

Closing the Assessment Gap: Standardising Neurovascular Documentation in Fracture Care — A Two-Cycle Quality Improvement Project

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Aim and Objectives:

- 1) National guidance mandates prompt, documented neurovascular assessment, yet audits report frequent omissions
- 2) The project aimed to increase the proportion of admission clerking notes containing complete, specific neurovascular documentation by implementing targeted education and sustainable departmental measures.

Method:

Two audit cycles were undertaken within a prospective quality improvement framework. Between cycles we ran a foundation trainee workshop, produced a concise neurovascular handout (co-authored by a core trainee and registrar) incorporated into the departmental induction handbook and stored on the shared drive. Material is also presented in form of clinical teaching directly to resident doctors. Extracted data included age, injury region, assessor grade, gross neurovascular items (vascular status/pulses; gross sensory and motor) and specific testing (sensory mapped to named nerve territories; motor mapped to relevant muscle groups)

Neurovascular Assessment Of Common Fractures

Presented by: Dr Ronald Hang Kin Nam

Super **Quick recap on assessing specific neurovascular functions**

Injury	Nerve at Risk	Motor Assessment	Sensory Assessment	Circulation
Pelvic Fracture	Sciatic, Femoral	Hip flexion, knee extension	Anterior and posterior thigh	Femoral pulse, CRT
Hip Dislocation	Sciatic, Femoral	Knee flexion, ankle dorsiflexion	Posterior leg, anterior thigh	Femoral pulse, CRT
Femoral Shaft Fracture	Sciatic, Femoral	Knee extension, ankle dorsiflexion	Anterior and posterior leg	Femoral, dorsalis pedis (DP), posterior tibial (PT) pulses
Distal Femur Fracture	Popliteal vessels	Ankle dorsiflexion	First dorsal web space	Popliteal, DP, PT pulses
Knee Dislocation	Popliteal vessels, Peroneal	Ankle dorsiflexion	Sole of foot	Popliteal, DP, PT pulses
Tibial Fracture	Popliteal vessels, Tibial	Ankle dorsiflexion	Sole of foot, first dorsal web space	DP, PT pulses
Fibula Fracture	Common Peroneal	Ankle dorsiflexion	First dorsal web space	DP, PT pulses
Ankle Fracture	Tibial, Peroneal	Ankle dorsiflexion, plantarflexion	Sole of foot, first dorsal web space	DP, PT pulses
Calcaneus Fracture	Tibial	Toe flexion	Sole of foot	PT, DP pulses

Anatomy recap

Nerves of the Upper Extremities

Nerves of the Lower Extremities

Anterior View Posterior View



Result:

- 1. Baseline patients were elderly: 60% aged ≥ 60 years and 44% ≥ 80 years; 32% had hip/proximal femoral fractures.
- 2. At baseline gross neurovascular elements were commonly recorded but specific testing was poor (specific sensory 32% [$\approx 23/71$] specific motor 34% [$\approx 24/71$]).
- 3. Paediatric and upper-limb patients are more thoroughly assessed than other fractured patients
- 4. Post-intervention improvement was substantial: overall complete documentation rose to 48%. Aggregate specific sensory documentation increased to 55% and specific motor to 50%.

Conclusions:

A pronounced initial gap existed between frequent gross neurovascular recording and infrequent, specific sensory and motor testing. A low-cost intervention bundle was feasible and associated with substantial improvement.