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## Prevention of Infection in Pin Sites

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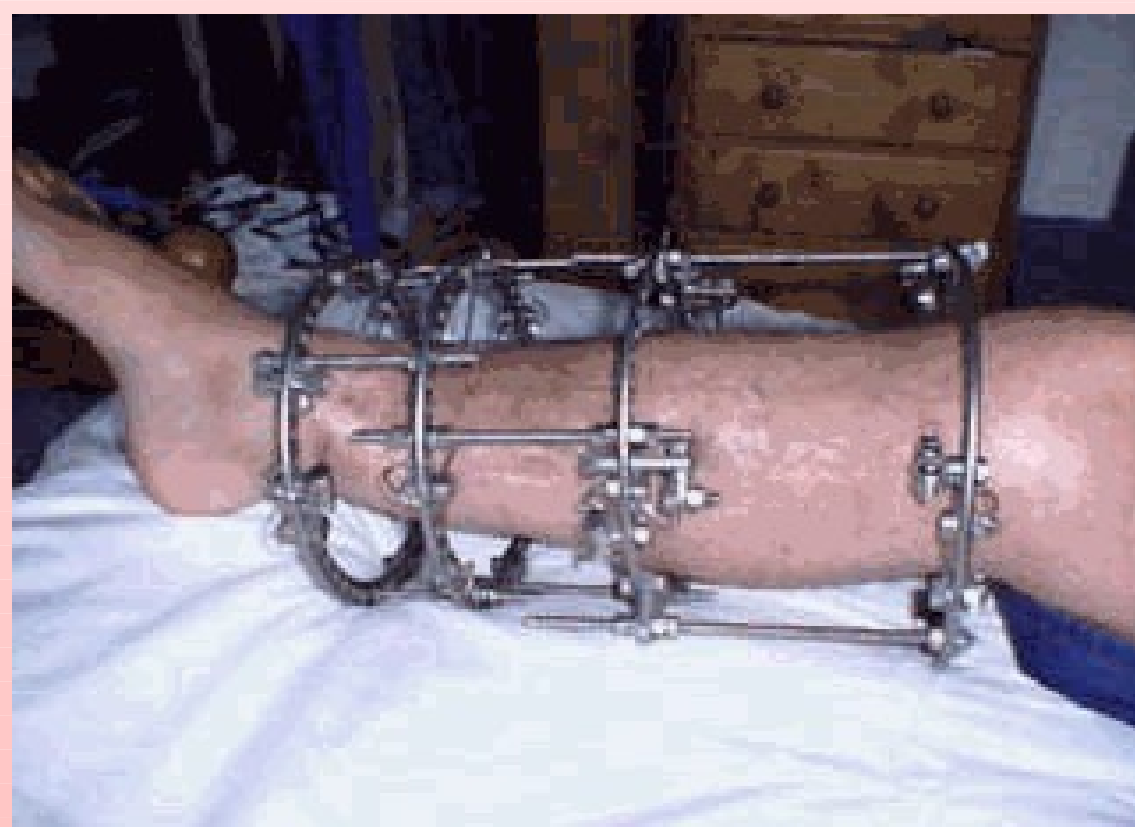
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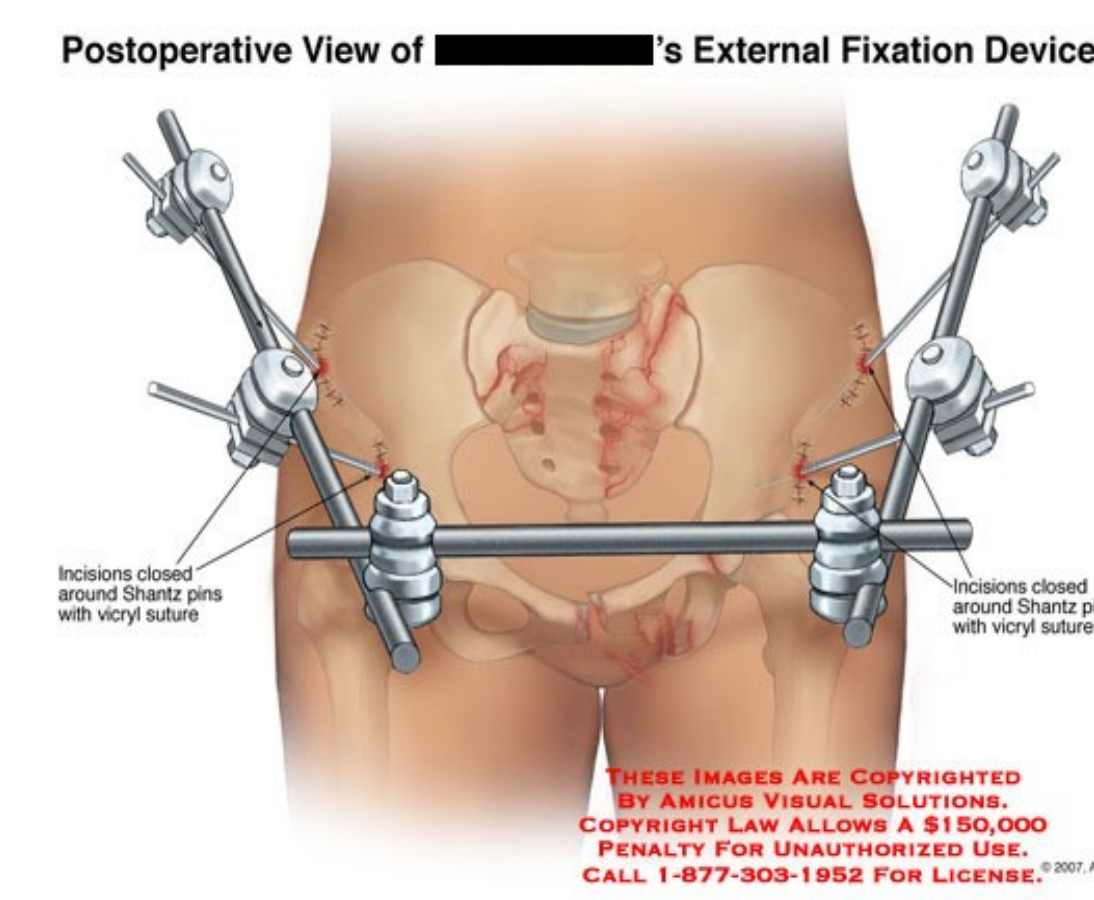
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# Prevention of Infection in Pin Sites

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## PATIENT CARE ISSUE

- External fixation: skeletal apparatuses that attach to wire or pins that penetrate the bone. Used for complex fractures and limb deformity. Allow stability and early mobilization/weight-bearing.
- 11-100% of patients with external fixation develop some sort of infection
- Purpose of the study: to determine whether the measures taken to prevent infection are effective
- Infection can cause osteomyelitis and even sepsis, so it is essential nurses know how to properly care for these unique wounds

## REGISTERED NURSE INTERVIEW

- Interview with Lesley D., RN at Miami Valley Hospital
- No official policy concerning pin site care at Miami Valley Hospital.
  - It is stressed to the RN's to continually assess the site for any infection.
  - If signs/symptoms present, report the findings to the surgeon.
  - Scabs should be left in place.
  - Crusts may be removed with small q-tip as long as no further damage is caused.
  - Cleanse the sight if necessary using normal saline.
  - Showering is acceptable.

## EVIDENCE-BASED PRACTICE QUESTION

Question: What methods of pin site care are most effective in preventing infection in external fixation?

P: All patients with an external fixator in an inpatient setting.

I: The best cleansing solutions and dressings to use, how to manage crusts, how often to cleanse, and how much compression should be used on pin sites.

- C: 1. Between different types of cleansing solutions  
2. Between different types of dressings  
3. Cleaning weekly vs. cleaning daily  
4. Showering vs. not showering  
5. Leaving on crusts vs. removing crusts

O: An effective routine for preventing infection of pin sites.

## SYNTHESIS OF EVIDENCE

In a review of 10 sources, the most common recommendations concerning pin site care and prevention of infection were determined.

- Alcoholic chlorhexidine solution should be used to cleanse the site around pins 7,8
- Cleansing should occur at least every seven days, unless there are signs/symptoms of infection, which would indicate that more frequent cleaning is needed 4, 8,9
- The site should be kept covered, preferably with a foam dressing 7,9
- Showering is acceptable; bathing is not 3,8
- Light compression should be applied 7,8

## METHODS

· Total sources: 10 credible

· Databases: MEDLINE, Cochrane, CINAHL, PubMed

· Key Words: "orthopedic fixation device," "external fixation device," "pin site care," "prevention," "treatment," "infection"

· Exclusion criteria: acceptance of articles only published within the last five years (2007-2012)

· Inclusion Criteria: articles relation to pin site care and prevention of infection in external fixators, international sources accepted

## EVIDENCE-BASED PRACTICE RECOMMENDATIONS

No official guidelines were found for pin site care and there is a decided lack of research in this area.

It is recommended that:

- 1) More higher level research (randomized control trials, etc.) be done
- 2) National and hospital guidelines be set based on further research findings

## RESULTS

A total of 15 articles were gathered. Only 9 were referenced within the paper. The consensus among the sources is that six categories need to be addressed when discussing pin site care. These include frequency of cleanings, types of cleansing, solutions, bathing/showering, types of dressing, compression and management of crusts.

Author, Date	Types of Articles	Level of Evidence
Amanti et al, 2012.	RCT	Level 2
Bell et al, 2008.	Clinical Guidance Article	
Camathias et al, 2012.	RCT	Level 2
Lagerquist et al, 2012.	Descriptive	Level 6
Lee et al, 2011.	RCT	Level 2
Lethaby et al, 2011.	Systematic Review	Level 1
Timms et al, 2011.	Descriptive	Level 7
Timms et al, 2012.	Clinical Guidance Article	
Walker et al, 2011.	Clinical Guidance Article	

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## LIMITATIONS

- Limited number of randomized control trials done on the subject
- Many factors to be considered including age, gender, location of pins, number of pins, length of time pins are in place, and the method by which the pins were inserted
- Many studies are flawed and lack validity due to inability to control all of these variables
- Wound site is precarious, as it is percutaneous and open to the outside world