

Injurious Falls Classification Training Manual for Team Verification

Purpose

Provide an objective training manual for use by the **Fall TIPS Injurious Falls Classification Subgroup** to test/refine the capacity of Prototype I Injurious Falls Classification (IFC) and Training Manual (IFCTM). The IFCTM provides the classifications and definitions for categorizing degree of seriousness of injurious falls. The ITTCM expands upon the National Database of Nursing Quality Indicators (NDNQI) classification that is widely used to quantify the severity of injurious falls. The NDNQI categorizes injurious falls into five levels of severity: none, minor, moderate, major, and death. The IFCTM expands the “major” category into 3 sections, resulting in 7 categories. In this phase of testing, inter rater reliability is used as a mechanism to examine the validity of the defining characteristics that specify each of 4 severity categories. Three NDNQI severity categories, none, minor, and death are not being validated in this test. Fall injury review is not simple – patient injuries should be assessed comprehensively and rated based on the most serious injury the patient experienced (even though there may be several injuries). In the context of this project, we also have the advantage of reviewing falls of discharged patients, thus providing full information on consequences of the fall ~~endured~~ that occurred during hospitalization.

Background: Fall injury classification is complex. Patients’ injuries should be assessed comprehensively. While there may be several injuries, classification will rate based on the most serious injury. During this training, we have the advantage of reviewing falls of discharged patients; therefore we have more complete information about patients. We recognize that variables obtained after discharge can impact analysis across hospitals. We also recognize that complications of falls and fall related injuries may occur after discharge and be unknown when classifying fall injury; e.g. a patient transferred to another facility may die from a fall related injury and this information is not available to update the injurious falls classification.

The principal IFC changes are in the **major** category, in which NDNQI relied more on how injuries were treated than on the injuries themselves. The NDNQI major classification includes treatments as minimal as casting to as major as surgery to relieve a subdural hematoma. While we recognize that specific treatment of an injury may be a proxy variable for degree of seriousness of the injury, we believe that when possible, the injury itself should be the defining characteristic of classifications. How an injury is treated has considerable variability and is a subjective measure. We believe that increasing the specificity of injury classification will allow for more precise assessment of the range of fall-related injuries. Our team conducted extensive background work focusing on the literature and actual incident reports and classifications. In our empirical work, we examined the incident reports from all serious (NDNQI moderate or major) injurious falls at Brigham and Women’s Hospital between 2010-2015 to classify injury severity within the three IFC subcategories of the NDNQI major injury category. Three mutually exclusive sub-categories, not dependent on treatment of the injury, were confirmed from the data. Systematic reviews of the literature on injurious falls, their severity, and associated functional impairments, were aligned with the indicators of and degrees of severity that were coded in our bottom-up approach of classifying incident reports.

Procedures

Each of you has volunteered to join the **Fall TIPS Injurious Falls Classification Subgroup** to independently classify moderate and major falls from 2016-2018, which will allow us to validate the proposed Major injury sub-categories across healthcare systems with diverse patient populations. Once the categories are validated and procedures to assure rater reliability are confirmed, we will link the IFC with the NDNQI; promoting ease of use within existing workflows and enable a “cross-walk” between typologies.

Commented [AH1]: These sentences are taken from Srijesa’s comments in Dec

Commented [AH2]: This does not resolve Jason’s concern about “when” to classify the injurious fall.

Commented [AH3]: Want to be sure we are not using study data for training, but are saving study data for once the IFC manual is ready for use.

Commented [BZ4R3]: We are not using this data for training. Training cases come from 2010-2015 incident reports.

To orient you to the process of validation, we ask each of you to classify 10 injury test cases independently in REDCap [and write your comments in the note section if you are unclear of how to categorize or have a suggestion to make](#). From this we will calculate the reliability of our sub-categories. As a group, we will come to consensus around any disagreements in categorization [and refining defining characteristics](#) before moving on to another 10 test cases. This process will repeat until we achieve at least 90% interrater reliability on the test cases.

REDCap Instructions

1. Once you have a REDCap account, you can login here: <https://redcap.partners.org/redcap/index.php>
2. After logging in, click the project entitled "R18 – Injurious Falls Classification - TEST"
3. On the left side of the screen, you will see a section called "Data Collection." Click the "Record Status Dashboard." You will see a chart with the names of all the reviewers in this project.
***Please make sure you click on your name only, otherwise this will interfere with blinding between reviewers.*
4. Scroll towards the right to find the column with your name. The list of reviewer names is alphabetical by first name. Click on "Record ID 1" bubble in the column under your name. The bubble will be red because the form is incomplete/you have not read this record yet.
5. Once you click on the bubble, you will see a form with the description of the fall. Please rate the severity of the fall. If you select "N/A," you will be asked to provide the rationale for your decision.
6. Before moving on to the next event, please select "Complete" from the dropdown menu if you are finished.
***It is important that you select complete, this way you know which records you have already looked at. This record will show as a green bubble when you look at the "Record Status Dashboard."*
7. Click the "Save &..." button at the top right corner of the screen to save and move on to the next record.

To orient you to the process of validation, we also ask each of you to familiarize yourself with the IFC classifications, examples, and descriptions/exclusions

Original NDNQI Classification	Injurious Falls Classification	Defining Characteristics/Examples of Injuries	Descriptions Exclusions Comments
Moderate: resulted in suturing, application of steri-strips/skin glue, splinting, or muscle/joint strain	Moderate (IFC): Peripheral wound or slight musculoskeletal harm: (includes skin, soft tissue or muscle injury, muscle/joint strain, laceration)	<p>Injuries that are expected to heal quickly and leave no residual impairment</p> <ul style="list-style-type: none"> • Sprained ankle • Laceration on head/<u>forehead requiring steri-strips or sutures but with no indication of visual impairments or new findings on CT or other imaging</u> • <u>Hematoma with no abnormal imaging results</u> • Laceration over eye requiring sutures; CT scan negative • Hyperdense subdural lesion underlying the left frontal 	<p>When reviewing post fall diagnostic tests, in all categories, be sure that only new (not the pathology of underlying condition) is considered</p> <p><i>(no impact on hospitalization because of fall)</i></p>

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		<ul style="list-style-type: none"> parietal bones, no abnormality re: head CT • Minor blood loss • <u>Minor AC separation (sprain)</u> 	
<p>Major: resulted in surgery, casting, traction, required consultation for neurological (basilar skull fracture, small subdural hematoma) or internal injury (rib fracture, small liver laceration) or patients with coagulopathy who receive blood products as a result of the fall</p>	<p>Major A: Temporary functional or cosmetic impairment (including ankle, foot/toes, wrist, forearm, hand/fingers, upper arm (excluding proximal humerus <u>fractures</u>); <u>or major facial injury without visual impairment (including broken teeth, missing teeth, nasal bone fracture); or disruption of surgical wound.</u></p>	<p>Injuries that cause temporary functional or cosmetic impairment and are not associated with mortality Orthopedic Injuries</p> <ul style="list-style-type: none"> • Dislocated shoulder • Displaced wrist fracture • Non-displaced carpal row • Hairline fracture of wrist • Fracture of 1-2 ribs • Colles' fracture • Avulsion fracture – ankle • Elbow fracture • Hyperflexed knee • Distal clavicle fracture • <u>Distal radius fracture</u> • <u>Fracture to orbital area without loss of vision and no brain injury (e.g., no abnormal brain imaging results)</u> <p>Dental issues</p> <ul style="list-style-type: none"> • Broken tooth • <u>Tooth knocked out</u> <p>Surgical wound disruption</p> <ul style="list-style-type: none"> • Surgical staples pulled out • Wound dehiscence 	<p>Injury may or may not influence projected recovery time</p>
	<p>Major B: Long-term functional impairment or potential for impaired survival (including vertebral, pelvic, multiple rib (≥3), distal femur, proximal tibia, and proximal humerus fractures)</p>	<p>Injuries causing long-term functional impairments and/or are associated with an increased standardized mortality ratio Orthopedic injuries</p> <ul style="list-style-type: none"> • Fracture of ≥3 ribs • Femur fracture • Fracture involving the superior posterior endplate of T9 vertebral body 	<p>Injury likely to extend projected recovery time</p>

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	<ul style="list-style-type: none"> • Non-displaced fracture of the sacrum <p>Facial injury</p> <ul style="list-style-type: none"> • Ruptured globe, orbital inferior wall fracture, retrobulbar hematoma & inferior lid laceration (<i>with potential for long-term loss of vision</i>) 	
<p>Major C: Potentially fatal (Traumatic Brain Injury Major head injury [including traumatic brain injury, subdural hematoma, Intracranial hemorrhage, subarachnoid hemorrhage, skull fracture] and hip fracture [including femoral neck and proximal femur fractures])</p>	<p>Injuries associated with well-established increase in standardized mortality ratio in the literature</p> <p>Cranial Injuries</p> <ul style="list-style-type: none"> • Subgaleal hematoma • Subarachnoid bleed • Paramedian intraparenchymal frontal hemorrhage with extra-axial component • Basilar skull fracture • Concussion • Traumatic Brain Injury (TBI) <p>Orthopedic Injuries</p> <ul style="list-style-type: none"> • Nondisplaced transcervical fracture of the left proximal femur • Mildly displaced Intertrochanteric fracture 	<p>Injury will extend projected recovering time if patient survives</p>

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Please contact zburns@bwh.harvard.edu or skhasanbish@bwh.harvard.edu if you have any questions.