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### BACKGROUND

- Admission to Arrowe Park Hospital in 2021 with left intra-articular distal tibial and right calcaneum fractures after being hit by a car, later managed surgically (left ankle Ex-fix then ORIF) and conservatively (right below knee cast) respectively.
- Subsequent wound healing issues at incision sites requiring left lower leg debridement and local muscle flap coverage at Whiston hospital.



### RATIONALE AND IMPACT (general)

- Direct hospital-related costs were 8 times that of non-FRI patients. Indirect costs were nearly 4 times that of patients without FRI.
- Deep infections driving total healthcare costs and length of stay; costs being 6.5 times higher than for uninfected patients.
- Surgical site infections (SSI) can double the length of stay of patients.

### BOA STANDARD on FRI

- "There should be readily available guidance for primary carers and patients on how to respond in the event of a suspected fracture related infection. *This should be included in discharge documentation.*"

Therefore, how do we detect FRI and who do we contact?

### METHODOLOGY

- Audit Registration form completed
- Coding team provided the details of **150 patients**
- Audit period: **April to August 2021**

INCLUSION CRITERIA	EXCLUSION CRITERIA
All age groups	Fracture comes under hip pathway
Any gender	Periprosthetic fractures
All patients requiring ORIF for fractures	

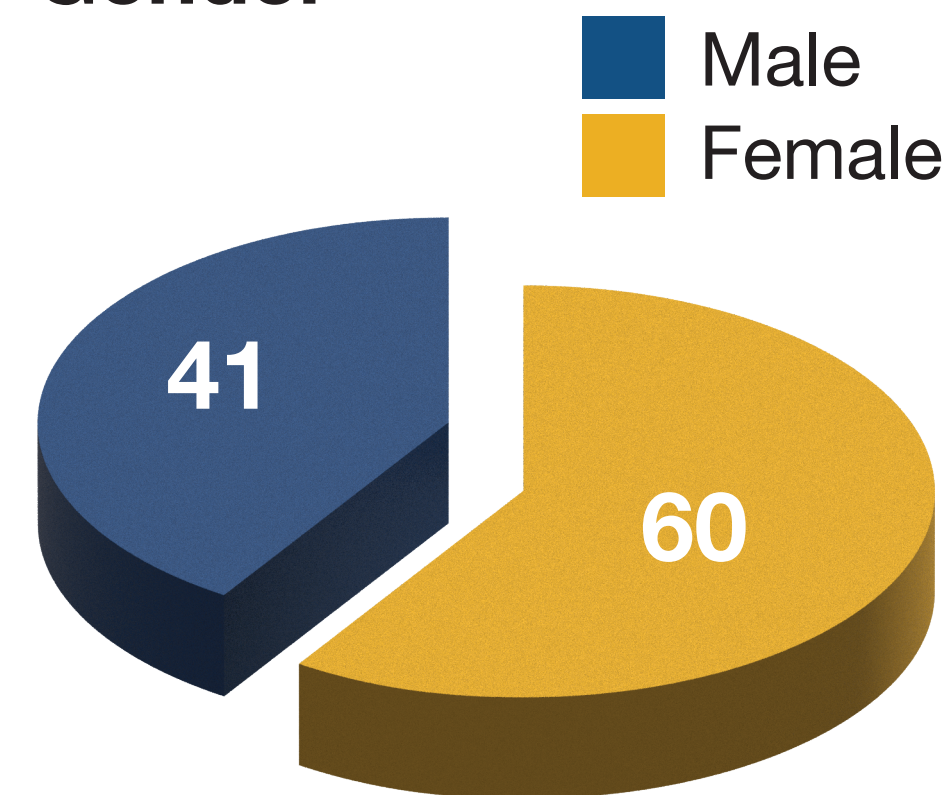
Fracture	Procedure	No of patients	Average inpatient stay after surgery
Ankle	Plating	35	6.4 days
Distal Radius	Plating	23	3.4 days
Clavicle	Plating	6	1.33 days
	Distal clavicle	2	21 days
Tibial plateau	Plating	8	8.5 days
Olecranon	TBW	3	1.5 days
	ORIF	2	2 days
Tibia Shaft	Nailing	6	6.25 days
Proximal humerus	Plating	4	2.5 days
Distal femur	Plating	3	2.3 days
Pilon fracture	Plating	3	5 days
Lisfranc	Plating	2	2 days
Distal humerus	Plating	2	2 days
Humerus shaft	Plating	1	2 days
Radial & Ulna shaft	Plating	1	3 days

Complications	Procedure	No of patients	Follow-up	Management
Hypersensitive scar	Ankle ORIF	1	2 weeks	Conservative
Syndesmotic widening	Ankle ORIF	1	2 weeks	Observation
Cellulitis	Ankle ORIF	3	2 weeks	Antibiotics
	Tibial Plateau	1	2 weeks	
	Olecranon	1	2 weeks	
Superficial wound dehiscence	Ankle ORIFs	2	2 weeks	Antibiotics
Failed metal work and cellulitis	Pilon	1	20 days cellulitis GP treated with antibiotics	Metal exit + Debridement + revision fixation
CRPS ankle/ C/c ATFL CFL/ FDL tendinitis	Tibial plateau ORIF	1	6 week swelling	
Deep wound infection	Ankle ORIF	1	12 days	Metal exit lateral malleolus debridement
Median nerve numbness	DER ORIF	1	2 weeks	
Fixation failure	Clavicle	1		Revision hook plate
Flap infection	Pilon	1	DNA	Referred to plastics

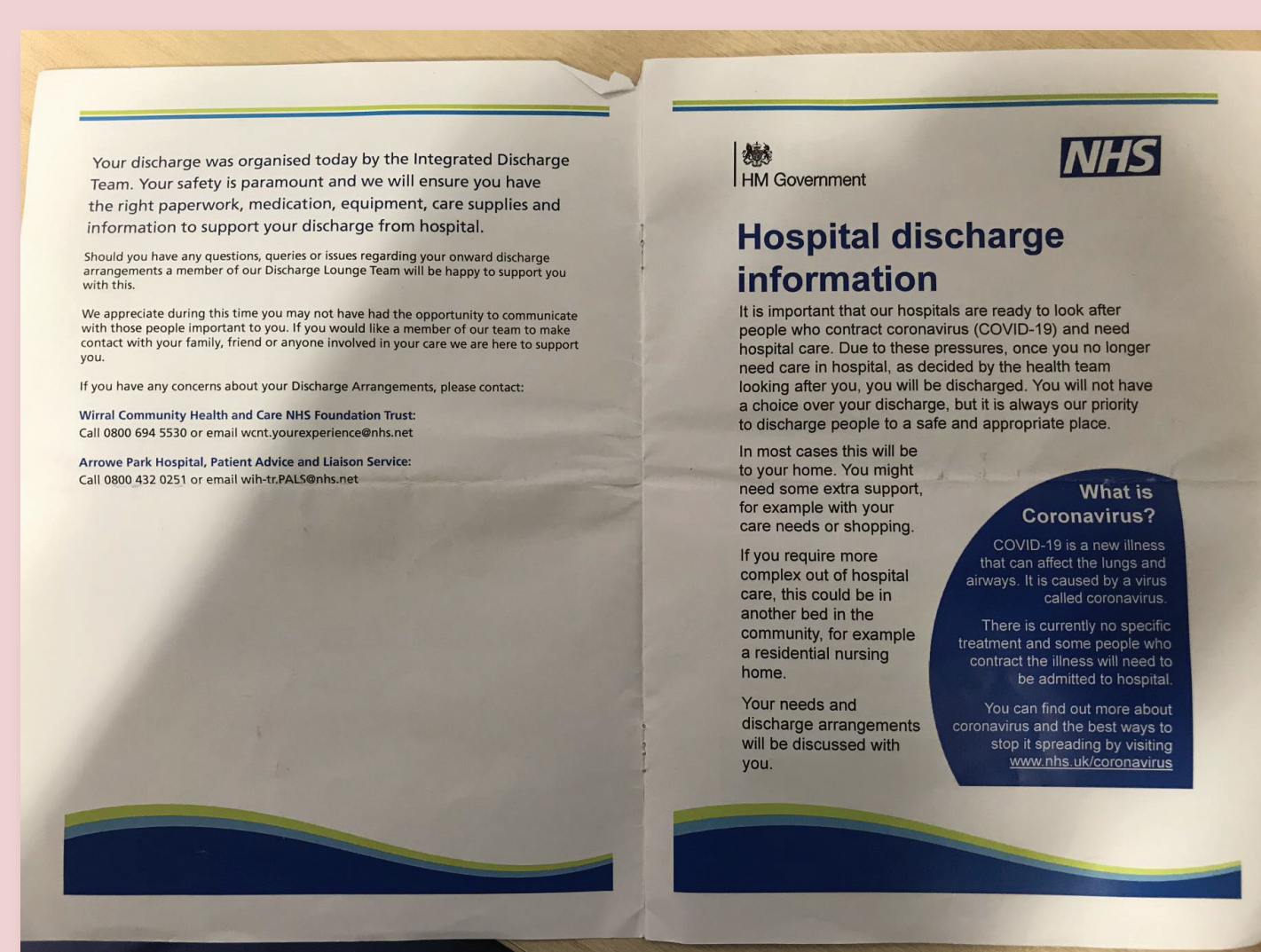
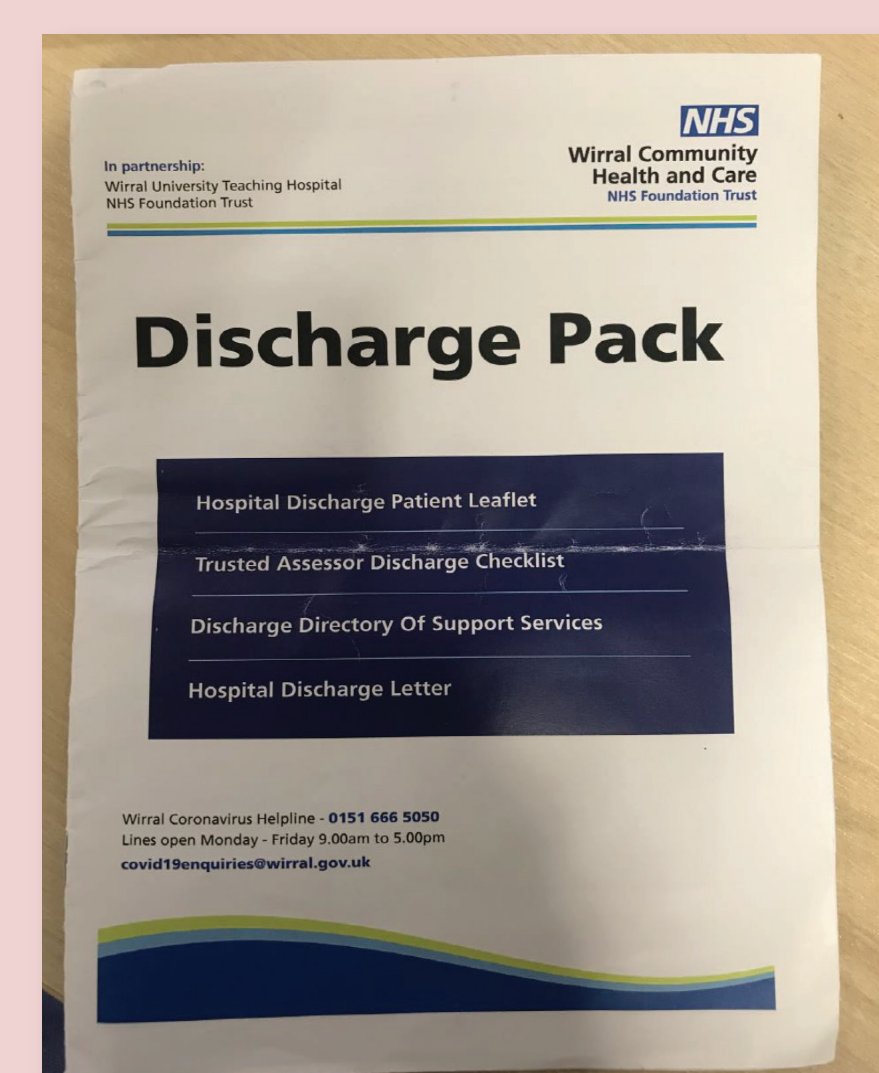
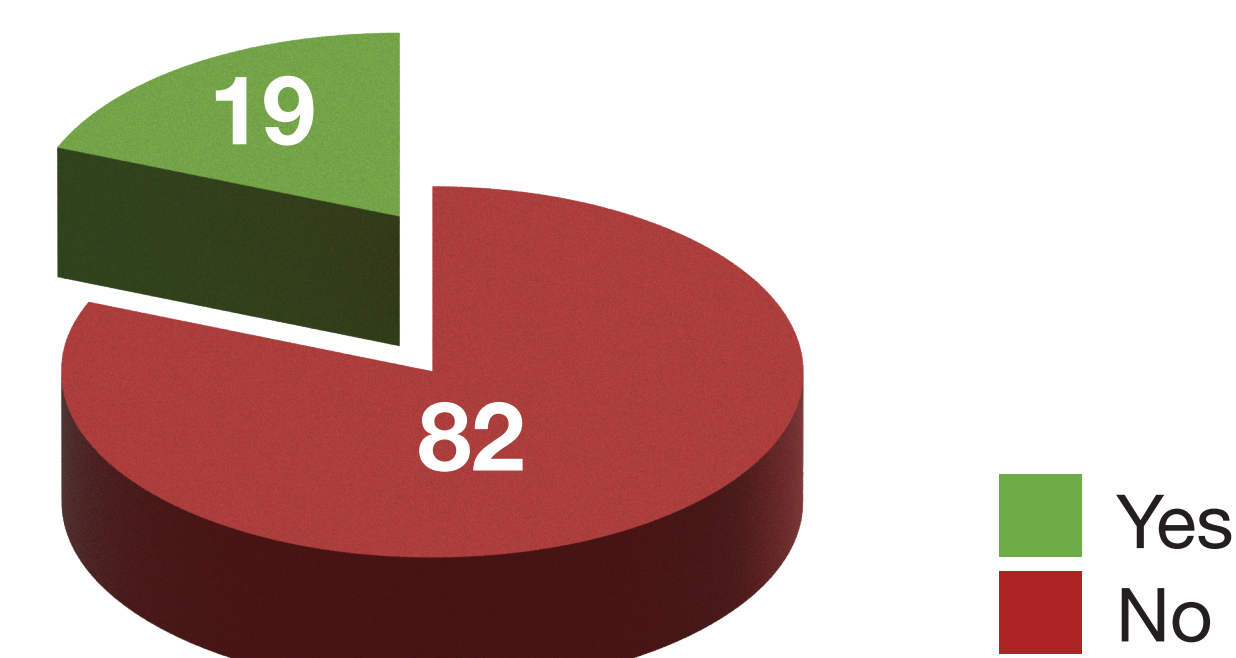
### DATA ANALYSIS

- Total patients 150
- **Included 101 patients**
- Excluded 49 patients w/ NOF fractures
- Average age 57 years

#### Gender



#### Fracture related infection guidance and contact advice



### DISCUSSION

- **81% of patients have no documentation** of FRI instructions and contact.
- Some of the wound problems would have been presented early with appropriate guidance given.
- **None of the cases have significant adverse outcomes** due to infection.

### RECOMMENDATIONS

- ✓ Leaflet / discharge pack provision with information on FRI and contacts if any concern.
- ✓ QR Code with links to above information on FRI and contact details for accessibility.
- ✓ Mandatory tick box in the discharge letter (incl. FRI warning signs and symptoms explained, contact given).
- ✓ Re-audit.

### REFERENCES

• Iliens, J. et al. (2021). Fracture-related infection in long bone fractures: A comprehensive analysis of the economic impact and influence on quality of life. *Injury*, 52(11), 3344-3349. doi: 10.1016/j.injury.2021.08.023

• Metsemakers, W. et al. (2017). Infection after fracture fixation of the tibia: Analysis of healthcare utilization and related costs. *Injury*, 48(6), 1204-1210. doi: 10.1016/j.injury.2017.03.030

• National Institute for Health and Care Excellence [NICE], National Collaborating Centre for Women's and Children's Health. (2008). Surgical site infections: prevention and treatment [NG125]. <https://www.nice.org.uk/guidance/ng125/evidence/october-2008-full-guideline-pdf-6727105694>