



## Supplementary Material

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**Table i.** Derivation of Open Fracture British Orthopaedic Association Standards for Trauma standards from the Trauma Audit and Research Network database. List of types of fracture included in the analysis of all open fractures.

Clavicle fracture – open
Proximal clavicle fracture – open
Clavicle shaft fracture – open
Clavicle shaft fracture – simple, open
Clavicle shaft fracture – wedge, open
Clavicle shaft fracture – comminuted, open
Distal Clavicle fracture – open
Distal Clavicle fracture – extra-articular, open
Distal Clavicle fracture, intra-articular – open
Scapula fracture – open
Scapula fracture, body – open
Scapula fracture, neck – open
Scapula fracture, glenoid – open
Humerus fracture – open
Proximal humerus fracture – open
Proximal humerus fracture – extra-articular unifocal, open
Proximal humerus fracture – extra-articular bifocal, open
Proximal humerus fracture – articular, open
Humerus shaft fracture – open
Humerus shaft fracture simple, open
Humerus shaft fracture – wedge, open
Humerus shaft fracture – complex, open
Distal humerus fracture – open
Distal humerus fracture – extra-articular - open
Distal humerus fracture – partial articular - open
Distal humerus fracture – complete articular - open
Arm fracture – open
Forearm fracture – open
Hand fracture – open
Proximal radius fracture – open
Proximal ulna fracture – open
Radial fracture – extra-articular, open
Hand fracture – open
Proximal radius fracture – open
Proximal ulna fracture – open
Radial fracture – extra-articular, open
Ulna fracture – extra-articular, open
Radial fracture – partial articular, open

Ulna fracture – partial articular, open
Radial fracture – complete articular, open
ulna fracture – complete articular, open
Radius shaft fracture, open
Ulna shaft fracture, open
Radius shaft simple fracture – open
Ulna shaft simple fracture – open
Radius shaft wedge fracture – open
Ulna shaft wedge fracture – open
Radius shaft complex fracture – open
Ulna shaft complex fracture – open
Radius distal fracture, open
Ulna distal fracture, open
Radius distal extra-articular fracture – open
Ulna distal extra-articular fracture – open
Radius distal partial articular fracture – open
Ulna distal partial articular fracture – open
Radius distal complete articular fracture – open
Ulna distal complete articular fracture – open
Carpus fracture NFS, open
Scaphoid fracture, open
Carpus fracture – other than scaphoid, open
Metacarpus fracture – open
MC: Thumb fracture, open
MC: one of lateral four fingers fracture, open
MC: Thumb fracture – extra-articular, open
MC: One of lateral four fingers fracture – extra-articular, open
MC: Thumb fracture – partial articular, open
MC: One of lateral four fingers fracture – partial articular, open
MC: Thumb fracture – complete articular, open
MC: One of lateral four fingers fracture – complete articular, open
Radius fracture NFS – open
Ulna fracture, NFS – open
Femur fracture – open
Proximal femur fracture – open
Trochanteric, intertrochanteric femur fracture – open
Femoral neck fracture – open
Femoral head fracture – open
Femoral shaft fracture NFS – open
Femoral shaft fracture simple – open
Femoral shaft fracture wedge – open
Femoral shaft fracture complex, open
Distal femur fracture – open
Distal femur fracture, extra-articular; supracondylar open
Distal femur fracture, partial articular; condylar; hoffa open
Distal femur fracture complete articular, open
Tibia fracture – open
Proximal tibia fracture – open
Proximal tibia fracture – extra-articular, open
Proximal tibia fracture – partial articular, open
Proximal tibia fracture – complete articular, open
Tibia shaft fracture, open
Tibia shaft fracture simple – open
Tibia shaft fracture wedge – open
Tibia shaft fracture complex, open
Distal tibia fracture – open

Distal tibia fracture extra-articular, open
Distal tibia fracture partial articular, open
Distal tibia fracture complete articular, open
Fibula fracture – open
Fibula fracture below ankle joint, open – weber A
Fibula fracture below ankle joint bimalleolar – open
Fibula fracture through ankle joint, open Weber B
Fibula fracture through ankle joint, bimalleolar – open
Fibula fracture through ankle joint, trimalleolar – open
Fibula fracture above ankle joint, open Weber C
Patella fracture – open
Patella fracture extra-articular, open
Patella fracture partial articular, open
Patella fracture complete articular, open
Pelvic ring fracture, open
Pelvic ring fracture, isolated not destroying integrity of pelvic ring, open
Pelvic ring fracture, incomplete disruption of post arch, open
Pelvic ring fracture, complete disruption of post arch and pelvic floor, open
Acetabulum fracture – open but NFS
Acetabulum fracture – partial articular (involving one column) – open
Acetabulum fracture – partial articular (transverse) – open
Acetabulum fracture – complete articular (involving both columns with or w/o SI joint inv) – open
Pelvic/acetabulum fracture, with major retroperitoneal, open book, substantial deformation
Talus fracture – open
Talus fracture, extra-articular – open
Talus fracture into one joint surface – open
Talus fracture into two joint surfaces – open
Calcaneus fracture – open
Calcaneus fracture, extra-articular – open
Calcaneus fracture into one joint surface – open
Calcaneus fracture into two joint surfaces – open
Navicular fracture NFS – open
Navicular fracture, extra-articular – open
Navicular fracture into one joint surface – open
Navicular fracture into two joint surfaces – open
Cuneiform fracture – open
Cuneiform fracture, extra-articular – open
Cuneiform fracture into one joint surface – open
Cuneiform fracture into two joint surfaces – open
Cuboid fracture – open
Cuboid fracture, extra-articular – open
Cuboid fracture into one joint surface – open
Cuboid fracture into two joint surfaces – open
Metatarsal fracture – open
First metatarsal fracture – open
One of four lateral metatarsals fracture, open
First metatarsal fracture, extra-articular – open
One of four lateral metatarsals fracture extra-articular – open
First metatarsal fracture, partial articular – open
One of four lateral metatarsals fracture partial articular – open
First metatarsal fracture, complete articular – open
One of four lateral metatarsals fracture complete articular – open

**Table ii.** Orthopaedic and plastic surgeons present at first debridement.

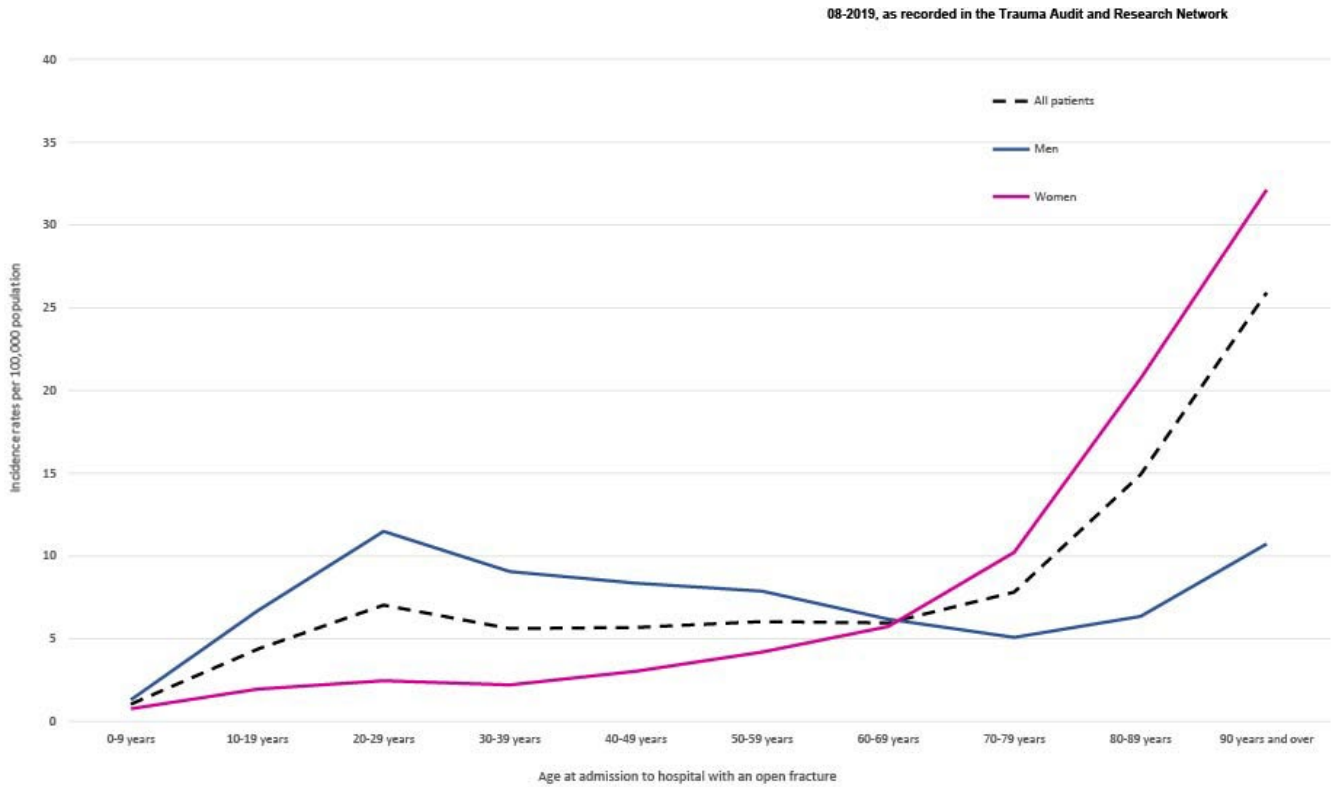
<b>Period</b>	Rolling year
<b>Numerator</b>	<ol style="list-style-type: none"> <li>1. Where orthopaedics consultant and plastics consultants are both present at first debridement.</li> <li>2. Where orthopaedics and plastic surgeons (any grade) are both present at first debridement.</li> </ol>
<b>Denominator</b>	<ol style="list-style-type: none"> <li>1. All open fractures within cohort</li> <li>2. Lower limb long bone fractures only</li> </ol>
<b>Source TARN data fields</b>	Operations; Operation date and time, speciality and grade of surgeons.
<b>Notes</b>	<ul style="list-style-type: none"> <li>• Using all three surgeon fields in any order</li> <li>• Patients transferred for repatriation, transferred in directly from abroad, or where best available pre-hospital time are missing, are excluded from this measure.</li> <li>• All submissions with one of the below operations recorded during stay. Operations include one of the below (TARN operation codes - 1009,812,813,814,844,885): <ul style="list-style-type: none"> <li>BOAST – Plaster of Paris and debridement</li> <li>BOAST - Internal fixation: nail and debridement</li> <li>BOAST - Internal fixation: other and debridement</li> <li>BOAST - Internal fixation: plate and debridement</li> <li>BOAST - External fixation: circular frame and debridement</li> <li>BOAST - External fixation: monolateral (non-circular) frame</li> <li>Skin debridement</li> </ul> </li> <li>• For each unique individual time to first debridement also reported (derived from operating time and best available incident time)</li> </ul>

**Table iii.** Presentation of patients with all open fractures to hospital by time of day and day of the week in England from 2008 to 2019, as recorded by the Trauma Audit and Research Network.

	<b>Night (00:00-07:59)</b>	<b>Day (08:00-15:59)</b>	<b>Evening (16:00-23:59)</b>	<b>Total (%)</b>
<b>Monday</b>	681	2,004	2,289	4,974 (13)
<b>Tuesday</b>	669	2,173	2,330	5,172 (13)

<b>Wednesday</b>	605	2,035	2,328	4,968 (13)
<b>Thursday</b>	695	2,239	2,499	5,433 (14)
<b>Friday</b>	767	2,231	2,633	5,631 (15)
<b>Saturday</b>	1,283	2,173	2,571	6,027 (16)
<b>Sunday</b>	1,307	2,099	2,348	5,754 (15)
<b>Total (%)</b>	6,007 (16)	14,954 (39)	16,998 (44)	37,959 (99)

\*Please note that 388 patients did not have data on their day or time of presentation at hospital. Thus, percentages have been calculated using the total number of patients included in the study (n = 38,347).



**Figure a.** Incidence of patients with an open fracture by age and sex who were admitted to a hospital in England from 2008 to 2019, as recorded in the Trauma Audit and Research Network.

**Table iv.** Presentation of patients with severe open fracture of the tibia to hospital by time of day and day of the week in England from 2008 to 2019, as recorded by the Trauma Audit and Research Network.

	Night (00:00-07:59)	Day (08:00-15:59)	Evening (16:00-23:59)	Total (%)
<b>Monday</b>	219	653	736	1,608 (13)
<b>Tuesday</b>	218	678	761	1,657 (14)
<b>Wednesday</b>	170	647	744	1,561 (13)
<b>Thursday</b>	227	715	779	1,721 (14)
<b>Friday</b>	235	654	851	1,740 (14)
<b>Saturday</b>	414	641	853	1,908 (16)
<b>Sunday</b>	441	623	738	1,802 (15)
<b>Total (%)</b>	1,924 (16)	4,611 (38)	5,462 (45)	11,997 (99)

\*Please note that 173 patients did not have data on their day or time of presentation at hospital. Thus, percentages have been calculated using the total number of patients included in the study (n = 12,170).