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FRACTURED FEMUR EQUIVALENTS - AN ALTERNATIVE MEASURE OF SAFETY OUTCOMES

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Introduction

If we are to have measures of safety outcomes, and unfortunately we are, then we must use a better instrument than LTIFR. Current accepted practice is to measure injury severity by categorizing workplace injuries as:

- Lost Time
- Restricted Duties
- Medical Treatment
- First Aid

This system measures the impact of an injury on WORK requirements NOT the impact of an injury on the INJURED EMPLOYEE. It de-humanizes injuries. The Australian Workplace Injury & Disease Recording Standard recommends that, "lost-time be calculated on the basis of complete working days/shifts lost". This measure provides an indication of the severity of lost-time injuries and diseases that occurred at the workplace."

It is certainly an indication NOT a measure. Lost Time Injury Frequency Rate is commonly used as the measure of outcome of safety performance. LTIFR is used to compare safety performance between industries, between companies, between locations, between departments and between crews. But, LTIFR is open to abuse and is not an accurate measure of injury severity. This is principally because many injuries occurring on the last shift of a cycle or the day before annual leave, etc., are not counted as Lost Time Injuries. Further, "Restricted Duties" are manipulated to the extent the category is useless as a measure of injury severity. These anomalies can be corrected, and the entire system improved, by changing to an Injury Severity Index.

Injury severity index.

I propose that such an Index will use a Standard Injury, (fractured femur), against which all other injuries will be measured. Every injury will have a fixed score which will reflect its relative severity and will apply irrespective of all other factors. The Injury Severity Rate will simply be the sum of the scores for the given time period. It can be converted into an Incidence Rate or a Frequency Rate.

All injuries can be described accurately using International Classification of Diseases protocol (ICD 9). Any injury, or set of injuries, can be mathematically compared with a standard injury - a fractured femur.

To derive a formula for calculating each injury's severity requires five simple parameters.

1. The necessary immediate medical management of the person.
2. The level of treatment required.
3. If a fracture or amputation is involved.
4. The general medical condition.
5. The anticipated time off work (time periods set for each injury).

A weighted score is derived from each parameter .

<u>Parameter</u>	<u>Score</u>
1. Requires first aid only	5
2. Requires minor surgery or medical treatment	10
3. Requires admission to hospital.	10
4. Requires major surgery.	20
5. Fractures. (See below)	xx
6. Amputations (See below)	xx
7. Burns (See below)	xx
8. General Condition (See below)	yy
9. Anticipated Time Off Work In Weeks	zz

Fractures.

Fingers/Toes	10 per bone broken
Foot/ankle	20 “ “ “
Lower Arm/Leg/	
Collar bone/Rib	40 “ “ “
Upper Arm/Leg/	
Pelvis/Spine/Skull	80 “ “ “

Amputations.

1. Finger/toe	10
2. Hand/foot	20
3. Lower arm/lower leg	40
4. Upper arm/Upper leg	80

Burns.

First degree (skin red)	10
Second degree (skin broken/blisters)	20
Third degree (full thickness)	40

Where more than one degree of burn is present the score will be the sum.

e.g. 1st and 2nd degree burns will score 30 ; 1st, 2nd & 3rd degree burns present will score 70

The area of burns is not specifically considered but will be reflected in the General Condition score of the burned person.

General Condition.

1. Not Serious	10
2. Serious	25
3. Very Serious	50
4. Life Threatening	100
5. Not Expected To Live	150

General Condition definitions:

Not Serious:	Trivial injury. First aid only.
Serious:	Requires treatment beyond first aid.
Very Serious:	Would usually result in hospital admission.
Life Threatening:	Axiomatic.
Not Expected To Live:	Axiomatic.

The Injury Severity Index for any injury is derived by summing the scores for each parameter and dividing by 140. The Denominator, 140, is derived by scoring the Standard Injury, a fractured femur, on this system.

Scoring A Fractured Femur.

1. Requires Admission To Hospital	10
2. Requires Major Surgery	20
3. One fractured bone (Upper Leg)	80
4. General Condition - Serious	25
5. Anticipated Weeks Off Work	5
Total	140

Injury Severity Index = $140/140 = 1$.

Example 1.

Embedded Corneal Foreign Body.

1. Requires minor surgery	10
2. General Condition Not Serious	10
Total	20

Injury Severity Index = $20/140 = 0.14$

Example 2.

Extensive, deep burns.

1. Requires Admission To Hospital	10
2. Requires Major Surgery	20
3. 1 st , 2 nd & 3 rd degree burns	70
3. General Condition - Life Threatening	100
4. Anticipated Weeks Off Work	52
Total	252

Injury Severity Index = $252/140 = 1.8$

Example 3.

Back Pain With Muscle Spasm.

1. Requires Medical Treatment	10
2. Condition - Serious	25
3. Anticipated Weeks Off Work	1
Total	36

Injury Severity Index = $36/140 = 0.25$

Example 4.

Back Pain With Sciatica.

1. Requires Admission To Hospital	10
2. General Condition Very Serious	50
3. Requires Major Surgery	20
4. Ruptured Disc (= spinal fracture)	80
4. Anticipated Weeks Off Work	6
Total	166

Injury Severity Index = $166/140 = 1.19$

I propose that trivial, "First Aid" type injuries such as splinters, minor abrasions etc be scored as 0.1. Note that in implementing such a system it would NOT be necessary for the health and safety professional to make these calculations for each injury - s/he would simply use pre-calculated score tables. Injury scores will apply irrespective of rostered days off work. The system focuses on the injury NOT on the impact of the injury on ability to work. This system humanizes the process of injury categorization.

Summary.

Industry should abandon the existing injury categorization system and change to an Injury Severity Index to accurately and honestly measure injury experience.