

CARE OF PIN SITE GUIDELINE

All healthcare professionals must exercise their own professional judgement when using guidelines. However any decision to vary from the guideline should be documented in the patient records to include the reason for variance and the subsequent action taken.

Introduction

“External devices which hold wires or pins that are placed through one or both cortices of bone in order to hold the position of a fracture in proper alignment. These devices allow easy access to wounds, adjustment during the course of healing, and more functional use of the limbs involved.”

(MeSH, 2011)

External fixation has been widely used for many years in the UK, and is used for procedures such as fixation of complex fractures and realignment of limbs. Guidelines on management of open fractures advocate the use of external fixation.

When a fracture is repaired with external fixation, the wires are visible outside the body. A pin site is a percutaneous wound where a wire or screw transfixes the skin and bone.

However, the use of metal pins or wires can result in complications, such as pin site infection. To prevent infections occurring pin site care must include effective assessment, monitoring and cleaning of the pin site area.

A pin site will never heal, due to the wire's presence in the skin. Healing cannot begin until the external fixator is removed when the bone has healed. The main aim of wound care in these cases is to prevent infection from occurring. Pin site infection is the most common local complication of external fixation.

Sites where pins protrude through the skin are potential sources of pain and infection, which can be either localised or generalised. An appropriate pin site care regime will minimise this risk. This guideline is designed to standardise care within the Trust. With the primary aim of detecting early potential problems associated with pin sites e.g. infection, tenting of the skin, psychological trauma and to increase compliance to treatment.

The patients covered by this guideline are all patients with pin sites / external fixators.

This guideline is for use by the following staff groups:

This guidance is aimed at trauma and orthopaedic nurses caring for adults, and children.
A nurse who has been trained appropriately to assess and care for pins / external fixators.

Lead Clinician(s)

Amended by: Corinna Winkworth

Surgical Care Practitioner
Trauma & Orthopaedics

Guideline reviewed and approved on by Trauma and
Orthopaedic Clinical Governance Meeting:

15th November 2023

Review Date:

15th November 2026

This is the most current document and is to be used until a

Care of the Pin Site Guideline		
WAHT-T&O-003	Page 1 of 12	Version 5

revised version is available

Previous key amendments to this guideline

Date	Amendment	Approved by:
08/07/2003	Guideline approved by	Clinical Effectiveness Committee
August 2006	Guideline reviewed with no amendments made	A Lewis & Helen Shoker
July 2007	Guideline reviewed with no amendments made	A Lewis
15/04/2011	Guideline reviewed with no amendments made	A Lewis
22/08/2013	Guideline extended whilst under review	A Lewis
November 2016	Documents extended for 12 months as per TMC paper approved on 22 nd July 2015	TMC
November 2017	Document extended whilst under review	TLG
December 2017	Document extended for 3 months as per TLG recommendation	TLG
March 2018	Document extended for 3 months as approved by TLG	TLG
June 2018	Document extended for 3 months as per TLG recommendation	TLG
June 2020	Document reviewed and amended Introduction rewritten. Guidance and rationale extended and adapted	CW
October 2023	Document reviewed and amended Introduction rewritten. Guidance and rationale adapted	CW

Guideline

This guideline focus on the management of patients with pins sites / external fixators.

Guidance	Rationale
<i>Wash and dry hands thoroughly</i>	Hand washing is the most important factor in preventing the spread of infection.
<i>Apply absorbent low adherent non shedding sterile dressing immediately post operatively. Do not disturb for 7 days unless there is an infection detected. (w-Dahl et al.,2003)</i>	<i>To absorb blood and any exudate</i> To decrease the risk of contamination of pin sites.
<i>Please refer to Worcestershire acute Secondary Care antimicrobial prophylaxis guidelines for recommended prophylactic antibiotic choice at time of surgery</i>	<i>To decrease the risk of infection.</i>
<i>Inspect the wound dressing within 24 hours post surgery – No solution to be used on the immediate post op dressing. If possible, leave the dressing intact for 7 days. Keep pins covered at all times</i>	<i>For early assessment of potential problems and patient comfort (Blasier et al 1992)</i> RCN Guidance on Pin site care (2022) <i>Leaving the theatre dressing undisturbed reduces the risk of wound contamination (W-Dahl et al.,2003)</i>
<i>Use alcoholic Chlorhexidine, however if the patient has a skin sensitivity, use sterile water or normal saline to clean exudates or dried blood from the area around pins.</i> <i>Use a dressing that applies a small amount of pressure. Compression reduces the amount of movement at the pin/skin interface when the patient mobilises or moves the affected limb</i> <i>Clean pin sites weekly with a non-shedding material (e.g. gauze or cotton bud) if blood or exudates present only. Dry wound after cleaning. Do not clean sites if dry.</i> <i>Attend to general hygiene with showering.</i>	<i>Alcohol acts as a drying agent and chlorhexidine acts as a long source of antimicrobial activity. (Atiyeh et al., 2009; Timms and Pugh, 2010). Chlorhexidine can cause skin allergy and dermatitis in some patients. Use sterile water or normal saline if known sensitivity to chlorhexidine.</i> <i>This helps prevent tenting of skin along the pin (Sims & Saleh 1996), (RCN 2022)</i> <i>Moisture encourages colonisation hence the need to dry the wound. No evidence that sterile cleansing is necessary after showering. Discourage bathing in bathwater. Encourage to shower frame with clean water to remove soaps or dirty water</i>
<i>Use aseptic technique at all times during pin site care and observation. Observe for tenderness or pain at pin site, increased level of exudates, presence of pus, any odour from site and an increase in inflammatory process at site.</i> <i>Pin sites should be covered at all times in order to prevent the ingress of bacteria throughout the entirety of treatment.</i> <i>Pin site dressings should be changed once weekly unless there is an infection or copious discharge/soaked dressing</i>	Infection is the most common complication in all wounds. It is painful and distressing for the patient, is known to impair the process of wound healing, and is instrumental in delaying recovery and lengthening treatment. RCN Guidance on Pin site care. (2022) <i>To prevent cross infection and identify problems at an early stage.</i>

<p><i>Natural scabs should be left undisturbed, gently remove crusting from around pin site, clean or dry rub with gauze or cotton buds. Oozing pin sites should have a non-adherent foam key-holed dressing applied to prevent the oozing fluid from dripping onto other pin sites.</i></p>	<p><i>Allows visualisation of the wound and encourages free drainage of exudates which may harbour infection. To prevent contamination of pin sites.</i></p>
<p><i>The patients skin is a major source of bacterial infection, contributing to post-operative wound infections Educate patient to shower at home and dry the fixator with a clean towel used only for this purpose. Actively clean pin sites weekly.</i></p> <p><i>Educate patient / family / carer to look for signs of pin site infection. Including frank drainage of pus, increasing pain at the pin site and decreased movement, mobility or weight bearing. Educate patient to look for spreading redness of limb. Inform District Nurse if required to assess sites regularly. Provide Patient information leaflet before discharge</i></p>	<p>Therefore, educate patient to ensure limb is kept clean. (Florman and Nichols, 2007)</p> <p><i>To reduce anxiety, increase compliance, identify problems early and provide support.</i></p> <p><i>Educate patient in care of pin sites prior to discharge</i></p>
<p><i>Wash and dry hands thoroughly</i></p>	<p><i>To prevent cross-infection.</i></p>
<p><i>Provide psychological support.</i></p>	<p><i>Pin sites / External Fixators have a major impact on self-image / body image/ Fear</i></p>

Monitoring Tool

How will monitoring be carried out?	Reflective Audit of all patients with pin sites / external fixators to ensure Policy met
When will monitoring be carried out? Fixators	Ongoing for all patients with Pin sites / External
Who will monitor compliance with the Guideline?	Ward Manager/ Matron/ TVN

Standards:

Item	%	Exceptions
All patients will be given a Pin Site Care Patient information leaflet	100	None

References

- Atiyeh BS, Dibo SA and Hayek SN (2009) Wound cleansing, topical antiseptics and wound healing, International Wound Journal, 6 (6), pp.420-430.

- Blasier RD, Aronson J et al (1992) External fixation of paediatric femur fractures. **Journal of Paediatric Orthopaedics 17:342-346.**
- Davies.R et.al (2005) The care of pin sites with external fixation. **The Journal of Bone and Joint Surgery Vol.87-B, No.5.**
- Kazmers. N et al (2016) Prevention of pin site infection in external fixation: a review of the literature. **Strategies in Trauma and Limb Reconstruction. 1016 Aug: 11(2): 75-85.**
- Larson EL, Ciliberti T, Chantler C, Abraham J, Lazaro EM, Venturanza M and Preeti P (2004) Comparison on traditional and disposable bed baths in critically ill patients, American Journal of Critical Care, 13 (3), pp.235-241.
- MeSH (2011) Medical subject headings (MeSH), National Library of Medicine. Available at: www.nlm.nih.gov/mesh
- RCN (2002) A Traction Manual. **RCN Publishing Company Ltd.**
- RCN (2022) Guidance on Pin Site Care. **Royal College of Nursing Publication**
- Royal College of Nursing (2011) Guidance on pin site care: Report and recommendations from the 2010 consensus project on pin site care, London: RCN. Available at:www.rcn.org.uk/professional-development/publications/pub-004137
- Timms A and Pugh H (2010) From British Consensus to Russian Protocol: how we justified our journey, International Journal of Orthopaedic and Trauma Nursing, 14 (2), pp.109-115.
- Sims M., Saleh M (1996) Protocols for the care of external fixator pin sites. **Professional Nurse 11(4):261-264.**
- W-Dahl A, Toksvig-Larsen S and Linstrand A (2003) No difference between daily and weekly pin site care: a randomised study of 50 patients with external fixation, Acta Orthopaedica Scandinavica, 75 (6), pp.704-708.
- Walker. J (2018) Assessing and managing pin sites in patients with external fixation. **Nursing Times (online) January 2018 / Vol 114 Issue 1**

CONTRIBUTION LIST

Key individuals involved in amending this guideline

Name	Designation
Corinna Winkworth	Surgical Care Practitioner T & O

Circulated to the following individuals for comments

Name	Designation
------	-------------

Mr C Docker	Clinical Director
Mr U Ahmed	T&O Consultant
Mr N Aslam	T&O Consultant
Mr P Craig	T&O Consultant
Mr A Guha	T&O Consultant
Ms S Henning	T&O Consultant
Mr S Isaac	T&O Consultant
Mr M Khattack	T&O Consultant
Mr D Knox	T&O Consultant
Mr R Kugan	T&O Consultant
Mr J Luscombe	T&O Consultant
Mr S Malik	T&O Consultant
Mr T Mahmood	T&O Consultant
Mr K Mathur	T&O Consultant
Mr D Mckenna	T&O Consultant
Mr A Mehra	T&O Consultant
Mr A Mirza	T&O Consultant
Mr A Munjal	T&O Consultant
Mr A Pearse	T&O Consultant
Mr M Pereira	T&O Consultant
Mr S Sadiq	T&O Consultant
Mr M Shahid	T&O Consultant
Mr G Simon	T&O Consultant

Circulated to the following CD's/Heads of dept for comments from their directorates / departments

Name	Directorate / Department
Mr C Docker	T&O Clinical Director
Sarah Shingler	Chief Nursing Officer
Stacey Waldron	Divisional Director of Nursing
Tracey Dennehy	T&O Lead Practitioner
Cearann Reen	Matron T&O Worcester

Circulated to the chair of the following committee's / groups for comments

Name	Committee / group
Dr Hugh Morton	Microbiology Consultant

Supporting Document 1 – Equality Impact Assessment form

To be completed by the key document author and included as an appendix to key document when submitted to the appropriate committee for consideration and approval.

Please complete assessment form on next page;



Herefordshire & Worcestershire STP - Equality Impact Assessment (EIA) Form
Please read EIA guidelines when completing this form

Section 1 - Name of Organisation (please tick)

Herefordshire & Worcestershire STP		Herefordshire Council		Herefordshire CCG	
Worcestershire Acute Hospitals NHS Trust	✓ ✓	Worcestershire County Council		Worcestershire CCGs	
Worcestershire Health and Care NHS Trust		Wye Valley NHS Trust		Other (please state)	

Name of Lead for Activity	Corinna Winkworth
----------------------------------	--------------------------

Details of individuals completing this assessment	Name	Job title	e-mail contact
	Corinna Winkworth	Surgical Care Practitioner	Corinna.winkworth@nhs.net
Date assessment completed	12/10/2023		

Section 2

Activity being assessed (e.g. policy/procedure, document, service redesign, policy, strategy etc.)	Title: Care of pin site guideline
What is the aim, purpose	

and/or intended outcomes of this Activity?	Guideline to focus on the management of patients with pin sites / external fixators			
Who will be affected by the development & implementation of this activity?	<input type="checkbox"/>	Service User	<input checked="" type="checkbox"/>	Staff
	<input checked="" type="checkbox"/>	Patient	<input type="checkbox"/>	Communities
	<input type="checkbox"/>	Carers	<input type="checkbox"/>	Other _____
	<input type="checkbox"/>	Visitors	<input type="checkbox"/>	
Is this:	<input checked="" type="checkbox"/> Review of an existing activity <input type="checkbox"/> New activity <input type="checkbox"/> Planning to withdraw or reduce a service, activity or presence?			
What information and evidence have you reviewed to help inform this assessment? (Please name sources, eg demographic information for patients / services / staff groups affected, complaints etc.)	Peer Consensus. Updated Literature review.			
Summary of engagement or consultation undertaken (e.g. who and how have you engaged with, or why do you believe this is not required)	Circulated to wider group for comments			
Summary of relevant findings	Comments received were actioned.			

Section 3

Please consider the potential impact of this activity (during development & implementation) on each of the equality groups outlined below. **Please tick one or more impact box below for each Equality Group and explain your rationale.**

Please note it is possible for the potential impact to be both positive and negative within the same equality group and this should be recorded. Remember to consider the impact on e.g. staff, public, patients, carers etc. in these equality groups.

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Age		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The guideline takes age in to account. The guideline is for all nurses who have been trained appropriately to assess and care for pins / external fixators. Elderly patients may have difficulty caring for pin sites / external fixators. If a patient is unable to care for Pin sites / External fixator, a district / practice nurse would be arranged
Disability		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	The guideline takes disability in to account. The guideline is for all nurses who have been trained appropriately to assess and care for pins / external fixators. Patients with a disability may have difficulty caring for pin sites / external fixators. If a patient is unable to care for Pin sites / External fixator, a district / practice nurse would be arranged
Gender Reassignment		<input checked="" type="checkbox"/>		The guideline takes gender reassignment in to account. The guideline is for all nurses who have been trained appropriately to assess and care for pins / external fixators

Equality Group	Potential <u>positive</u> impact	Potential <u>neutral</u> impact	Potential <u>negative</u> impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Marriage & Civil Partnerships		✓		The guideline takes marriage and civil partnerships in to account. The guideline is for all nurses who have been trained appropriately to assess and care for pins / external fixators
Pregnancy & Maternity		✓		The guideline takes pregnancy and maternity in to account. The guideline is for all nurses who have been trained appropriately to assess and care for pins / external fixators
Race including Traveling Communities		✓		The guideline takes Race including traveling communities in to account. The guideline is for all nurses who have been trained appropriately to assess and care for pins / external fixators
Religion & Belief		✓		The guideline takes Religion and Belief in to account. The guideline is for all nurses who have been trained appropriately to assess and care for pins / external fixators
Sex		✓		The guideline takes sex in to account. The guideline is for all nurses who have been trained appropriately to assess and care for pins / external fixators
Sexual Orientation		✓		The guideline takes sexual orientation in to account. The guideline is for all nurses who have been trained appropriately to assess and care for pins / external fixators
Other Vulnerable and Disadvantaged Groups (e.g. carers; care leavers; homeless; Social/Economic deprivation, travelling communities etc.)		✓	✓	The guideline takes other vulnerable and disadvantaged groups in to account. The guideline is for all nurses who have been trained appropriately to assess and care for pins / external fixators. If a patient is unable to care for Pin sites / External fixator, a district / practice nurse would be arranged.
Health Inequalities (any preventable, unfair & unjust differences in health status between groups, populations or individuals that arise from the unequal distribution of social, environmental & economic conditions within societies)		✓	✓	The guideline takes health inequalities in to account. The guideline is for all nurses who have been trained appropriately to assess and care for pins / external fixators. If patient unable to care for Pin sites / External fixator, a district / practice nurse would be arranged.

Section 4

What actions will you take to mitigate any potential negative impacts?	Risk identified	Actions required to reduce / eliminate negative impact	Who will lead on the action?	Timeframe
	Elderly / vulnerable patients may have difficulty caring for	<i>Involvement of patient / carer/ district / practice nurse if needed</i>	all nurses who have been trained	ongoing

	pin sites / external fixators		appropriately to assess and care for pins / external fixators	
How will you monitor these actions?	Nursing staff to monitor patients with pin sites to ensure care reflects Pin site policy			
When will you review this EIA? (e.g in a service redesign, this EIA should be revisited regularly throughout the design & implementation)	At next review of guideline October 2026			

Section 5 - Please read and agree to the following Equality Statement

1. Equality Statement

1.1. All public bodies have a statutory duty under the Equality Act 2010 to set out arrangements to assess and consult on how their policies and functions impact on the 9 protected characteristics: Age; Disability; Gender Reassignment; Marriage & Civil Partnership; Pregnancy & Maternity; Race; Religion & Belief; Sex; Sexual Orientation

1.2. Our Organisations will challenge discrimination, promote equality, respect human rights, and aims to design and implement services, policies and measures that meet the diverse needs of our service, and population, ensuring that none are placed at a disadvantage over others.

1.3. All staff are expected to deliver services and provide services and care in a manner which respects the individuality of service users, patients, carer's etc, and as such treat them and members of the workforce respectfully, paying due regard to the 9 protected characteristics.

Signature of person completing EIA	Corinna Winkworth
Date signed	
Comments:	
Signature of person the Leader Person for this activity	
Date signed	
Comments:	

Supporting Document 2 – Financial Impact Assessment

To be completed by the key document author and attached to key document when submitted to the appropriate committee for consideration and approval.

	Title of document:	Yes/No
1.	Does the implementation of this document require any additional Capital resources	No
2.	Does the implementation of this document require additional revenue	No
3.	Does the implementation of this document require additional manpower	No
4.	Does the implementation of this document release any manpower costs through a change in practice	No
5.	Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programmes or allocated training times for staff.	No
	Other comments:	N/A

If the response to any of the above is yes, please complete a business case and which is signed by your Finance Manager and Directorate Manager for consideration by the Accountable Director before progressing to the relevant committee for approval