## Supplementary Table S3. TBI Billing Codes Used to Identify Head Injuries of all Severity IN PATIENTS SELECTED BY THE NLP AND CODED ALGORITHMS

TBI morbidity group	ICD-9 Codes	ICD-10 Codes
Any TBI	800.0–801.9, 803.0–804.9, 850.0–854.1, 950.1–950.3, or 959.01	S01.0-S01.9, S02.0, S02.1, S02.3, S02.7-S02.9, S04.0, S06.0-S06.9, S07.0, S07.1, S07.8, S07.9, S09.7-S09.9, T01.0, T02.0, T04.0, T06.0, T90.1, T90.2, T90.4, T90.5, T90.8, T90.9
Skull fracture	800-801.9, 803.0-804.9	S02.0, S02.1, S02.3, S02.7, S02.8, S02.9
Contusion	800.1, 800.6, 801.1, 801.6, 803.1, 803.6, 804.1, 804.6, 851.0, 851.1, 851.4, 851.5, 851.8, 851.9	S06.1, S06.2, S06.3, S06.8, S06.9
Hemorrhage	800.2, 800.3, 800.7, 800.8, 801.2, 801.3, 801.7, 801.8, 803.2, 803.3, 803.7, 803.8, 804.2, 804.3, 804.7, 804.8, 852, 853.1	S06.4, S06.5, S06.6 (S06*?)
Concussion / loss of consciousness	850.1, 850.2, 850.3, 850.4, 850.5, 850.9	S06.0
Other and unspecified head injury	All remaining TBI codes	All remaining TBI codes

Codes were endorsed by the National Center for Injury Prevention and Control<sup>1,2</sup> and were mapped to TBI morbidity groups as previously published.<sup>3</sup> In NLP patients, the TBI morbidity group was assigned by mapping the eligible mild TBI; in coded cases, all TBI codes within 365 days before and 30 days after the first post-concussion syndrome billing code were mapped. Codes included all sub-classifications.

TBI, traumatic brain injury; NLP, natural language processing; ICD, International Classification of Diseases.