fixation techniques used in traumatology do not appear to affect infection rates
- Young children possess a thicker, more vascular periosteum
- treatment includes debridement, eventual removal of hardware and appropriate antibiotic therapy (local delivery)

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THANK YOU