Streamlined pathway with access to immediate MRI leads to earlier specialist review and surgical intervention with high pick-up rate of injuries

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Background

Traumatic soft tissue knee injuries are one of the most common injuries in young and active individuals. Early surgical intervention is recommended for severe injuries such as multi-ligament injuries, locked knee and osteochondral fractures. This study reports the impact of a streamlined pathway on the diagnosis and treatment of these injuries.

Methods

This study was undertaken at a level 1 major trauma centre in the UK. Following review of current pathway and discussion with radiology department, a streamlined pathway was agreed to facilitate immediate MRI scan (within 48 hours) and early specialist review (within 1 week). Patients who underwent urgent surgery prior to implementation of the pathway were identified and was compared to patients on the pathway. The primary outcomes measured were time to MRI, specialist review and surgery.

Results

Between June 2024 and February 2025, 141 patients were referred through the pathway. Mean age was 31 (Range: 15-77). The majority (59%) of patients were male. Of these, 34 (24.1%) required urgent surgery, 34 (24.1%) proceeded to elective surgery, and 73 (51.8%) were managed non-operatively (66 physiotherapy, 7 discharged). Overall, 83% of MRIs showed positive findings. Urgent cases included: 19 displaced BH meniscal tears, 9 multi-ligament injuries, 4 tibial spine avulsions, and 2 osteochondral fractures. For comparison, 30 patients underwent urgent surgery prior to the pathway (March 2023 – May 2024). Following pathway implementation, all primary outcomes showed a statistically significantly ($p<0.001$) reduction in median time (measured in days) which includes time to MRI (13.5 vs 4), specialist review (37 vs 9) and surgery (49 vs 16).

Acute knee service 48 hour pathway (adults only)

Indications

Acute traumatic injury to the knee with provisional diagnosis of:

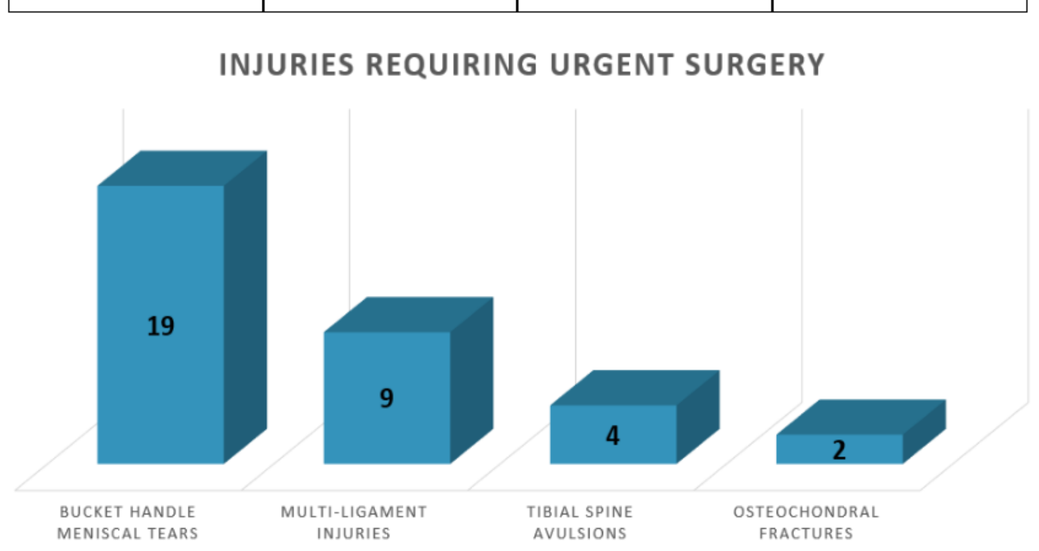
1. Multiligament injury
2. Osteochondral fracture
3. Locked knee suggestive of bucket handle meniscal tear +/- ACL rupture

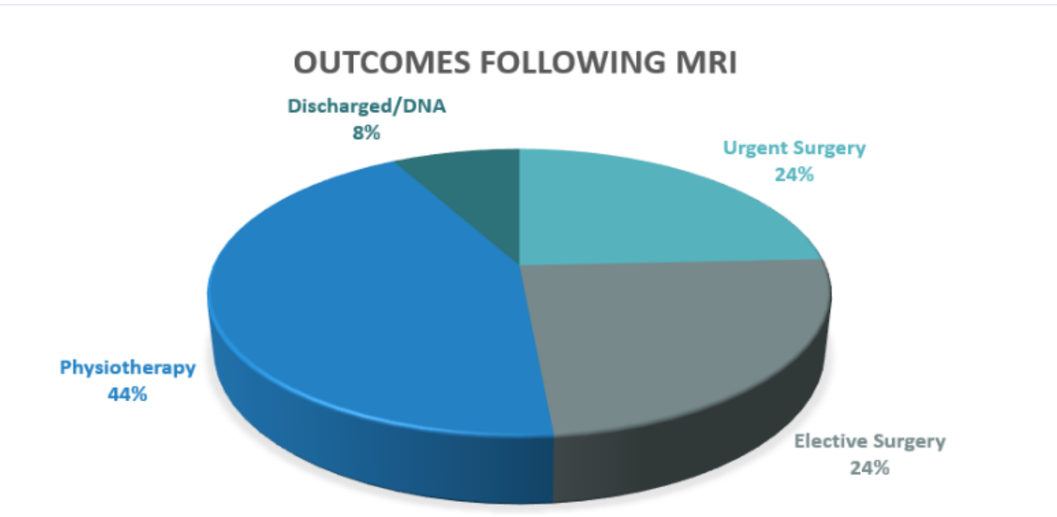
Referring clinician	Radiology team
Request urgent MRI on Careflow with **'ACUTE KNEE SERVICE 48h PATHWAY'** Refer to physio to commence ROM exercise + OT for hinged knee brace unlocked Contact MSK consultant on duty (COD) via switch **Inform patient to wait in clinic for MRI appointment** **Clinic HCA** to contact the MRI team once vetted – ext **86583/ 82711/83110/85311** and inform patient of MRI appointment details (location, date, time) before they leave clinic Book FU appt in next fracture (JN/NPB/CGM) or AKC (JN/TK/DMH) within 1 week Email **nuhnt.acuteknee@nhs.net** with patient details and date of MRI	The MSK COD once contacted will vet immediately (while on the phone) as per indications above and confirm to the requester that the study has been vetted. In addition to selecting the appropriate protocol from the drop-down menu, radiologist COD to add Z48 to **'ACUTE KNEE SERVICE 48h PATHWAY'** referrals This will allow the MRI team to distinguish this scan from other knee MRI scans. MRI Booking team to give appointment to clinical team. MRI to be performed within 48 hours All images to be send for "MSKHR" reporting box

"A maximum of 2 patients on Mondays and 1 patient on each of the other days will be supported through this pathway. No weekend cover. This process will be audited."

JWN/RB/AF/BB/RF June 2024

	Pre – Pathway	Post - Pathway	Statistical significance
Time taken (in days) from presentation in ED to getting an MRI	13.5	4	P < 0.001
Time taken (in days) from presentation in ED to being seen in the Acute knee clinic (AKC)	37	9	P < 0.001
Time taken (in days) from presentation in ED to getting surgery (if needed)	49	16	P < 0.001





Conclusion

Streamlined pathway with access to immediate MRI resulted in earlier specialist review and surgery for severe knee injuries. Vast majority of these MRIs have a positive finding resulting in elective surgery and diagnosis specific rehabilitation.