Annex to The global burden of injury: incidence, mortality, disability-adjusted life year estimates and time trends from the Global Burden of Disease Study 2013

This annex provides supplemental information on data sources, methods and supplemental tables and figures to support the material in the main paper.

Table of Contents

Section 1. Tables of cause-of-injury and nature-of-injury + ICD-9 & ICD-10 codes

Annex Table 1.1 ICD codes mapped to cause-of-injury

Cause of injury	ICD 9	ICD 10
Pedestrian road injuries	E811.7, E812.7, E813.7, E814.7, E815.7, E816.7, E817.7, E818.7, E819.7, E822.7, E823.7, E824.7, E825.7, E826.0, E827.0, E828.0, E829.0	V01.0, V01.1, V01.2, V01.9, V02.5, V02.6, V02.7, V02.8, V02.9, V03.2, V03.3, V03.4, V03.5, V03.6, V03.7, V03.8, V03.9, V04.0, V04.1, V04.2, V04.3, V04.4, V04.5, V04.6, V06.0, V06.1, V06.2, V06.3, V06.4, V06.5, V06.6, V06.8, V06.9, V07.1, V07.2, V07.3, V07.4, V07.8, V07.9, V09.0, V09.1, V09.2, V09.3, V09.4, V09.5, V09.6, V09.7, V09.8
Cyclist road injuries	E800.3, E801.3, E802.3, E803.3, E804.3, E805.3, E806.3, E807.3, E810.6, E811.6, E812.6, E813.6, E814.6, E815.6, E816.6, E817.6, E818.6, E819.6, E820.6, E821.6, E822.6, E823.6, E824.6, E825.6, E826.1	V10.8, V11.2, V11.3, V11.4, V11.5, V11.8, V11.9, V12.4, V12.5, V13.0, V13.5, V13.6, V13.7, V14.1, V14.2, V14.3, V14.4, V14.5, V14.6, V14.7, V14.8, V14.9, V16.4, V16.5, V16.6, V16.7, V16.8, V16.9, V17.0, V17.5, V17.6, V18.0, V18.5, V18.6, V19.2, V19.4, V19.5, V19.6, V19.8, V19.9
Motorcyclist road injuries	E810.2, E810.3, E811.2, E811.3, E812.2, E812.3, E813.2, E813.3, E814.2, E814.3, E815.2, E815.3, E816.2, E816.3, E817.2, E817.3, E818.2, E818.3, E819.2, E819.3, E820.2, E820.3, E821.2, E821.3, E822.2, E822.3, E823.2, E823.3, E824.2, E824.3, E825.2, E825.3	V20.0, V20.1, V20.2, V20.3, V20.4, V20.5, V20.9, V21.0, V21.1, V21.8, V22.2, V22.3, V22.4, V22.5, V24.3, V24.4, V24.5, V24.9, V27.2, V27.7, V27.9, V28.0, V28.1, V28.2, V28.3, V28.4, V28.5, V28.6, V28.8, V28.9, V29.0, V29.4, V29.5, V29.6, V29.8, V29.9
Motor vehicle road injuries	E810.0, E810.1, E811.0, E811.1, E812.0, E812.1, E813.0, E813.1, E814.0, E814.1, E815.0, E815.1, E816.0, E816.1, E817.0, E817.1, E818.0, E818.1, E819.0, E819.1, E820.0, E820.1, E821.0, E821.1, E822.0, E822.1, E823.0, E823.1, E824.0, E824.1, E825.0, E825.1	V30.0, V30.1, V33.6, V35.0, V35.1, V35.2, V35.3, V35.4, V35.5, V35.6, V35.7, V35.9, V36.2, V36.5, V36.9, V37.1, V37.2, V37.3, V37.6, V37.7, V38.1, V38.2, V38.9, V39.0, V39.1, V39.2, V39.4, V39.5, V39.6, V39.8, V40.9, V41.0, V41.1, V41.5, V41.6, V41.7, V41.8, V41.9, V42.0, V42.1, V42.2, V42.3, V42.4, V42.5, V42.6, V42.7, V42.8, V42.9, V43.1, V43.2, V43.4, V43.5, V43.6, V43.9, V44.1, V44.2, V44.7, V44.8, V48.9, V49.0, V49.3, V49.5, V49.6, V49.8, V51.1, V52.2, V54.5, V58.3, V58.4, V58.5, V59.6, V60.7, V62.1, V62.6, V63.9, V64.1, V64.2, V65.7, V65.8, V65.9, V66.0, V66.1, V66.2, V66.3, V66.4, V66.5, V66.6, V66.7, V66.9, V67.4, V69.1, V69.6, V69.9, V71.0, V73.5, V73.9, V74.6, V74.7, V74.8, V75.3, V75.9, V76.6, V77.1, V77.7, V77.8, V87.2, V87.3
Other road injuries	E810.4, E810.5, E811.4, E811.5, E812.4, E812.5, E813.4, E813.5, E814.4, E814.5, E815.4, E815.5, E816.4, E816.5, E817.4, E817.5, E818.4, E818.5, E819.4, E819.5, E820.4, E820.5, E821.4, E821.5, E822.4, E822.5, E823.4, E823.5, E824.4, E824.5, E825.4, E825.5, E826.3, E826.4, E827.3, E827.4, E828.4, E829.4	V80.1, V80.2, V80.4, V80.6, V80.7, V80.8, V80.9, V82.0, V82.1, V82.2, V82.3, V82.4, V82.5, V82.6, V82.7, V82.8, V82.9
Other transport injuries	E800.0, E800.1, E800.2, E801.0, E801.1, E801.2, E802.0, E802.1, E802.2, E803.0, E803.1, E803.2, E804.0, E804.1, E804.2, E805.0, E805.1, E805.2, E806.0, E806.1, E806.2, E807.0, E807.1, E807.2, E810.7, E820.7, E821.7, E826.2, E827.2, E828.2, E830.0, E830.1, E830.2, E830.3, E830.4, E830.5, E830.6, E830.7, E830.8, E830.9, E831.0, E831.1, E831.2, E831.3, E831.4, E831.5, E831.6, E831.7, E831.8, E831.9, E832.0, E832.1, E832.2, E832.3, E832.4, E832.5, E832.6, E832.7, E832.8, E832.9, E833.0, E833.1, E833.2, E833.3, E833.4, E833.5, E833.6, E833.7, E833.8, E833.9, E834.0, E834.1, E834.2, E834.3, E834.4, E834.5, E834.6, E834.7, E834.8, E834.9, E835.0, E835.1, E835.2, E835.3, E835.4, E835.5, E835.6, E835.7, E835.8, E835.9, E836.0, E836.1, E836.2, E836.3, E836.4, E836.5, E836.6, E836.7, E836.8, E836.9, E837.0, E837.1, E837.2, E837.3, E837.4, E837.5, E837.6, E837.7, E837.8, E837.9, E838.0, E838.1, E838.2, E838.3, E838.4, E838.5, E838.6, E838.7, E838.8, E838.9, E840.0, E840.1, E840.2, E840.3, E840.4, E840.5, E840.6, E840.7, E840.8, E840.9, E841.0, E841.1, E841.2, E841.3, E841.4, E841.5, E841.6, E841.7, E841.8, E841.9, E842.6, E842.7, E842.8, E842.9, E843.0, E843.1, E843.2, E843.3, E843.4, E843.5, E843.6, E843.7, E843.8, E843.9, E844.0, E844.1, E844.2, E844.3, E844.4, E844.5, E844.6, E844.7, E844.8, E844.9, E845.0, E845.8, E845.9, E849.0, E849.1, E849.2, E849.3, E849.4, E849.5, E849.6, E849.7, E849.8, E849.9, E929.1	V00.1, V00.2, V00.3, V00.8, V05.1, V05.2, V05.3, V05.4, V05.9, V81.0, V81.1, V81.2, V81.3, V81.4, V81.5, V81.6, V81.7, V81.8, V81.9, V83.0, V83.1, V83.2, V83.3, V83.4, V83.5, V83.6, V83.7, V83.8, V83.9, V84.0, V84.1, V84.2, V84.3, V84.4, V84.5, V84.6, V84.7, V84.8, V84.9, V85.0, V85.1, V85.2, V85.3, V85.4, V85.5, V85.6, V85.7, V85.9, V86.0, V86.1, V86.2, V86.3, V86.4, V86.5, V86.6, V86.7, V86.9, V88.2, V88.3, V90.0, V90.1, V90.3, V90.8, V91.0, V91.2, V91.3, V91.4, V91.5, V91.6, V91.8, V92.0, V92.1, V92.2, V92.7, V92.8, V93.0, V93.1, V93.2, V93.3, V93.4, V93.5, V93.6, V93.7, V93.8, V93.9, V94.0, V94.1, V94.2, V94.3, V94.7, V94.8, V94.9, V95.0, V95.1, V95.2, V95.3, V95.4, V95.8, V95.9, V96.0, V96.1, V96.2, V96.8, V96.9, V97.0, V97.1, V97.2, V97.3, V97.8, V98.0, V98.1, V98.2, V98.3, V98.8

Cause of injury	ICD 9	ICD 10
Falls	E880.0, E880.1, E880.9, E881.0, E881.1, E882.0, E883.0, E883.1, E883.2, E883.9, E884.0, E884.1, E884.2, E884.3, E884.4, E884.5, E884.6, E884.9, E885.0, E885.1, E885.2, E885.3, E885.4, E885.9, E886.0, E886.9, E888.0, E888.1, E888.8, E888.9, E929.3	W00.2, W00.4, W00.7, W00.9, W01.1, W01.2, W01.3, W01.4, W01.5, W01.6, W01.7, W01.8, W01.9, W02.0, W02.1, W02.2, W02.3, W02.4, W02.5, W02.6, W02.7, W02.8, W02.9, W03.0, W03.1, W03.2, W03.3, W03.4, W03.5, W03.6, W03.7, W03.8, W03.9, W04.0, W04.1, W04.2, W04.3, W04.4, W04.5, W04.6, W04.7, W04.8, W04.9, W05.0, W05.1, W05.2, W05.3, W05.4, W05.5, W05.6, W05.7, W05.8, W05.9, W06.0, W06.1, W06.2, W06.3, W06.4, W06.5, W06.6, W06.7, W06.8, W06.9, W07.0, W07.1, W07.2, W07.3, W07.4, W07.5, W07.6, W07.7, W07.8, W07.9, W08.0, W08.1, W08.2, W08.3, W08.4, W08.5, W08.6, W08.7, W08.8, W09.0, W09.3, W09.4, W09.5, W10.2, W10.3, W10.6, W10.7, W11.0, W11.1, W11.2, W11.3, W11.4, W11.5, W11.6, W11.7, W11.8, W11.9, W12.0, W12.1, W12.2, W12.3, W12.4, W12.5, W12.6, W12.7, W12.8, W12.9, W13.0, W13.1, W13.2, W13.3, W13.4, W13.5, W13.6, W13.7, W13.8, W13.9, W14.0, W14.1, W14.2, W14.3, W14.4, W14.5, W14.6, W14.7, W14.8, W14.9, W15.0, W15.1, W15.2, W15.3, W15.4, W15.5, W15.6, W15.7, W15.8, W15.9, W16.0, W16.1, W16.2, W16.3, W16.4, W16.5, W16.6, W16.7, W16.8, W16.9, W17.0, W17.1, W17.2, W17.3, W17.4, W17.5, W17.6, W17.7, W17.8, W17.9, W18.0, W18.3, W18.4, W18.8, W18.9, W19.3, W19.6
Drowning	E910.0, E910.1, E910.2, E910.3, E910.4, E910.8, E910.9	W65.9, W69.6, W69.8, W70.0, W70.3, W70.4, W70.5, W73.1, W73.2, W73.3, W73.9, W74.1
Fire, heat, and hot substances	E890.0, E890.1, E890.2, E890.3, E890.8, E890.9, E891.0, E891.1, E891.2, E891.3, E891.8, E891.9, E892.0, E893.0, E893.1, E893.2, E893.8, E893.9, E894.0, E895.0, E896.0, E897.0, E898.0, E898.1, E899.0, E924.0, E924.1, E924.2, E924.8, E924.9, E929.4	X00.5, X00.9, X01.8, X02.9, X03.0, X03.1, X03.2, X03.3, X03.6, X03.7, X03.8, X04.0, X04.1, X04.6, X04.7, X04.8, X05.0, X05.1, X05.9, X06.0, X06.2, X06.3, X06.4, X06.5, X06.6, X06.7, X06.8, X06.9, X08.0, X08.1, X08.2, X09.1, X09.2, X09.3, X09.4, X09.5, X09.6, X09.7, X09.8, X10.0, X10.1, X10.2, X10.4, X10.5, X10.8, X10.9, X11.7, X11.8, X12.0, X12.1, X12.8, X13.6, X13.8, X13.9, X14.1, X14.2, X14.4, X14.5, X14.6, X14.7, X14.8, X15.1, X15.2, X15.3, X15.8, X15.9, X16.7, X17.4, X17.7, X19.5, X19.6, X19.9
Poisoning by gases and vapors	E862.0, E862.1, E862.2, E862.3, E862.4, E862.9, E867.0, E868.0, E868.1, E868.2, E868.3, E868.8, E868.9, E869.0, E869.1, E869.2, E869.3, E869.4, E869.8, E869.9	X46.5, X46.6, X47.3, X47.4, X47.5
Poisoning by pesticides	E863.0, E863.1, E863.2, E863.3, E863.4, E863.5, E863.6, E863.7, E863.8, E863.9	-
Poisoning by other means	E850.3, E850.4, E850.5, E850.6, E850.7, E850.8, E854.8, E855.0, E855.1, E855.2, E855.3, E855.4, E855.5, E855.6, E856.0, E857.0, E858.0, E858.1, E858.2, E858.3, E858.4, E858.5, E858.6, E858.7, E858.8, E858.9, E860.2, E860.3, E860.4, E860.8, E860.9, E861.0, E861.1, E861.2, E861.3, E861.4, E861.5, E861.6, E861.9, E864.0, E864.1, E864.2, E864.3, E864.4, E865.0, E865.1, E865.2, E865.3, E865.4, E865.5, E865.8, E865.9, E866.0, E866.1, E866.2, E866.3, E866.4, E866.5, E866.6, E866.7, E866.8, E866.9	X40.0, X40.9, X43.0, X43.1
Unintentional firearm injuries	E922.0, E922.1, E922.2, E922.3, E922.4, E922.5, E922.8, E922.9, E928.7	W32.8, W33.0, W33.1, W33.9, W34.0, W34.1
Unintentional suffocation	E913.0, E913.1	W75.0, W75.7, W75.8, W75.9, W76.8, W76.9
Other exposure to mechanical forces	E916.0, E917.0, E917.1, E917.2, E917.3, E917.4, E917.5, E917.6, E917.7, E917.8, E917.9, E918.0, E919.0, E919.1, E919.2, E919.3, E919.4, E919.5, E919.6, E919.7, E919.8, E919.9, E920.0, E920.1, E920.2, E920.3, E920.4, E920.5, E920.8, E920.9, E921.0, E921.1, E921.8, E921.9, E928.1, E928.2, E928.3, E928.4, E928.5, E928.6	W20.5, W20.6, W20.7, W20.8, W21.0, W21.1, W21.2, W21.3, W21.4, W21.5, W21.8, W21.9, W22.0, W22.1, W22.2, W22.5, W22.6, W22.7, W22.9, W23.0, W23.1, W23.2, W23.3, W23.4, W23.5, W23.6, W23.7, W23.9, W24.0, W24.3, W24.6, W24.7, W25.2, W25.5, W25.6, W25.9, W26.0, W26.1, W26.2, W26.3, W26.4, W26.5, W26.6, W26.7, W26.8, W26.9, W27.0, W27.1, W27.2, W27.3, W27.4, W27.5, W27.6, W27.7, W27.8, W27.9, W28.0, W28.1, W28.3, W28.4, W28.5, W28.6, W28.7, W28.8, W28.9, W29.0, W29.1, W29.2, W29.3, W29.4, W29.5, W29.6, W30.2, W30.3, W30.4, W30.5, W30.6, W30.7, W30.8, W30.9, W31.0, W31.1, W31.8, W37.0, W37.1, W37.4, W37.7, W37.8, W37.9, W38.1, W38.2, W38.3, W38.4, W38.8, W38.9, W40.8, W41.0, W41.1, W41.2, W41.5, W41.6, W41.9, W42.9, W43.6, W43.8, W43.9, W49.0, W49.1, W49.5, W49.7, W50.0, W50.1, W50.2, W50.3, W50.4, W50.5, W50.6, W50.7, W51.0, W51.1, W51.2, W51.3, W51.4, W51.5, W51.6, W51.7, W51.8, W51.9

Cause of injury	ICD 9	ICD 10
Adverse effects of medical treatment	E870.0, E870.1, E870.2, E870.3, E870.4, E870.5, E870.6, E870.7, E870.8, E870.9, E871.0, E871.1, E871.2, E871.3, E871.4, E871.5, E871.6, E871.7, E871.8, E871.9, E872.0, E872.1, E872.2, E872.3, E872.4, E872.5, E872.6, E872.8, E872.9, E873.0, E873.1, E873.2, E873.3, E873.4, E873.5, E873.6, E873.8, E873.9, E874.0, E874.1, E874.2, E874.3, E874.4, E874.5, E874.8, E874.9, E875.0, E875.1, E875.2, E875.8, E875.9, E876.0, E876.1, E876.2, E876.3, E876.4, E876.5, E876.6, E876.7, E876.8, E876.9, E878.0, E878.1, E878.2, E878.3, E878.4, E878.5, E878.6, E878.8, E878.9, E879.0, E879.1, E879.2, E879.3, E879.4, E879.5, E879.6, E879.7, E879.8, E879.9, E930.0, E930.1, E930.2, E930.3, E930.4, E930.5, E930.6, E930.7, E930.8, E930.9, E931.0, E931.1, E931.2, E931.3, E931.4, E931.5, E931.6, E931.7, E931.8, E931.9, E932.0, E932.1, E932.2, E932.3, E932.4, E932.5, E932.6, E932.7, E932.8, E932.9, E933.0, E933.1, E933.2, E933.3, E933.4, E933.5, E933.6, E933.7, E933.8, E933.9, E934.0, E934.1, E934.2, E934.3, E934.4, E934.5, E934.6, E934.7, E934.8, E934.9, E935.0, E935.1, E935.2, E935.3, E935.4, E935.5, E935.6, E935.7, E935.8, E935.9, E936.0, E936.1, E936.2, E936.3, E936.4, E937.0, E937.1, E937.2, E937.3, E937.4, E937.5, E937.6, E937.8, E937.9, E938.0, E938.1, E938.2, E938.3, E938.4, E938.5, E938.6, E938.7, E938.9, E939.0, E939.1, E939.2, E939.3, E939.4, E939.5, E939.6, E939.7, E939.8, E939.9, E940.0, E940.1, E940.8, E940.9, E941.0, E941.1, E941.2, E941.3, E941.9, E942.0, E942.1, E942.2, E942.3, E942.4, E942.5, E942.6, E942.7, E942.8, E942.9, E943.0, E943.1, E943.2, E943.3, E943.4, E943.5, E943.6, E943.8, E943.9, E944.0, E944.1, E944.2, E944.3, E944.4, E944.5, E944.6, E944.7, E945.0, E945.1, E945.2, E945.3, E945.4, E945.5, E945.6, E945.7, E945.8, E946.0, E946.1, E946.2, E946.3, E946.4, E946.5, E946.6, E946.7, E946.8, E946.9, E947.0, E947.1, E947.2, E947.3, E947.4, E947.8, E947.9, E948.0, E948.1, E948.2, E948.3, E948.4, E948.5, E948.6, E948.8, E948.9, E949.0, E949.1, E949.2, E949.3, E949.4, E949.5, E949.6, E949.7, E949.9	D52.1, D59.0, D59.2, D59.6, D69.5, D78.2, D78.8, E03.2, E06.4, E09.0, E09.1, E09.3, E09.4, E09.6, E09.8, E27.3, E36.0, E36.1, E66.1, E89.0, E89.1, E89.3, E89.8, G24.0, G25.1, G25.6, G25.7, G93.7, G97.0, G97.1, G97.2, G97.3, G97.4, G97.5, G97.9, I97.4, J95.8, K43.0, K43.1, K43.2, K43.3, K43.4, K43.7, K43.9, K91.5, K91.6, K94.1, K94.2, K94.3, K95.0, K95.8, M87.1, N99.5, N99.6, N99.8, R50.2, R50.8, Y40.1, Y40.2, Y40.3, Y40.4, Y40.7, Y43.4, Y44.5, Y45.0, Y45.1, Y45.4, Y46.0, Y46.2, Y46.3, Y46.4, Y48.2, Y49.2, Y49.8, Y51.3, Y51.4, Y52.0, Y52.4, Y52.5, Y53.8, Y53.9, Y54.6, Y55.3, Y57.5, Y57.9, Y58.5, Y59.0, Y59.1, Y59.2, Y59.3, Y59.8, Y59.9, Y60.5, Y60.6, Y60.7, Y60.9, Y62.0, Y62.6, Y63.1, Y63.2, Y63.5, Y64.0, Y65.1, Y65.3, Y65.5, Y65.8, Y70.0, Y70.1, Y73.2, Y74.0, Y75.1, Y75.2, Y75.3, Y76.8, Y76.9, Y78.3, Y79.8, Y80.2, Y80.3, Y81.2, Y81.8, Y82.1, Y83.0, Y83.4, Y83.5, Y83.6, Y83.8, Y84.0, Y84.1, Y84.3, Y84.5, Y84.6, Y84.7, Y88.3
Venomous animal contact	E905.0, E905.1, E905.2, E905.3, E905.4, E905.5, E905.6, E905.7, E905.8, E905.9	X20.0, X20.2, X20.4, X20.6, X23.0, X23.1, X23.2, X25.4, X25.7, X28.1, X28.2, X28.4, X28.5, X28.7, X28.8, X28.9, X29.6, X29.8
Non-venomous animal contact	E906.0, E906.1, E906.2, E906.3, E906.4, E906.5, E906.8, E906.9	W52.0, W52.1, W52.2, W52.4, W52.5, W52.6, W52.7, W52.8, W52.9, W53.0, W53.1, W53.2, W53.8, W54.0, W54.1, W54.2, W54.4, W54.5, W54.7, W54.8, W54.9, W55.0, W55.1, W55.2, W55.3, W55.4, W55.5, W55.6, W55.7, W55.8, W55.9, W56.0, W56.1, W56.2, W56.3, W56.4, W56.5, W56.6, W56.8, W56.9, W57.4, W57.5, W57.8, W58.0, W58.1, W59.1, W59.2, W59.4, W59.7, W59.8, W60.1, W60.2, W61.0, W64.0
Pulmonary aspiration and foreign body in airway	E911.0, E912.0, E913.8, E913.9	W78.2, W79.4, W79.5, W79.7, W80.9, W83.2, W83.3, W83.6, W84.1, W84.4, W84.7
Foreign body in eyes	360.5, 360.6, 376.6, 709.4, 729.6, E914.0	H02.8, H05.5, H44.6, H44.7
Foreign body in other body part	E915.0	M60.2, W44.1, W44.2, W44.3, W44.6, W44.9, W45.3
Other unintentional injuries	E903.0, E904.0, E904.1, E904.2, E904.3, E904.9, E913.2, E913.3, E923.0, E923.1, E923.2, E923.8, E923.9, E925.0, E925.1, E925.2, E925.8, E925.9, E927.0, E927.1, E927.2, E927.3, E927.4, E927.8, E927.9, E928.0, E928.8	W39.0, W77.2, W77.4, W81.0, W81.1, W81.2, W86.0, W86.2, W86.3, W86.4, W86.5, W86.8, W87.0, W87.1, W87.2, W87.3, W87.4, W87.7, W87.8, X50.2, X50.3, X50.4, X50.6, X50.7, X52.6, X52.7, X53.0, X58.2
Self-harm by hanging, strangulation, and suffocation	E953.0, E953.1, E953.8, E953.9	-
Self-harm by fire, heat, and hot substances	E958.1	X76.1, X76.5
Self-harm by firearm	E955.0, E955.1, E955.2, E955.3, E955.4, E955.5, E955.6, E955.7, E955.9	X72.9, X73.1, X73.5, X74.0, X74.9
Self-harm by other specified means	E950.0, E950.1, E950.2, E950.3, E950.4, E950.5, E950.6, E950.7, E950.8, E950.9, E951.0, E951.1, E951.8, E952.0, E952.1, E952.8, E952.9, E957.0, E957.1, E957.2, E957.9, E958.0, E958.2, E958.3, E958.4, E958.5, E958.6, E958.7, E958.8, E958.9	X60.2, X60.3, X60.5, X62.9, X63.7, X63.8, X63.9, X64.0, X64.4, X64.6, X65.1, X65.4, X65.5, X65.8, X66.0, X66.1, X67.1, X69.1, X69.2, X69.7, X69.8, X69.9, X70.0, X70.1, X70.2, X70.3, X70.6, X71.0, X75.1, X75.4, X75.8, X78.2, X79.9, X80.8, X80.9, X81.2, X82.2, X82.4, X82.6, X83.6, X83.7, X83.9, X84.0, X84.6, X84.9
Assault by firearm	E965.0, E965.1, E965.2, E965.3, E965.4	X94.0, X94.4, X94.6, X95.0, X95.1, X95.3, X95.7

Cause of injury	ICD 9	ICD 10
Assault by sharp object	-	X99.1, X99.3, X99.5
Assault by other means	E960.0, E960.1, E962.0, E962.1, E962.2, E962.9, E965.5, E965.6, E965.7, E965.8, E965.9, E967.0, E967.1, E967.2, E967.3, E967.4, E967.5, E967.6, E967.7, E967.8, E967.9, E968.0, E968.1, E968.2, E968.3, E968.4, E968.5, E968.6, E968.7, E968.8, E968.9	X85.6, X85.7, X86.0, X87.0, X87.4, X87.8, X88.2, X89.6, X90.0, X90.4, X90.9, X91.1, X91.2, X91.7, X91.8, X92.0, X92.9, X96.0, X96.1, X96.2, X96.3, X96.4, X96.6, X96.8, X96.9, X97.6, X97.7, X98.5, X98.7, X98.8, Y00.5, Y00.7, Y00.8, Y00.9, Y01.4, Y01.6, Y01.9, Y02.0, Y02.9, Y03.2, Y03.5, Y03.8, Y04.0, Y04.6, Y05.7, Y05.8, Y05.9, Y06.8, Y07.1, Y07.4, Y07.5, Y08.0, Y08.1, Y08.5, Y08.6, Y08.8, Y87.1, Y87.2
Exposure to forces of nature, disaster	E907.0, E908.0, E908.1, E908.2, E908.3, E908.4, E908.8, E908.9, E909.0, E909.1, E909.2, E909.3, E909.4, E909.8, E909.9	X33.0, X35.9, X36.8, X37.4, X37.9, X38.6
Exposure to environmental forces, non-disaster	E900.0, E900.1, E900.9, E901.0, E901.1, E901.8, E901.9, E902.0, E902.1, E902.2, E902.8, E902.9, E926.0, E926.1, E926.2, E926.3, E926.4, E926.5, E926.8, E926.9, E929.5	W88.7, W88.9, W89.0, W89.1, W89.2, W89.3, W89.4, W89.8, W89.9, W90.6, W91.7, W92.2, W92.4, W93.0, W93.1, W93.2, W94.1, W94.2, W94.3, W94.4, W94.6, W94.7, W94.9, W97.9, W99.0, W99.1, W99.2, W99.4, X31.6
Collective violence and legal intervention	E979.0, E979.1, E979.2, E979.3, E979.4, E979.5, E979.6, E979.7, E979.8, E979.9, E990.0, E990.1, E990.2, E990.3, E990.9, E991.0, E991.1, E991.2, E991.3, E991.4, E991.5, E991.6, E991.7, E991.8, E991.9, E992.0, E992.1, E992.2, E992.3, E992.8, E992.9, E993.0, E993.1, E993.2, E993.3, E993.4, E993.5, E993.6, E993.7, E993.8, E993.9, E994.0, E994.1, E994.2, E994.3, E994.8, E994.9, E995.0, E995.1, E995.2, E995.3, E995.4, E995.8, E995.9, E996.0, E996.1, E996.2, E996.3, E996.8, E996.9, E997.0, E997.1, E997.2, E997.3, E997.8, E997.9, E998.0, E998.1, E998.8, E998.9, E999.0, , E999.1	Y35.0, Y35.1, Y35.2, Y35.3, Y35.4, Y35.5, Y35.8, Y36.0, Y36.1, Y36.2, Y36.3, Y36.4, Y36.5, Y36.7, Y36.8, Y36.9, Y37.0, Y37.1, Y37.2, Y37.3, Y37.4, Y37.5, Y38.7, Y38.8

Annex Table 1.2 ICD codes mapped to nature-of-injury

Nature of injury	ICD 9	ICD 10
Amputation of lower limbs, bilateral	896.2, 896.3, 897.6, 897.7	-
Amputation of upper limbs, bilateral	887.6, 887.7, 888.1, 888.2, 888.9	S68.4
Amputation of fingers (excluding thumb)	886.0, 886.1	S68.1, S68.6
Amputation of lower limb, unilateral	896.0, 896.1, 897.0, 897.1, 897.2, 897.3, 897.4, 897.5	S78.0, S78.1, S78.9, S88.9, S98.0, S98.3, S98.9
Amputation of upper limb, unilateral	887.0, 887.1, 887.2, 887.3, 887.4, 887.5	S48.9, S58.1
Amputation of thumb	885.0, 885.1	S68.0
Amputation of toe/toes	895.0, 895.1	S98.1
Burns, <20% total burned surface area without lower airway burns	941.0, 941.1, 941.2, 941.3, 941.4, 941.5, 942.0, 942.1, 942.2, 942.3, 943.0, 943.1, 943.2, 943.3, 943.4, 943.5, 944.0, 944.1, 944.2, 944.3, 944.4, 944.5, 945.0, 945.1, 945.2, 945.3, 945.4, 945.5, 947.3, 947.4, 947.8, 947.9, 948.0, 948.1, 949.0, 949.1, 949.2, 949.3, 949.4, 949.5	T20.0, T20.1, T20.2, T20.4, T20.6, T20.7, T21.0, T21.1, T21.2, T21.4, T21.7, T23.1, T24.5, T25.0, T25.1, T25.2, T25.3, T25.4, T25.5, T25.6, T25.7, T28.3, T28.4
Burns, >=20% total burned surface area or >= 10% total burned surface area if head/neck or hands/wrist involved without lower airway burns	906.5, 906.6, 906.7, 906.8, 906.9, 942.4, 942.5, 946.0, 946.1, 946.2, 946.3, 946.4, 946.5, 948.2, 948.3, 948.4, 948.5, 948.6, 948.7, 948.8, 948.9	T29.6, T31.4, T31.6, T31.8, T31.9, T32.2, T32.4, T32.9
Lower airway burns	947.0, 947.1, 947.2	T27.3
Dislocation of hip	835.0, 835.1	S73.0
Dislocation of knee	836.0, 836.1, 836.2, 836.3, 836.4, 836.5, 836.6	S83.0
Dislocation of shoulder	831.0, 831.1	S43.0, S43.1, S43.2, S43.3
Muscle and tendon injuries, including sprains and strains lesser dislocations	830.0, 830.1, 832.0, 832.1, 832.2, 833.0, 833.1, 834.0, 834.1, 837.0, 837.1, 838.0, 838.1, 839.0, 839.1, 839.2, 839.3, 839.4, 839.5, 839.6, 839.7, 839.8, 839.9, 840.0, 840.1, 840.2, 840.3, 840.4, 840.5, 840.6, 840.7, 840.8, 840.9, 841.0, 841.1, 841.2, 841.3, 841.8, 841.9, 842.0, 842.1, 843.0, 843.1, 843.8, 843.9, 844.0, 844.1, 844.2, 844.3, 844.8, 844.9, 845.0, 845.1, 846.0, 846.1, 846.2, 846.3, 846.8, 846.9, 847.0, 847.1, 847.2, 847.3, 847.4,	S03.0, S03.1, S03.2, S03.3, S03.8, S03.9, S13.0, S13.1, S13.2, S13.3, S13.4, S13.5, S13.6, S16.1, S16.2, S16.8, S16.9, S23.0, S23.1, S23.2, S23.3, S23.4, S23.5, S33.3, S43.4, S43.9, S46.1, S46.2, S46.8, S46.9, S53.0, S53.1, S53.4, S66.2, S66.3, S73.1, S76.0, S76.1, S76.2, S76.3, S76.8, S76.9, S86.0, S86.1, S86.2, S86.3, S86.8, S93.0, S93.1, S93.3, S93.4, S93.5, S93.6, S96.0, S96.1, S96.2,

Nature of injury	ICD 9	ICD 10
	847.9, 848.0, 848.1, 848.2, 848.3, 848.4, 848.5, 848.8, 848.9, 905.6, 905.7, 905.8	S96.9, S99.9
Fracture of clavicle, scapula, or humerus	810.0, 810.1, 811.0, 811.1, 812.0, 812.1, 812.2, 812.3, 812.4, 812.5	S49.0, S49.1
Fracture of face bones	802.0, 802.1, 802.2, 802.3, 802.4, 802.5, 802.6, 802.7, 802.8, 802.9	S02.3, S02.4, S02.5, S02.6, S02.7
fracture of foot bones except ankle	825.0, 825.1, 825.2, 825.3, 826.0, 826.1, 826.6	S92.3, S92.4, S92.5, S92.7, S92.9
Fracture of hand(wrist and other distal part of hand)	814.0, 814.1, 815.0, 815.1, 816.0, 816.1	S62.8
Fracture of hip	820.0, 820.1, 820.2, 820.3, 820.8, 820.9, 905.3	S72.0, S72.1, S72.2
Fracture of patella, tibia or fibula, or ankle	822.0, 822.1, 823.0, 823.1, 823.2, 823.3, 823.4, 823.8, 823.9, 824.0, 824.1, 824.2, 824.3, 824.4, 824.5, 824.6, 824.7, 824.8, 824.9, 905.4	S82.0, S82.1, S82.2, S82.3, S82.4, S82.5, S82.6, S82.7, S82.8, S82.9, S89.0, S89.1, S89.2, S89.3
Fracture of pelvis	808.0, 808.1, 808.2, 808.3, 808.4, 808.5, 808.8, 808.9	S32.5
Fracture of radius and/or ulna	813.0, 813.1, 813.2, 813.3, 813.4, 813.5, 813.8, 813.9, 905.2	S52.3, S52.4, S52.5, S52.6, S52.7, S59.0, S59.1, S59.2
Fracture of skull	800.0, 800.1, 800.2, 800.3, 800.4, 800.5, 800.6, 800.7, 800.8, 800.9, 801.0, 801.1, 801.2, 801.3, 801.4, 801.5, 801.6, 801.7, 801.8, 801.9, 803.0, 803.1, 803.2, 803.3, 803.4, 803.5, 803.6, 803.7, 803.8, 803.9, 804.0, 804.1, 804.2, 804.3, 804.4, 804.5, 804.6, 804.7, 804.8, 804.9, 905.0	S02.8, S02.9
Fracture of sternum and/or fracture of one or more ribs	807.0, 807.1, 807.2, 807.3, 807.4, 807.5, 807.6	S22.2, S22.3, S22.4, S22.8, S22.9
Fracture of vertebral column	310.2, 805.0, 805.1, 805.2, 805.3, 805.4, 805.5, 805.6, 805.7, 805.8, 805.9, 905.1	S12.0, S12.5, S12.6, S22.0, S22.1
Fracture of femur, other than femoral neck	821.0, 821.1, 821.2, 821.3	S79.1, T93.1
Minor TBI	850.0, 850.1, 850.2, 850.3, 850.4, 850.5, 850.9	G44.3, S06.0
Moderate and severe TBI[1]	851.0, 851.1, 851.2, 851.3, 851.4, 851.5, 851.6, 851.7, 851.8, 851.9,852.0, 852.1, 852.2, 852.3, 852.4, 852.5, 853.0, 853.1, 854.0, 854.1. 907.0	S06.1, S06.2, S06.3, S06.4, S06.5, S06.6, S06.7, S06.8, S06.9, T90.2
Foreign body in respiratory system	933.0, 933.1, 934.0, 934.1, 934.8, 934.9	T17.2, T17.3, T17.4, T17.8, T17.9
Foreign body in GI and urogenital system	935.0, 935.1, 935.2, 938.9, 939.0, 939.1, 939.2, 939.3, 939.9	T18.1
Spinal cord lesion at neck level	806.0, 806.1, 952.0	S14.1, T91.3
Spinal cord lesion below neck level	806.2, 806.3, 806.4, 806.5, 806.6, 806.7, 806.8, 806.9, 952.1, 952.2, 952.3, 952.4, 952.8, 952.9	S24.0, S24.1, S34.1
Drowning and nonfatal submersion	994.1	-
Asphyxiation	994.7	T71.1, T71.2
Crush injury	906.4, 925.1, 925.2, 926.0, 926.1, 926.8, 926.9, 927.0, 927.1, 927.2, 927.3, 927.8, 927.9, 928.0, 928.1, 928.2, 928.3, 928.8, 928.9, 929.9	S07.0, S07.1, S07.8, S17.0, S17.8, S17.9, S38.0, S67.0, S67.1, S67.3, S67.9, S77.1, S77.2, S87.8, S97.1, S97.8
Nerve injury	907.1, 907.3, 907.4, 907.5, 907.8, 907.9, 950.0, 950.1, 950.2, 950.3, 950.9, 951.0, 951.1, 951.2, 951.3, 951.4, 951.5, 951.6, 951.7, 951.8, 951.9, 953.0, 953.1, 953.2, 953.3, 953.4, 953.5, 953.8, 953.9, 954.0, 954.1, 954.8, 954.9, 955.0, 955.1, 955.2, 955.3, 955.4, 955.5, 955.6, 955.7, 955.8, 955.9, 956.0, 956.1, 956.2, 956.3, 956.4, 956.5, 956.8, 956.9, 957.0, 957.1, 957.8, 957.9	S04.0, S04.1, S04.2, S04.3, S04.4, S04.5, S04.6, S04.7, S04.8, S04.9, S14.2, S14.3, S14.4, S14.5, S14.6, S14.8, S34.8, S34.9, S44.5, S54.0, S54.1, S54.2, S54.3, S64.4, S64.8, S64.9, S74.0, S74.1, S74.2, S74.9, S94.0, S94.1, T13.3, T90.3
Injury to eyes	366.2, 870.0, 870.1, 870.2, 870.3, 870.4, 870.8, 870.9, 871.0, 871.1, 871.2, 871.3, 871.4, 871.5, 871.6, 871.7, 871.9, 918.0, 918.1, 918.2, 918.9, 921.0, 921.1, 921.2, 921.3, 921.9, 930.0, 930.1, 930.2, 930.8, 930.9, 940.0, 940.1, 940.2, 940.3, 940.4, 940.5, 940.9	S01.1, S05.0, S05.1, S05.2, S05.3, S05.4, S05.5, S05.6, S05.7, S05.8, S05.9, T15.0, T15.1, T15.8, T26.4, T26.5, T26.6, T26.8, T90.4
Open wound(s)	872.0, 872.1, 872.6, 872.7, 872.8, 872.9, 873.0, 873.1, 873.2, 873.3, 873.4, 873.5, 873.6, 873.7, 873.8, 873.9, 874.2, 874.3, 874.4, 874.5, 874.8, 874.9, 875.0, 875.1, 876.0, 876.1, 877.0, 877.1, 878.0, 878.1, 878.2, 878.3, 878.4, 878.5, 878.6, 878.7, 878.8, 878.9, 879.0, 879.1, 879.2, 879.3, 879.4, 879.5, 879.6, 879.7, 879.8, 879.9, 880.0, 880.1, 880.2, 881.0, 881.1, 881.2, 882.0, 882.1, 882.2, 883.0, 883.1, 883.2, 884.0, 884.1, 884.2, 890.0, 890.1, 890.2, 891.0, 891.1, 891.2, 892.0, 892.1, 892.2, 893.0, 893.1, 893.2, 894.0, 894.1, 894.2, 900.0, 900.1, 900.8, 900.9, 903.0, 903.1, 903.2, 903.3, 903.4, 903.5, 903.8, 903.9, 904.0, 904.1, 904.2, 904.3, 904.4, 904.5,	S01.0, S01.2, S01.3, S01.4, S01.5, S01.7, S01.8, S01.9, S08.0, S08.1, S08.8, S09.0, S09.1, S09.2, S09.3, S10.7, S11.1, S11.8, S11.9, S15.0, S15.1, S15.2, S15.3, S15.7, S15.8, S15.9, S21.0, S21.1, S21.2, S21.3, S21.4, S21.7, S21.8, S21.9, S31.8, S41.0, S41.1, S45.1, S45.3, S51.0, S51.8, S55.0, S55.1, S55.8, S55.9, S65.0, S65.3, S65.4, S65.5, S65.7, S65.8, S65.9, S71.0, S71.1, S71.7, S75.0, S75.1, S75.2, S75.8, S75.9, S81.0, S81.7, S81.8, S81.9, S85.1, S85.2, S85.3, S85.4, S85.5, S85.8, S85.9, S95.0, S95.2, S95.8, T90.1, T93.0

Nature of injury	ICD 9	ICD 10
	904.6, 904.7, 904.8, 904.9, 906.0, 906.1, 906.2	
Poisoning requiring urgent care	960.0, 960.1, 960.2, 960.3, 960.4, 960.5, 960.6, 960.7, 960.8, 960.9, 961.0, 961.1, 961.2, 961.3, 961.4, 961.5, 961.6, 961.7, 961.8, 961.9, 962.0, 962.1, 962.2, 962.3, 962.4, 962.5, 962.6, 962.7, 962.8, 962.9, 963.0, 963.1, 963.2, 963.3, 963.4, 963.5, 963.8, 963.9, 964.0, 964.1, 964.2, 964.3, 964.4, 964.5, 964.6, 964.7, 964.8, 964.9, 965.0, 965.1, 965.4, 965.5, 965.6, 965.7, 965.8, 965.9, 966.0, 966.1, 966.2, 966.3, 966.4, 967.0, 967.1, 967.2, 967.3, 967.4, 967.5, 967.6, 967.8, 967.9, 968.0, 968.1, 968.2, 968.3, 968.4, 968.5, 968.6, 968.7, 968.9, 969.0, 969.1, 969.2, 969.3, 969.4, 969.5, 969.6, 969.7, 969.8, 969.9, 970.0, 970.1, 970.8, 970.9, 971.0, 971.1, 971.2, 971.3, 971.9, 972.0, 972.1, 972.2, 972.3, 972.4, 972.5, 972.6, 972.7, 972.8, 972.9, 973.0, 973.1, 973.2, 973.3, 973.4, 973.5, 973.6, 973.8, 973.9, 974.0, 974.1, 974.2, 974.3, 974.4, 974.5, 974.6, 974.7, 975.0, 975.1, 975.2, 975.3, 975.4, 975.5, 975.6, 975.7, 975.8, 976.0, 976.1, 976.2, 976.3, 976.4, 976.5, 976.6, 976.7, 976.8, 976.9, 977.0, 977.1, 977.2, 977.3, 977.4, 977.8, 977.9, 978.0, 978.1, 978.2, 978.3, 978.4, 978.5, 978.6, 978.8, 978.9, 979.0, 979.1, 979.2, 979.3, 979.4, 979.5, 979.6, 979.7, 979.9, 980.0, 980.1, 980.2, 980.3, 980.8, 980.9, 981.2, 981.3, 981.5, 981.6, 981.7, 981.9, 982.0, 982.1, 982.2, 982.3, 982.4, 982.8, 983.0, 983.1, 983.2, 983.5, 983.7, 983.9, 984.0, 984.1, 984.3, 984.8, 984.9, 985.0, 985.1, 985.2, 985.3, 985.4, 985.5, 985.6, 985.8, 985.9, 987.0, 987.1, 987.2, 987.3, 987.4, 987.5, 987.6, 987.7, 987.8, 987.9, 988.0, 988.1, 988.2, 988.6, 988.8, 988.9, 989.0, 989.1, 989.2, 989.3, 989.4, 989.5, 989.6, 989.7, 989.8, 989.9	T36.9, T38.8, T38.9, T39.0, T39.3, T39.8, T39.9, T40.3, T40.4, T40.5, T40.6, T40.9, T41.2, T41.4, T42.7, T43.0, T43.2, T43.4, T43.5, T43.6, T43.9, T44.6, T44.9, T45.5, T45.6, T45.7, T45.8, T45.9, T46.0, T46.1, T46.2, T46.3, T46.4, T46.5, T46.6, T46.7, T46.8, T46.9, T47.0, T47.1, T47.2, T47.3, T47.4, T47.5, T47.6, T47.7, T47.8, T47.9, T48.0, T48.1, T48.2, T48.3, T48.4, T48.5, T48.6, T48.7, T48.9, T49.0, T49.1, T49.2, T49.3, T49.4, T49.5, T49.6, T49.7, T49.8, T49.9, T50.0, T50.3, T50.4, T50.8, T50.9, T51.0, T51.1, T51.2, T52.4, T53.5, T54.9, T56.4, T56.8, T57.9, T58.1, T58.2, T58.8, T58.9, T59.0, T59.1, T59.2, T59.3, T59.4, T59.5, T59.6, T59.9, T60.9, T61.1, T61.7, T62.9, T63.8, T65.2, T65.8, T65.9
Severe chest Injury	860.0, 860.1, 860.2, 860.3, 860.4, 860.5, 861.0, 861.1, 861.2, 861.3, 862.0, 862.1, 862.2, 862.3, 862.8, 862.9, 874.0, 874.1, 901.0, 901.1, 901.2, 901.3, 901.4, 901.8, 901.9, 908.0	S11.0, S11.2, S25.0, S25.1, S25.2, S25.3, S25.4, S25.5, S25.7, S25.8, S25.9, S26.0, S26.1, S27.3, S27.4, S27.8, S28.2, T91.4
Internal hemorrhage in abdomen and pelvis	863.0, 863.1, 863.2, 863.3, 863.4, 863.5, 863.8, 863.9, 864.0, 864.1, 865.0, 865.1, 866.0, 866.1, 867.0, 867.1, 867.2, 867.3, 867.4, 867.5, 867.6, 867.7, 867.8, 867.9, 868.0, 868.1, 868.3, 869.0, 869.1, 902.0, 902.1, 902.2, 902.3, 902.4, 902.5, 902.8, 902.9, 908.1, 908.2, 908.3	S35.1, S35.2, S35.3, S35.4, S35.5, S35.9, S36.0, S36.1, S36.2, S36.3, S36.4, S36.5, S36.6, S36.8, S37.0, S37.2, S37.3, S37.4, S37.5, S37.8, S37.9, T79.6
Contusion in any part of the body	906.3, 922.0, 922.1, 922.2, 922.3, 922.4, 922.8, 922.9, 923.0, 923.1, 923.2, 923.3, 923.8, 923.9, 924.0, 924.1, 924.2, 924.3, 924.4, 924.5, 924.8, 924.9	S20.0, S30.2, S40.2, S50.0, S60.2, S60.8, S70.0, S80.0, S80.1, S80.2, S80.7, S90.0, S90.2
Effect of different environmental factors	991.0, 991.1, 991.2, 991.3, 991.4, 991.5, 991.6, 991.8, 991.9, 992.0, 992.1, 992.2, 992.3, 992.4, 992.5, 992.6, 992.7, 992.8, 992.9, 993.0, 993.1, 993.2, 993.3, 993.4, 993.8, 993.9, 994.0, 994.2, 994.3, 994.4, 994.5, 994.6, 994.8, 994.9	T33.5, T33.8, T34.4, T34.5, T34.6, T34.7, T67.3, T69.0, T69.8, T70.8, T75.2
Complications following therapeutic procedures	995.4, 996.0, 996.1, 996.2, 996.3, 996.4, 996.5, 996.6, 996.7, 996.8, 996.9, 998.0, 998.1, 998.2, 998.3, 998.4, 998.5, 998.6, 998.7, 998.8, 998.9, 999.0, 999.1, 999.2, 999.3, 999.6, 999.7, 999.8, 999.9	T80.3, T80.6, T80.8, T80.9, T81.1, T81.3, T81.5, T81.6, T81.7, T81.8, T82.0, T82.1, T82.2, T82.3, T82.4, T82.5, T82.8, T83.0, T83.1, T83.2, T83.4, T83.7, T83.8, T84.4, T84.8, T85.0, T85.1, T85.2, T85.3, T85.4, T85.5, T85.6, T85.8, T86.1, T86.3, T86.8, T86.9, T87.4, T88.1, T88.2, T88.6, T88.7, T88.8, T88.9
Superficial injury of any part of the body	910.0, 910.1, 910.2, 910.3, 910.4, 910.5, 910.6, 910.7, 910.8, 910.9, 911.0, 911.1, 911.2, 911.3, 911.4, 911.5, 911.6, 911.7, 911.8, 911.9, 912.0, 912.1, 912.2, 912.3, 912.4, 912.5, 912.6, 912.7, 912.8, 912.9, 913.0, 913.1, 913.2, 913.3, 913.4, 913.5, 913.6, 913.7, 913.8, 913.9, 914.0, 914.1, 914.2, 914.3, 914.4, 914.5, 914.6, 914.7, 914.8, 914.9, 915.0, 915.1, 915.2, 915.3, 915.4, 915.5, 915.6, 915.7, 915.8, 915.9, 916.0, 916.1, 916.2, 916.3, 916.4, 916.5, 916.6, 916.7, 916.8, 916.9, 917.0, 917.1, 917.2, 917.3, 917.4, 917.5, 917.6, 917.7, 917.8, 917.9, 919.0, 919.1, 919.2, 919.3, 919.4, 919.5, 919.6, 919.7, 919.8, 919.9	S00.0, S00.1, S00.2, S00.3, S00.4, S00.5, S00.8, S00.9, S10.0, S10.1, S10.8, S10.9, S20.1, S20.3, S20.9, S30.8, S40.2, S40.7, S40.8, S40.9, S50.3, S50.7, S50.8, S70.2, S70.3, S80.8, S80.9, S90.4, S90.5, S90.8, S90.9, T00.8, T00.9, T90.0
Multiple fractures, dislocations, crashes, wounds , sprains, and strains	817.0, 817.1, 818.0, 818.1, 819.0, 819.1, 827.0, 827.1, 828.0, 828.1, 929.0	T02.7, T04.7, T06.3

[1] Moderate and severe traumatic brain injury are indistinguishable in ICD

Section 2. Mortality data types by cause of injury

Annex Table 2.1 Number of site-years of cause of deaths data by source type, GBD 2013

Source Type	Vital Registration	Police Records	Mortality Surveillance	Verbal Autopsy	Survey/Census; Hospital; Burial/Mortuary	Total
Global	4528	1433	1021	578	85	7645
Central Latin America	1282	230	0	0	2	1514
East Asia	203	16	1018	27	0	1264
Western Europe	1013	5	0	0	0	1018
Caribbean	418	268	0	27	1	714
North Africa and Middle East	178	179	1	38	13	409
Central Asia	198	108	0	27	0	333
Southeast Asia	140	112	1	49	13	315
Central Europe	296	10	0	0	1	307
South Asia	26	85	0	157	19	287
Eastern Europe	205	6	0	0	1	212
Southern Sub-Saharan Africa	101	72	0	31	8	212
Eastern Sub-Saharan Africa	12	63	1	84	19	179
Southern Latin America	87	53	0	0	0	140
Western Sub-Saharan Africa	7	57	0	51	5	120
High-income Asia Pacific	100	13	0	0	0	113
High-income North America	61	51	0	0	0	112
Tropical Latin America	60	22	0	28	1	111
Andean Latin America	63	36	0	0	0	99
Oceania	16	39	0	30	1	86
Australasia	62	0	0	0	0	62
Central Sub-Saharan Africa	0	8	0	29	1	38

Section 3. Methods - mortality

Preparation of data

The preparation of cause of death data includes age splitting, age-sex splitting, smoothing, and outlier detection. These steps are described in detail by Naghavi et al and Lozano et al.[1 2] The process of redistributing injury ill-defined death or garbage codes is described here. The concept of "garbage codes" and redistribution of these codes was proposed in the GBD 1990.[3] Garbage codes are causes of death that should not be identified as specific underlying causes of death, but have been entered as the underlying cause of death on death certificates. A classic example of these types of codes in injuries chapters are "Exposure to unspecified factor" (X59 in ICD-10 and E887 in ICD-9) and all undetermined intent codes (Y10-Y34 in ICD-10 and E980-E988 in ICD-9). Other examples of garbage codes in injuries are the coding of an injury death to intermediate codes like septicemia or peritonitis or as an ill-defined and unknown cause of mortality (R99). Approximately 2% of total deaths in countries with vital registration data is assigned to these three injury garbage code categories.

Redistribution of garbage codes

We used three methods for distribution, each model was used for a different aspect of the redistribution of garbage codes:

- Proportional redistribution of garbage codes on all injury codes, e.g. ill-defined and unknown cause of mortality (R99).
- Regression methods to find target injuries (i.e. causes of injury deaths to which garbage codes should be redistributed) and the fraction for redistribution of garbage codes, the method used for almost all of garbage codes in injury.
- Obtaining target conditions and redistribution proportions from a literature review and searching individual records in the dataset with multiple causes of death. This method has been used for a small set of garbage codes like septicemia (A40-A41) or peritonitis (K65), some of which are redistributed to injuries as the underlying cause of death.

All of the redistribution methods were done by age, sex, country, year, and ICD type.

For each redistribution package (i.e. a unit of similar garbage codes and the target conditions and proportions on which the garbage code gets redistributed), we defined the "universe" of data as all deaths coded to either the package's garbage codes or the package's redistribution targets for each country, year, age, and sex. We then ran the following regression:

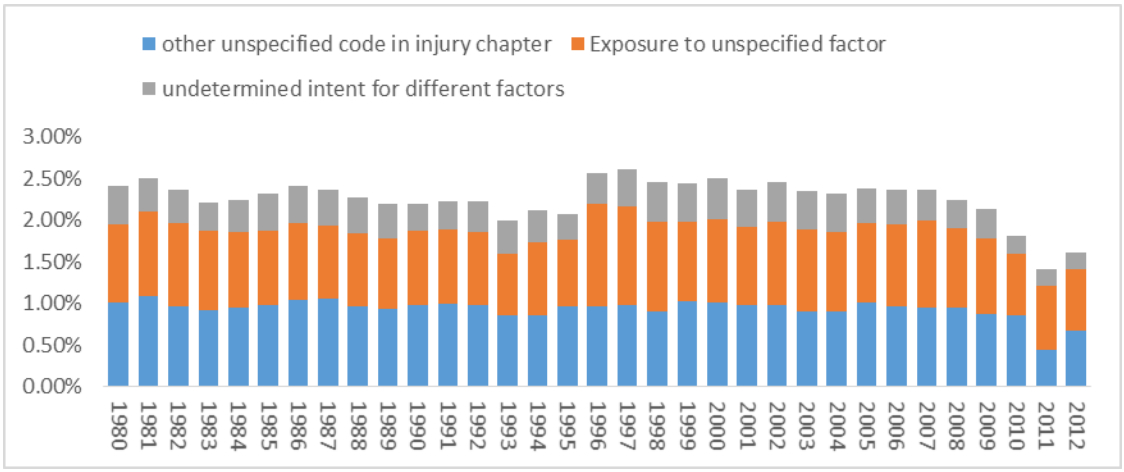
$$TG_{crt} = \alpha + \beta Gar_{crt} + \gamma_r + \theta_r Gar_{crt} + \varepsilon_{ct}$$

where TG_{crt} is the percentage of deaths within the given garbage code's "universe" which were coded to a given target group, by country (c), region (r) and year (t); Gar_{crt} is the percentage of deaths within the given garbage code's "universe" that were coded to that garbage code (by country-year, with countries grouped by region); the parameter α is a

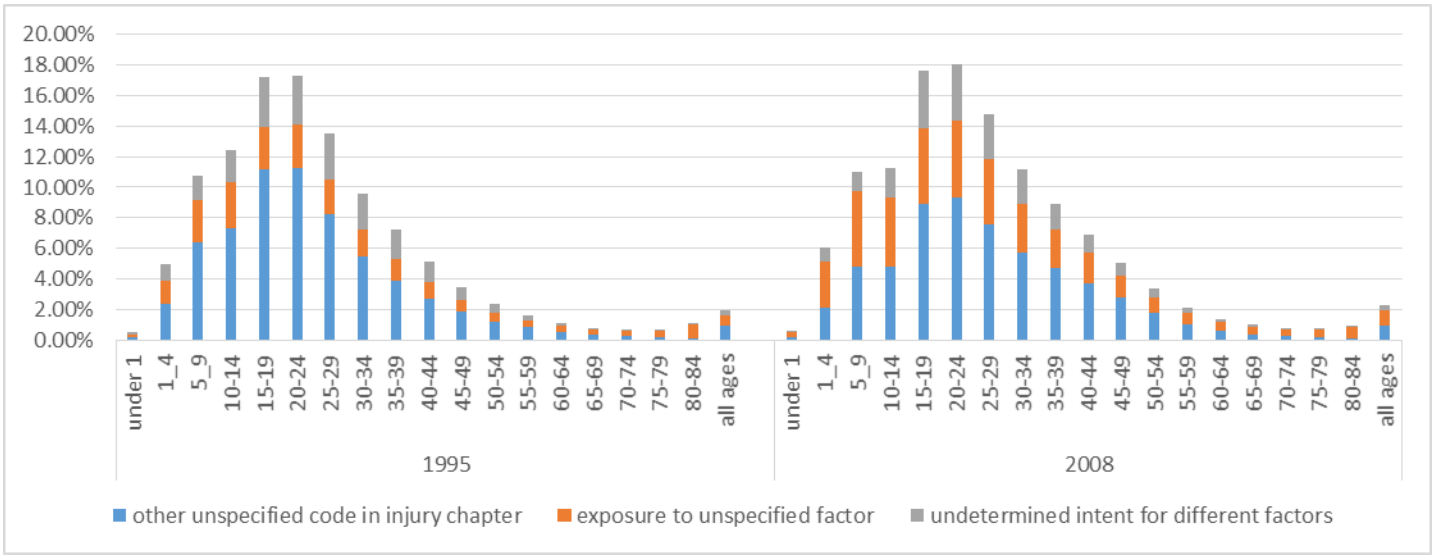
fixed constant; β is a slope coefficient describing the association between Gar and TG; γ_r is a region-specific random intercept; θ_r is a region-specific random slope; and ε_{ct} is normally-distributed error[2].

In injury mortality estimation the garbage codes in injury chapters usually get redistributed to injury deaths. Annex Figure 3.1 shows the pattern of garbage codes by year in the GBD cause of death data sources that use detailed ICD coding. This pattern varied by age. In the age groups 15-30 years and above more than 15% of total deaths were assigned to these garbage codes. Annex Figure 3.2 shows the age pattern for two years: 1995 (countries with ICD9 detail) and 2008 (countries with ICD10 detail). Regional and country patterns for the fraction of death assigned to these codes are different ranging from more than 15% in Southern Sub-Saharan Africa to around 1% in Central Europe.

Annex Figure 3.1. Pattern of garbage codes in injury chapters in countries with ICD9 and ICD10 detail codes by year, all ages and both sexes combined

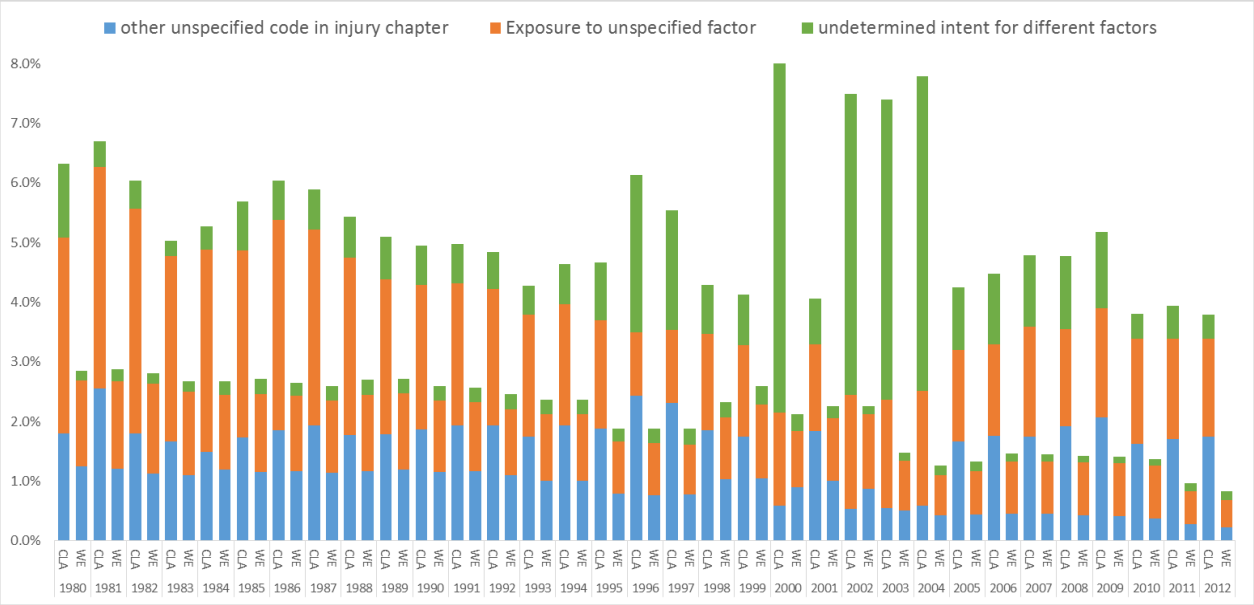


Annex Figure 3.2 Pattern of garbage codes in injury chapters in countries with ICD9 and ICD10 detail codes by age, both sexes, 1995 and 2008



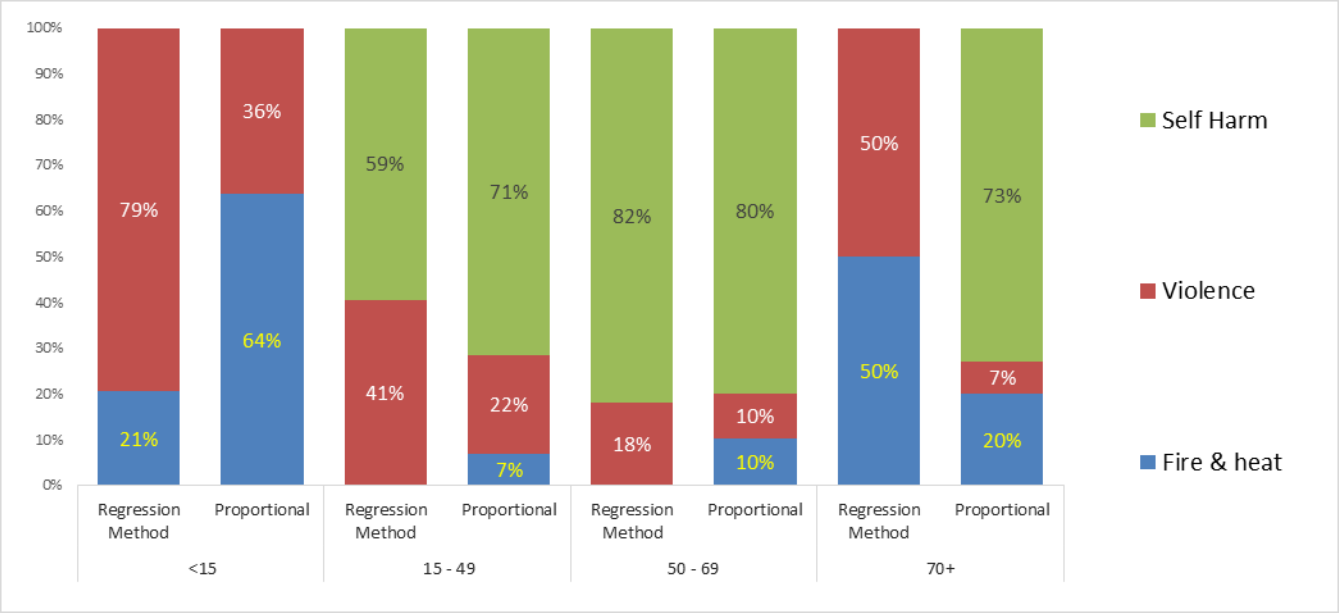
Annex Figure 3.3 shows the pattern of garbage codes in two regions: Western Europe and Central Latin America. The figure shows that Central Latin America has an especially high fraction of undetermined intent injuries in years 2000, 2002, 2003, and 2004.

Annex Figure 3.3 Pattern of garbage codes in injury chapters in countries with ICD9 and ICD10 detail: comparison of two regions (CLE = Central Latin America and WE = Western Europe) all ages and both sexes by year

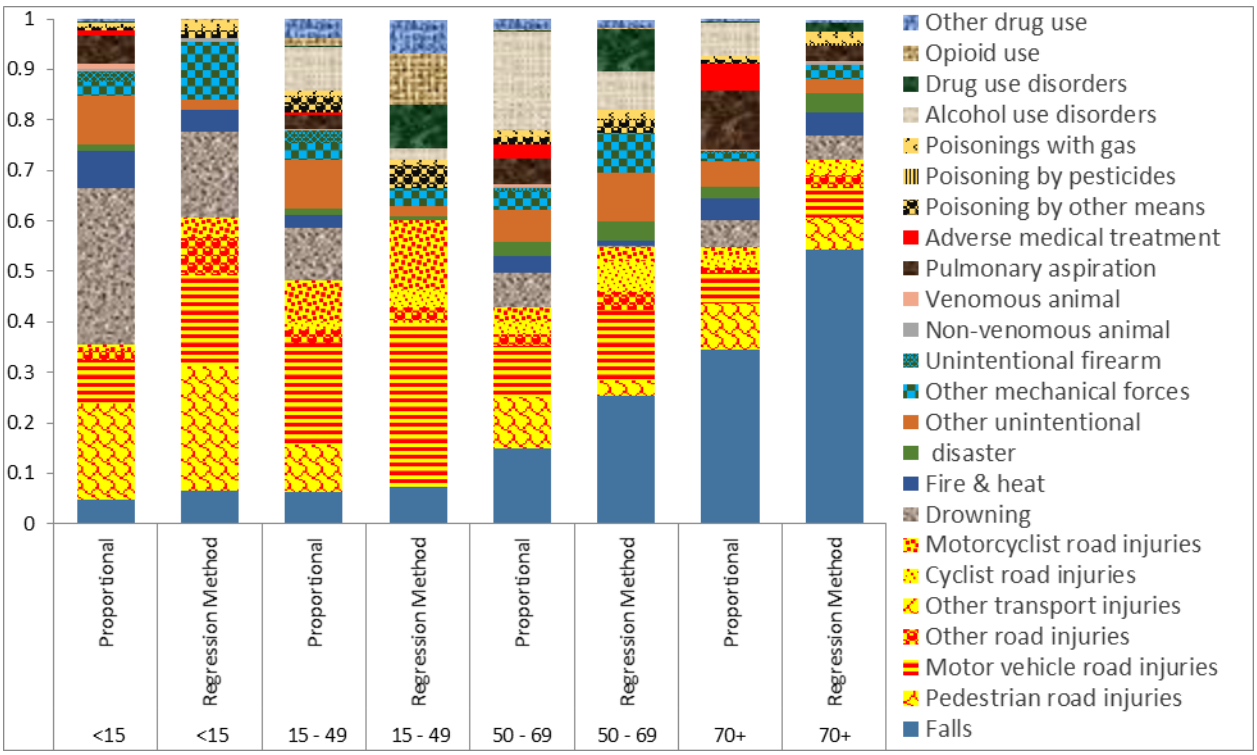


Annex Figures 3.4 and 3.5 show the process of garbage code redistribution by regression for ICD-10 codes Y26 and X59 in males, by age group, at the global level. Y26 (exposure to smoke, fire and flames, undetermined intent and equivalent code in ICD9) and X59 (exposure to unspecified factor) are the biggest "intermediate causes" for injuries in the GBD Causes of Death framework. They are assigned to injuries but further redistributed to more specific injury causes using a regression method based on patterns of similar ICD codes. In GBD2010, these intermediate causes were proportioned to a set of target codes using the existing distribution of deaths assigned to those target codes. Figure 3.4 illustrates how these two methods differ in the male redistribution of Y26, i.e. a larger proportion of Y26 is being distributed to violence across all ages with the GBD2013 regression method. Figure 3.5 illustrates the same mapping for X59, which has many more target codes. The regression method leads to many more X59 deaths being distributed to road injuries in ages 15-49 and falls across all ages. There are other intermediate codes that also needed to be redistributed (i.e.V87, V88, V89, V99 in the transport chapter).

Annex Figure 3.4 Comparison of proportional redistribution with redistribution based on regression methods for Y26 (exposure to smoke, fire and flames, undetermined intent and equivalent code in ICD9) in males at global level

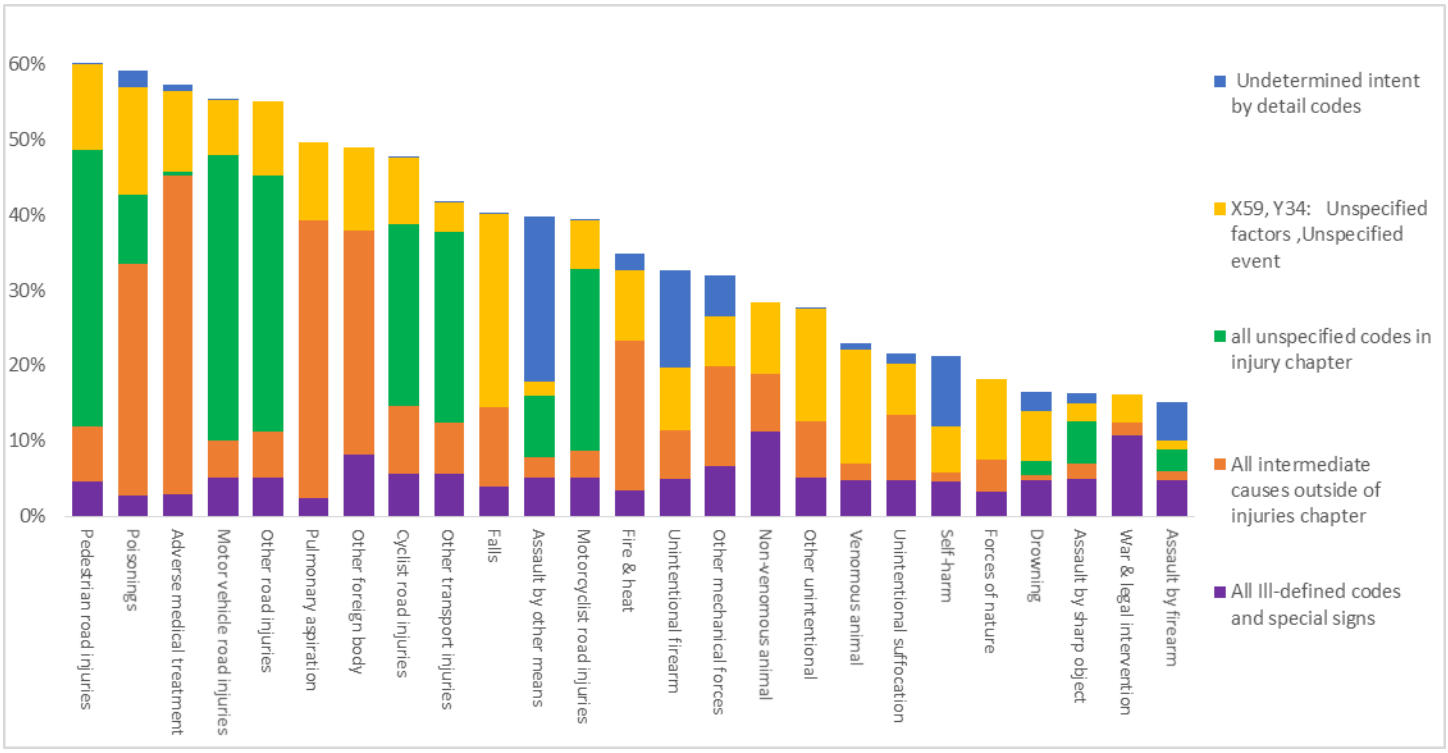


Annex Figure 3.5 Comparison of proportional redistribution with redistribution based on regression methods for X59 (and equivalent code with X59 in ICD9) in males at global level



Annex Figure 3.6 shows the increase of specific causes of injury after redistribution of all garbage codes.

Annex Figure 3.6 Percent increase in each cause of death by source of garbage codes – 2008, all countries with detailed ICD10
codes



Modelling process and covariates

We used CODEm for all causes-of-injury categories except war and disaster.[1 2 4] CODEm explores a large variety of possible models to estimate trends in causes of death using a covariate selection algorithm that yields many possible covariate combinations that are run through several modelling classes (mixed effects or space-time Gaussian process regressions of mortality rates or cause fractions). Uncertainty in cause of death estimates has been captured using standard simulation methods by taking 1000 draws.

Covariates and the direction of effect of each covariate

For each injury cause we chose a different set of covariates in our CODEm analyses. Annex Table 3.1 lists the covariates by injury cause and shows the assumed direction of effect of each covariate. Level 1 covariates have a strong proximal relationship with the cause of death category. For level 2 covariates there is strong evidence of a relationship but no direct biological link. For level 3 covariates there is weak evidence of a relationship or it is a covariate distal in the causal chain. CODEm statistically determines which combination of covariates best predicts the available data using out-of-sample predictive validity testing.

Annex Table 3.1 CODEm covariates, level, and expected direction by cause

Transport injuries	Alcohol (liters per capita)	1	Positive
	Health System Access 2 (unitless)	1	Negative
	Vehicles - 2 wheels fraction (proportion)	1	Positive
	Vehicles - 2+4 wheels (per capita)	1	Positive
	LDI (I$ per capita)	2	None
	Population Density (300-500 ppl/sqkm, proportion)	2	None
	Population Density (500-1000 ppl/sqkm, proportion)	2	None
	Education (years per capita)	3	Negative
	Rainfall Quintile 5 (proportion)	3	Positive
Road injuries	Alcohol (liters per capita)	1	Positive
	Health System Access 2 (unitless)	1	Negative
	Vehicles - 2 wheels (per capita)	1	Positive
	Vehicles - 2 wheels fraction (proportion)	1	Positive
	Vehicles - 2+4 wheels (per capita)	1	Positive
	Vehicles - 4 wheels (per capita)	1	Positive
	LDI (I$ per capita)	2	None
	Population 15 to 30 (proportion)	2	Positive
	Population Density (300-500 ppl/sqkm, proportion)	2	None
	Population Density (500-1000 ppl/sqkm, proportion)	2	None
	Education (years per capita)	3	Negative
Pedestrian road injuries	Alcohol (liters per capita)	1	Positive
	Health System Access 2 (unitless)	1	Negative
	Vehicles - 2 wheels fraction (proportion)	1	Positive
	Vehicles - 2+4 wheels (per capita)	1	Positive
	LDI (I$ per capita)	2	None
	Population Density (300-500 ppl/sqkm, proportion)	2	None
	Population Density (500-1000 ppl/sqkm, proportion)	2	None
	Education (years per capita)	3	Negative
	Rainfall Quintile 5 (proportion)	3	Positive
Cyclist road injuries	Alcohol (liters per capita)	1	Positive
	Health System Access 2 (unitless)	1	Negative
	Vehicles - 2 wheels fraction (proportion)	1	Positive
	Vehicles - 2+4 wheels (per capita)	1	Positive
	LDI (I$ per capita)	2	None
	Population Density (300-500 ppl/sqkm, proportion)	2	None
	Population Density (500-1000 ppl/sqkm, proportion)	2	None
	Education (years per capita)	3	Negative
Motorcyclist road injuries	Alcohol (liters per capita)	1	Positive
	Health System Access 2 (unitless)	1	Negative
	Vehicles - 2 wheels (per capita)	1	Positive
	LDI (I$ per capita)	2	None
	Population Density (300-500 ppl/sqkm, proportion)	2	None

	Population Density (500-1000 ppl/sqkm, proportion)	2	None
	Education (years per capita)	3	Negative
	Rainfall Quintile 5 (proportion)	3	Positive
Motor vehicle road injuries	Alcohol (liters per capita)	1	Positive
	Health System Access 2 (unitless)	1	Negative
	Vehicles - 4 wheels (per capita)	1	Positive
	LDI (I$ per capita)	2	None
	Population Density (300-500 ppl/sqkm, proportion)	2	None
	Population Density (500-1000 ppl/sqkm, proportion)	2	None
	Education (years per capita)	3	Negative
	Rainfall Quintile 5 (proportion)	3	Positive
Other road injuries	Alcohol (liters per capita)	1	Positive
	Health System Access 2 (unitless)	1	Negative
	Vehicles - 2 wheels fraction (proportion)	1	Positive
	Vehicles - 2+4 wheels (per capita)	1	Positive
	LDI (I$ per capita)	2	None
	Rainfall Quintile 5 (proportion)	3	Positive
Other transport injuries	Alcohol (liters per capita)	1	Positive
	Health System Access 2 (unitless)	1	Negative
	Vehicles - 2 wheels fraction (proportion)	1	Positive
	Vehicles - 2+4 wheels (per capita)	1	Positive
	Population Density (300-500 ppl/sqkm, proportion)	2	None
	Population Density (500-1000 ppl/sqkm, proportion)	2	None
	Education (years per capita)	3	Negative
	LDI (I$ per capita)	3	None
	Rainfall Quintile 5 (proportion)	3	Positive
Falls	Alcohol (liters per capita)	1	Positive
	Health System Access 2 (unitless)	1	Negative
	ln-Milk (kcal per capita)	2	Negative
	Elevation Over 1500m (proportion)	3	Positive
	LDI (I$ per capita)	3	None
Drowning	Alcohol (liters per capita)	1	Positive
	Coastal Population within 10km (proportion)	1	Positive
	Landlocked Nation (binary)	1	Negative
	Rainfall Quintile 1 (proportion)	1	Negative
	Rainfall Quintile 5 (proportion)	1	Positive
	Elevation Under 100m (proportion)	2	Positive
	Education (years per capita)	3	Negative
	LDI (I$ per capita)	3	None
Fire, heat, and hot substances	Health System Access 2 (unitless)	1	Negative
	Alcohol (liters per capita)	2	Positive
	Indoor Air Pollution (Biomass Cooking)	2	Positive

	Population Density (over 1000 ppl/sqkm, proportion)	2	None
	Tobacco (cigarettes per capita)	2	Positive
	Education (years per capita)	3	Negative
	LDI (I$ per capita)	3	None
Poisonings	Health System Access 2 (unitless)	1	Negative
	Opium Cultivation (binary)	1	Positive
	Population Density (over 1000 ppl/sqkm, proportion)	2	None
	Population Density (under 150 ppl/sqkm, proportion)	2	None
	Education (years per capita)	3	Negative
	LDI (I$ per capita)	3	None
Unintentional firearm injuries	Alcohol (liters per capita)	2	Positive
	Health System Access (unitless)	2	Negative
	Population Density (over 1000 ppl/sqkm, proportion)	2	None
	Population Density (under 150 ppl/sqkm, proportion)	2	None
	Education (years per capita)	3	Negative
	LDI (I$ per capita)	3	None
Unintentional suffocation	Alcohol (liters per capita)	2	Positive
	Health System Access 2 (unitless)	2	Negative
	Population Density (over 1000 ppl/sqkm, proportion)	2	None
	Population Density (under 150 ppl/sqkm, proportion)	2	None
	Education (years per capita)	3	Negative
	LDI (I$ per capita)	3	None
Other exposure to mechanical forces	Alcohol (liters per capita)	2	Positive
	Health System Access (unitless)	2	Negative
	Population Density (over 1000 ppl/sqkm, proportion)	2	None
	Population Density (under 150 ppl/sqkm, proportion)	2	None
	Education (years per capita)	3	Negative
	LDI (I$ per capita)	3	None
	LDI (I$ per capita)	3	None
Adverse effects of medical treatment	Health System Access 2 (unitless)	2	None
	LDI (I$ per capita)	3	None
Animal contact	Alcohol (liters per capita)	1	Positive
	Vehicles - 2 wheels (per capita)	1	Positive
	Vehicles - 4 wheels (per capita)	1	None
	Health System Access 2 (unitless)	2	Negative
	Population 15 to 30 (proportion)	2	Positive
	Education (years per capita)	3	Negative
	Elevation Over 1500m (proportion)	3	None
	Elevation Under 100m (proportion)	3	None
	LDI (I$ per capita)	3	None
	Population Density (over 1000 ppl/sqkm, proportion)	3	None
	Population Density (under 150 ppl/sqkm, proportion)	3	None

Venomous animal contact	Alcohol (liters per capita)	1	Positive
	Vehicles - 2 wheels (per capita)	1	Positive
	Vehicles - 4 wheels (per capita)	1	None
	Health System Access 2 (unitless)	2	Negative
	Education (years per capita)	3	Negative
	Elevation Over 1500m (proportion)	3	None
	Elevation Under 100m (proportion)	3	None
	LDI (I$ per capita)	3	None
	Population Density (over 1000 ppl/sqkm, proportion)	3	None
	Population Density (under 150 ppl/sqkm, proportion)	3	None
Non-venomous animal contact	Alcohol (liters per capita)	1	Positive
	Vehicles - 2 wheels (per capita)	1	Positive
	Vehicles - 4 wheels (per capita)	1	None
	Health System Access 2 (unitless)	2	Negative
	Education (years per capita)	3	Negative
	Elevation Over 1500m (proportion)	3	None
	Elevation Under 100m (proportion)	3	None
	LDI (I$ per capita)	3	None
	Population Density (over 1000 ppl/sqkm, proportion)	3	None
	Population Density (under 150 ppl/sqkm, proportion)	3	None
Pulmonary aspiration and foreign body in airway	Alcohol (liters per capita)	1	Positive
	Health System Access (capped)	1	Negative
	Mean BMI	1	Positive
	LDI (I$ per capita)	3	None
Foreign body in other body part	Alcohol (liters per capita)	1	Positive
	Health System Access 2 (unitless)	2	Negative
	Education (years per capita)	3	Negative
	Elevation Over 1500m (proportion)	3	None
	Elevation Under 100m (proportion)	3	None
	LDI (I$ per capita)	3	None
	Population Density (over 1000 ppl/sqkm, proportion)	3	None
	Population Density (under 150 ppl/sqkm, proportion)	3	None
Other unintentional injuries	Alcohol (liters per capita)	1	Positive
	Vehicles - 2 wheels (per capita)	1	Positive
	Vehicles - 4 wheels (per capita)	1	None
	Health System Access 2 (unitless)	2	Negative
	Education (years per capita)	3	Negative
	Elevation Over 1500m (proportion)	3	None
	Elevation Under 100m (proportion)	3	None
	LDI (I$ per capita)	3	None
	Population Density (over 1000 ppl/sqkm, proportion)	3	None

	Population Density (under 150 ppl/sqkm, proportion)	3	None
Self-harm	Alcohol (liters per capita)	1	Positive
	Opium Cultivation (binary)	2	Positive
	Population Density (150-300 ppl/sqkm, proportion)	2	None
	Population Density (300-500 ppl/sqkm, proportion)	2	None
	Population Density (500-1000 ppl/sqkm, proportion)	2	None
	Population Density (over 1000 ppl/sqkm, proportion)	2	None
	Population Density (under 150 ppl/sqkm, proportion)	2	None
	Religion (binary, >50% Muslim)	2	Negative
	Education (years per capita)	3	None
	LDI (I$ per capita)	3	None
Interpersonal violence	Alcohol (liters per capita)	1	Positive
	Health System Access 2 (unitless)	1	Negative
	Opium Cultivation (binary)	2	Positive
	Population Density (over 1000 ppl/sqkm, proportion)	2	Positive
	Education (years per capita)	3	None
	LDI (I$ per capita)	3	None
Assault by firearm	Alcohol (liters per capita)	1	Positive
	Health System Access 2 (unitless)	1	Negative
	Opium Cultivation (binary)	2	Positive
	Population Density (over 1000 ppl/sqkm, proportion)	2	Positive
	Education (years per capita)	3	None
	LDI (I$ per capita)	3	None
Assault by sharp object	Alcohol (liters per capita)	1	Positive
	Health System Access 2 (unitless)	1	Negative
	Opium Cultivation (binary)	2	Positive
	Population Density (over 1000 ppl/sqkm, proportion)	2	Positive
	Education (years per capita)	3	None
	LDI (I$ per capita)	3	None
Assault by other means	Alcohol (liters per capita)	1	Positive
	Health System Access 2 (unitless)	1	Negative
	Opium Cultivation (binary)	2	Positive
	Population Density (over 1000 ppl/sqkm, proportion)	2	Positive
	Education (years per capita)	3	None
	LDI (I$ per capita)	3	None
	Population 15 to 30 (proportion); male model only	1	Positive

Mortality from armed conflicts and natural disaster

For armed conflicts we retrieved data from the Uppsala Conflict Data Program,[5] the International Institute for Strategic Studies,[6] and from countries' vital registration systems. Disaster data were obtained from the International Disaster Database from the Center for Research on the Epidemiology of Disasters (University of Louvain, Belgium).[7] When these databases were not fully up-to-date or did not contain known events, we supplemented with case-by-case sources. Case-by-case sources are individual sources that describe individual events. Armed conflicts and natural disaster mortality rates by age and sex were added to the mortality rates estimated from child and adult mortality data and model life tables.[2]

CODCorrect

Deaths from each cause-of-injury category were modelled separately in CODEm. To ensure that deaths from all individual causes sum to the all-cause mortality estimate, we used an algorithm called CoDCorrect to rescale deaths for each cause such that they sum to the number of deaths from all causes generated from the demographic analysis.[2]

Section 4. Methods - morbidity

Data sources

Annex Table 4.1 lists morbidity data sources from hospital and emergency department records and surveys. Unfortunately, quite a few countries report their data using a mix of cause-of-injury and nature-of-injury codes rather than coding both for each case. In order to retain as much of the data as possible, we included all data sets that had at least 45% of cases coded to the cause of injury. The threshold of 45% was chosen as there were a lot of data sets with half of the records coded to cause-of-injury and half of the records coded to nature-of-injury categories. We increased the cause-specific injury cases from these datasets proportionately to sum to the total number of injury cases.

Annex Table 4.2 shows the GBD 2013 non-fatal data representativeness index by cause, calculated as fraction of countries with data for each cause and time period

Conflict and war morbidity data were obtained from the Uppsala Conflict Data Program,[5] the International Institute for Strategic Studies,[6] and vital registration systems. Disaster morbidity data were derived from the International Disaster Database from the Center for Research on the Epidemiology of Disasters.[7]

Annex Table 4.1 Years of morbidity data by type of data source.

Albania	Survey	2
Bangladesh	Survey	1
Belgium	Inpatient	7
Bosnia and Herzegovina	Survey	1
Brazil	Inpatient	4
Brazil	Survey	1
Bulgaria	Survey	1
Burkina Faso	Survey	1
Cambodia	Survey	1
Canada	Inpatient	16
Canada	Outpatient	8
Chad	Survey	1
China	Inpatient	2
China	Outpatient	7
China	Survey	3
Colombia	Survey	1
Comoros	Survey	1
Congo	Survey	1
Cote d'Ivoire	Survey	1
Croatia	Inpatient	7
Croatia	Survey	1

Cyprus	Survey	1
Czech Republic	Inpatient	11
Czech Republic	Survey	2
Dominican Republic	Survey	1
Ecuador	Survey	1
Estonia	Survey	1
Ethiopia	Survey	2
Finland	Inpatient	9
Georgia	Survey	1
Ghana	Survey	3
Greece	Survey	1
Guatemala	Survey	1
Haiti	Survey	1
Hungary	Survey	2
India	Other	4
India	Survey	3
Iran	Other	9
Iran	Survey	3
Kazakhstan	Survey	1
Kenya	Survey	1
Laos	Survey	1
Latvia	Survey	2
Malawi	Survey	1
Malaysia	Survey	1
Mali	Survey	1
Malta	Inpatient	2
Mauritania	Survey	1
Mauritius	Survey	1
Mexico	Inpatient	9
Morocco	Survey	1
Mozambique	Survey	1
Myanmar	Survey	1
Namibia	Survey	1
Nepal	Survey	1
Netherlands	Inpatient	15
Netherlands	Outpatient	15
New Zealand	Survey	1
Nicaragua	Survey	1
Nigeria	Survey	1
Norway	Other	1
Pakistan	Survey	7
Paraguay	Survey	1
Philippines	Survey	1

Portugal	Inpatient	3
Qatar	Survey	1
Romania	Survey	1
Russia	Survey	2
Senegal	Survey	1
Slovakia	Survey	1
Slovenia	Inpatient	5
Slovenia	Survey	1
South Africa	Survey	3
Spain	Survey	1
Sri Lanka	Survey	1
Sudan	Survey	1
Swaziland	Survey	1
Sweden	Inpatient	1
Switzerland	Inpatient	3
Syria	Survey	1
Taiwan	Other	3
Thailand	Survey	1
Tunisia	Survey	1
Ukraine	Survey	1
United Arab Emirates	Survey	1
United Kingdom	Inpatient	2
United States	Inpatient	29
United States	Outpatient	20
United States	Survey	4
Uruguay	Survey	1
Vietnam	Other	5
Vietnam	Survey	6
Zambia	Survey	1
Zimbabwe	Survey	1

Annex Table 4.2 GBD 2013 non-fatal data representativeness index by cause, calculated as fraction of countries with data for each cause and time period

Injuries	0.95	0.95	0.95	0.96
Transport injuries	0.03	0.34	0.17	0.43
Road injuries	0.03	0.34	0.16	0.42
Pedestrian road injuries	0.01	0.04	0.08	0.08
Cyclist road injuries	0.01	0.05	0.07	0.08
Motorcyclist road injuries	0.01	0.04	0.07	0.07
Motor vehicle road injuries	0.01	0.05	0.07	0.08
Other road injuries	0.01	0.04	0.07	0.07

Other transport injuries	0.01	0.04	0.09	0.09
Unintentional injuries (not transport)	0.03	0.12	0.14	0.20
Falls	0.02	0.11	0.13	0.18
Drowning	0.01	0.07	0.10	0.12
Fire, heat, and hot substances	0.03	0.09	0.12	0.16
Poisonings	0.02	0.09	0.11	0.15
Exposure to mechanical forces	0.02	0.09	0.10	0.14
Unintentional firearm injuries	0.01	0.05	0.09	0.09
Unintentional suffocation	0.01	0.05	0.09	0.09
Other exposure to mechanical forces	0.01	0.05	0.09	0.09
Adverse effects of medical treatment	0.01	0.05	0.09	0.09
Animal contact	0.02	0.05	0.12	0.15
Venomous animal contact	0.01	0.05	0.09	0.09
Non-venomous animal contact	0.01	0.05	0.09	0.09
Foreign body	0.01	0.05	0.09	0.09
Pulmonary aspiration and foreign body in airway	0.01	0.05	0.09	0.09
Foreign body in eyes	0.01	0.03	0.05	0.05
Foreign body in other body part	0.01	0.05	0.09	0.09
Other unintentional injuries	0.03	0.11	0.12	0.18
Self-harm and interpersonal violence	0.02	0.09	0.13	0.16
Self-harm	0.01	0.07	0.12	0.13
Interpersonal violence	0.02	0.09	0.12	0.16
Assault by firearm	0.01	0.05	0.09	0.09
Assault by sharp object	0.01	0.05	0.09	0.09
Assault by other means	0.01	0.02	0.04	0.04
Forces of nature, war, and legal intervention	1.00	0.98	0.99	1.00
Exposure to forces of nature	1.00	0.98	0.99	1.00
Collective violence and legal intervention	1.00	0.99	0.99	1.00

Cause-of-injury incidence

The majority of our incidence data existed at the external cause-of-injury level. We modelled incidence for 24 cause-of-injury categories using DisMod-MR 2.0, a descriptive epidemiological meta-regression tool that uses an integrative systems modelling approach to produce simultaneous estimates of incidence, prevalence, remission, and mortality. Multiple datasets from hospitals (16 countries), emergency/outpatient departments (four countries), and surveys (71 countries) fed into these incidence models. We separately estimated two categories of injury severity: inpatient and outpatient injuries using a covariate in each DisMod-MR model as a multiplier from inpatient to outpatient incidence.

We were unable to use DisMod-MR 2.0 to model exposure to forces of nature (i.e. natural disaster) and collective violence and legal intervention (i.e. war), also called the shock cause-of-injury categories, due to the sporadic nature of incidence rates. To estimate incidence from the shock cause-of-injury categories, we first identified cause-of-injury categories that likely exhibit similar case fatality ratios (road injuries, fire, heat and hot substances, interpersonal violence, and other unintentional injury). Second, we multiplied the mortality rate for shock cause-of-injury categories by the

average country-year-age-sex-specific incidence-to-mortality ratio of the cause-of-injury categories with similar case fatality ratios.

Follow-up studies on patient-reported outcomes

Follow-up data were obtained from a pooled dataset of seven follow-up studies from China, the Netherlands, and the US, which followed up patients for at least one year after the injury and the Medical Expenditure Panel Survey (MEPS) (See Table 4.3).[8-15] MEPS is a large-scale overlapping continuous panel survey of the United States non-institutionalized population that collects information on use and cost of health care.[16] Twice over the two-year period individuals are asked to fill in a short general quality of life measure, SF-12. Thus, MEPS offered the benefit of including SF-12 responses pre-injury and post-injury in some of the individuals. We pooled all available MEPS data over a 12-year span.

The seven follow-up studies used different patient-reported outcome measures to assess health status, namely the SF-36, Version 1 SF-12, and the EQ5D.[17-19] To enable comparison across the seven datasets, it was necessary to analyze the data in a standardized patient reported outcome measure. Therefore, we mapped all patient-reported outcome measures to Version 2 SF-12 (SF-12v2).[18 20]

All Version 1 SF-12/36 scores were adjusted by a previously estimated amount to get all scores comparable to Version 2.[21] Several years of MEPS contain individual question responses for EQ5D and SF12. We regressed the log of the SF12 summary scores on individual EQ5D question responses in MEPS and predicted SF-12 summary scores from the EQ5D responses in the Dutch follow-up studies.

Survey participants from a variety of IHME conducted surveys were instructed to fill out SF-12 for a selection of 60 health states from GBD presented with their lay description. We first discarded outliers with a SF-12 composite score of two standard deviations greater than the mean. Then we estimated the mean SF-12 score for each health state by doing a random effects regression of SF-12 on the GBD disability weight for each health state with just a constant term and a random effect on disability weight. Lastly, we ran a Loess curve through these means to get the final function between SF-12 score and corresponding GBD disability weight value.

Annex Table 4.3 Details of injury follow up surveys used in GBD 2013

Guangdong follow up survey, China[#]	2006-2007	Follow up survey among stratified sample of ISS patients (oversampling less common, severe injuries)	Patients (15+ years) who were hospitalized that had been injured by road traffic injury, fall, blunt or penetrating trauma	Based on three national injury surveillance hospitals in Zhuhai, Guangdong Province in China	998 (response 87%)	12 months
LIS follow up survey, Netherlands[1]	2001-2002	Follow up survey among stratified sample of ISS patients (oversampling less common, severe injuries)	Patients (15+ years) who visited the Emergency Department of a hospital and were discharged to the home environment and patients who were admitted to hospital	Based on 17 public hospitals in the Netherlands	8564 (response 37%)	2.5, 5, 9 and 24 months
LIS follow up survey, Netherlands[2]	2007-2008	Follow up survey among stratified sample of ISS patients (oversampling less common, severe injuries)	Patients (15+ years) who visited the Emergency Department of a hospital and were discharged to the home environment and patients who were admitted to hospital	Based on 15 public hospitals in the Netherlands	8057 (response 36%)	2.5, 5, 12 and 24 months
Major trauma outcome study, Netherlands[3]	2004-2006	A prospective cohort study was conducted among all severely injured adult trauma patients presented at a Level I trauma center	Severely injury trauma patients (16+ years) with an Injury severity score >15	One public hospital (level 1)	332 (response 68%)	12 and 24 months
NSCOT – National study on Costs and Outcomes of Trauma, USA[4]	2001-2002	A prospective cohort study was conducted among a sample of adult trauma patients treated at Level I trauma centers and non-trauma center hospitals	Patients treated for a moderate to severe injury (as defined by at least one injury of an Abbreviated Injury Scale (AIS) score of 3 or greater	Based on 69 hospitals in 12 states in the US	5191 (response 61%)	3 and 12 months

SCTBIFR – South Carolina Traumatic Brain injury Follow-up Registry, USA[5]	1999-2002	A prospective cohort study was conducted among injured in-patients with a traumatic brain injury-related injury	Patients (15+ years) who were admitted to hospitals and met the CDC case definition of TBI—trauma to the head associated with altered consciousness, amnesia, neurological abnormalities, skull fracture, intracranial lesion, or death	Discharged from all nonfederal in-state acute care hospitals	7613 (response 28%)	12, 24 and 36 months
Burns outcome study, Netherlands[6]	2003-2006	A multicenter prospective cohort was conducted among adult (severe) burn patients	Injury patients who sustained severe burns	Three public hospitals with specialized burn units.	311 (response 78%)	3 weeks, 3, 6, 9 and 18 months

*number of patients that met the inclusion criteria; response rate = percentage of patients who responded to the follow-up survey (in case of multiple follow-up times the response rate of the first follow-up moment is reported).

[#] data from CDC China, jointly analysed by study authors from IHME and China CDC

Nature-of-injury category hierarchy

Multiple injuries can occur in one individual. In the GBD 2010 we relied on regression methods run at the level of each nature-of-injury category rather than individuals in the seven follow-up studies. This led to relatively large amounts of long-term disability being assigned to some seemingly minor injury categories, presumably because the method did not adequately parse the disability measurement to the more severe of concurrent injuries in the same individual. Therefore, in GBD 2013 we decided to impose a hierarchy to select the nature-of-injury category that leads to the largest long term burden (i.e. a combination of likelihood of long-term disability and the corresponding disability weight) when an individual experiences multiple injuries. To construct the hierarchy we used data from the pooled dataset of follow-up studies in which we translated each individual health status measure into a disability weight. A regression was run of logit-transformed disability weights on nature-of-injury category and individual characteristics to calculate the mean long-term disability for each nature-of-injury category. The ranking of nature-of-injury categories by their mean long-term disability formed the basis for our severity hierarchy. Hierarchies were developed separately for inpatient and outpatient injuries (see Annex Tables 4.4 and 4.5).

Annex Table 4.4 Nature-of-injury severity hierarchy for injuries warranting outpatient care

1	N21	Fracture of pelvis
2	N20	Fracture of patella, tibia, fibula, or ankle
3	N19	Fracture of neck of femur
4	N23	Fracture of skull
5	N6	Amputation of thumb
6	N25	Fracture of vertebral column
7	N48	Multiple significant injuries
8	N43	Internal hemorrhage in abdomen or pelvis
9	N26	Fracture of femur, other than femoral neck
10	N11	Dislocation of hip
11	N7	Amputation of toe
12	N18	Fracture of hand bone
13	N3	Amputation of finger (excluding thumb)
14	N8	Burns with <20% total burned surface area
15	N12	Dislocation of knee
16	N44	Contusion
17	N27	Minor traumatic brain injury
18	N31	Foreign body in respiratory system
19	N42	Severe chest Injury
20	N35	Non-fatal submersion
21	N36	Asphyxiation
22	N41	Poisoning
23	N45	Environmental factors (e.g. temperature, pressure, electricity)
24	N32	Foreign body in gastrointestinal or urogenital system
25	N24	Fracture of sternum or rib(s)
26	N38	Injured nerves
27	N16	Fracture of face bone
28	N13	Dislocation of shoulder
29	N39	Injury to eyes (including foreign body eye)
30	N15	Fracture of clavicle, scapula, or humerus
31	N22	Fracture of radius or ulna

32	N17	Fracture of foot bone
33	N30	Foreign body in ear
34	N14	Other injuries of muscle & tendon and other dislocations
35	N47	Superficial injury
36	N40	Open wound
37	N46	Complications of medical treatment

Annex Table 4.5 Nature-of-injury severity hierarchy of injuries warranting inpatient care (bold indicates natures-of-injury that always warrant inpatient care)

1	**N34**	**Spinal cord lesion below neck level**
2	**N1**	**Amputation of both lower limbs**
3	**N2**	**Amputation of both upper limbs**
4	**N33**	**Spinal cord lesion at neck level**
5	N19	Fracture of neck of femur
6	N26	Fracture of femur, other than femoral neck
7	**N5**	**Amputation of one upper limb**
8	**N4**	**Amputation of one lower limb**
9	N48	Multiple significant injuries
10	N45	Environmental factors (e.g. temperature, pressure, electricity)
11	N20	Fracture of patella, tibia, fibula, or ankle
12	**N28**	**Moderate to severe traumatic brain injury**
13	N17	Fracture of foot bone
14	N43	Internal hemorrhage in abdomen or pelvis
15	**N37**	**Crush injury**
16	N27	Minor traumatic brain injury
17	N21	Fracture of pelvis
18	N38	Injured nerves
19	N42	Severe chest Injury
20	N11	Dislocation of hip
21	**N9**	**Burns with >=20% total burned surface area or >=10% if burns include face and/or hands**
22	**N10**	**Lower airway burns**
23	N23	Fracture of skull
24	N6	Amputation of thumb
25	N25	Fracture of vertebral column
26	N18	Fracture of hand bone
27	N44	Contusion
28	N40	Open wound
29	N7	Amputation of toe
30	N12	Dislocation of knee
31	N3	Amputation of finger (excluding thumb)
32	N35	Non-fatal submersion
33	N36	Asphyxiation
34	N8	Burns with <20% total burned surface area
35	N14	Other injuries of muscle & tendon and other dislocations
36	N16	Fracture of face bone
37	N31	Foreign body in respiratory system
38	N41	Poisoning
39	N32	Foreign body in gastrointestinal or urogenital system

40	N24	Fracture of sternum or rib(s)
41	N13	Dislocation of shoulder
42	N39	Injury to eyes (including foreign body eye)
43	N15	Fracture of clavicle, scapula, or humerus
44	N22	Fracture of radius or ulna
45	N30	Foreign body in ear
46	N47	Superficial injury
47	N46	Complications of medical treatment

Cause-nature matrices

Because injury disability is linked more to nature-of-injury and less to cause-of-injury, we generated transition matrices to estimate the proportion of each cause-of-injury category that results in a particular nature-of-injury category. These matrices are based on a collection of dual-coded (e.g. both cause-of-injury and nature-of-injury coded) inpatient and emergency department datasets. The data for this step came from outpatient, inpatient, and emergency room discharge data from Argentina, Bulgaria, China, Colombia, Cyprus, the Czech Republic, Denmark, Egypt, Estonia, Hungary, Iceland, Iran, Italy, Latvia, Macedonia, Malta, Mauritius, Mexico, Mozambique, the Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, Uganda, USA, and Zambia. We applied our nature-of-injury severity hierarchy to determine a single nature-of-injury in every individual. To attempt to incorporate as much of the variation in cause-nature relationships across injury severity, health system access, sex, and age, negative binomial models were run for both inpatient and outpatient injuries for each cause-nature combination. The models incorporated the sex and age category of the individual, as well as the country's income level category. In cause-nature combinations with small numbers for which the model would not converge, we progressively eliminated covariates until convergence was reached. Once all cause-nature models were completed, the resulting probabilistic attributions were summed to 1 within each cause-of-injury category. Applying the cause-nature matrices to our cause-of-injury incidence from DisMod-MR, we produced cases of inpatient and outpatient injury by cause- and nature-of-injury.

Probability of permanent health loss

Disability due to injury is assumed to affect all cases in the short term with a proportion having long-term (permanent) outcomes. The probability of long-term outcomes is needed to estimate the incidence and subsequently the prevalence of cases with permanent health loss. In our conceptual model, individuals who suffer a non-fatal injury will, in the long-term, return to either full or partial health. If one year post-injury patients return to a health status with more disability than their pre-injury health status, injury patients are assumed to have permanent disability from their injury. The difference between the pre-injury health states and health status one year after injury is assumed to be their permanent level of injury-related disability. We assessed the probability of developing permanent health loss using the pooled dataset of follow-up studies that was also used in the generation of our nature-of-injury hierarchy.

In order to determine the probability of developing long-term outcomes, we needed to compare the mean long-term disability reported in the follow-up data (averaging across those who recovered from their injury and those who did not) to the disability weight assigned to long-term outcomes of the injury in question. For this comparison, we needed first

to convert SF12v2 responses into comparable units of disability. This was accomplished through the use of opportunistic surveys asking respondents to complete the SF12v2 survey after reading the lay description of a health state used in GBD 2013 and assuming to represent someone with that condition. A selection of 60 out of the 220 health states that were used in GBD 2010 were assessed in this opportunistic survey.[22]

To assess the probability of permanent health loss we estimated the effects using a logit-linear mixed effects regression:

$$\text{Logit (disability weight)}_{im} = \alpha + \beta(\text{age}_i) + \beta(\text{injuries}_{im}) + \beta(\text{never injured}_i) + \beta(\text{never injured}_i * \text{age}_i) + \beta(\text{fracture of pelvis}_i * \text{age}_i) + \beta(\text{poisoning}_i * \text{age}_i) + \beta(\text{moderate/severe TBI}_i * \text{age}_i) + RE_c + RE_i,$$

where we included dummies for each of the nature-of-injury categories (injuries_{im}), with the reference category being no injury (from MEPS dataset). We also include a dummy for never injured prior to the current injury, age, interactions between age and never injured status, and interactions with three long-term nature-of-injury categories that were found to significantly vary with age: pelvis fractures, poisonings, and moderate/severe traumatic brain injuries. In notation, subscript m refers to patient survey response (some patients have multiple observations), i refers to individual and c refers to country. Random effects (RE) were included to control for variation between countries and individuals.

A counterfactual can be used to compare the observed results of injury patients to those of individuals that did not sustain an injury. After predicting overall disability at one year follow-up, we estimated a counterfactual of no injury by setting all observations to "no injury," the reference group for $\beta(\text{injuries}_{im})$ in our model. The disability attributable to the nature-of-injury at one year was assumed to be the difference between our counterfactual of no injury and predicted disability with injury. The probability of treated long-term outcomes is estimated via the ratio of this attributable disability relative to the long-term disability weight (from the GBD disability weight surveys) for that nature-of-injury.

$$\text{Probability of long-term disability} = (\text{with injury disability}_{im} - \text{counterfactual disability}_{im})/\text{disability weight}$$

We developed estimates of the probability of permanent health loss by nature-of-injury category, injuries warranting other health care and injuries warranting inpatient admission, and age. Depending on the nature-of-injury category, the probability of developing long-term outcomes from an untreated injury was either assumed to be equivalent to that of the corresponding treated injury or was increased by a scaling factor suggested by a trauma surgeon with experience in a low-income country and reviewed by the 236 GBD 2013 experts on injuries. Using a proxy covariate that defines health system access based on a combination of vaccination rates, proportion of deliveries by a skilled birth attendant, in-facility birth, and antenatal care, we estimated the ratio of treated to untreated injuries for each country-year grouping and assigned a country-year-specific probability of permanent health loss equal to a weighted average of the treated and untreated probabilities for each nature-of-injury category/severity-level grouping.

For two long-term probabilities we had to employ different estimation methods. First, there were only 20 cases of "adverse effects of medical treatment" in our follow-up dataset, and all reported extremely high disability weights. This gave us 100% probability of permanent health-loss from this cause-of-injury, which is problematic given that our initial incidence data for this cause-of-injury category is quite high, thus making YLDs attributed to this cause implausibly large. We decided that we had inadequate data to estimate the probability of permanent health-loss. Second, our long-term probability estimates for spinal cord lesions were implausibly low due to a much higher GBD 2013 disability weight than that used in the GBD 2010. Instead, we used a large USA study of spinal injuries followed for more than one year with data classified by the five-category Impairment Scale (AIS A-E) of the American Spinal Injury Association (ASIA) International Classification of Spinal Cord Injury.[23] We matched the descriptions of AIS A-E with appropriate GBD health states (Annex Table 4.6).

Despite applying the nature-of-injury hierarchy to the follow-up datasets, we still observed implausibly high estimates of long-term disability for several outpatient nature-of-injury categories. We made the decision to ignore any long-term disability from outpatient injuries in the following categories: open wound, poisoning, and contusion while retaining these nature-of-injury categories as valid sources of long-term disability in inpatient injuries.

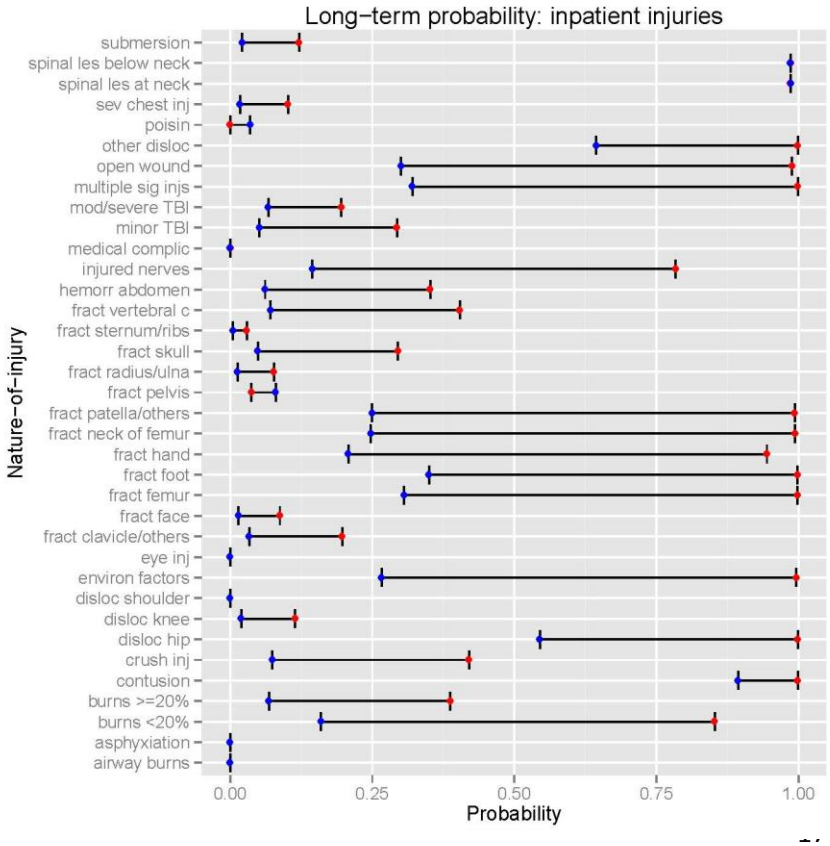
Annex Table 4.6 ASIA impairment scale for spinal cord injury with matched health states, disability weights, and proportions at the one-year follow-up mark

AIS Category	AIS Description of Impairment	Matched GBD Health State	Long-term disability weight		Proportion Attributed
			Treated	Untreated	
A	Complete – No motor or sensory function is preserved in the sacral segments S4-S5.	Spinal cord lesion at neck level (GBD 2013)	0·589	0·732	0·50
		Spinal cord lesion below neck level (GBD 2013)	0·296	0·623	0·50
B	Incomplete – Sensory but not motor function is preserved below the neurologic level and includes the sacral segments S4-S5.	Spinal cord lesion at neck level (GBD 2010)	0·463	0·682	0·07
		Spinal cord lesion below neck level (GBD 2010)	0·057	0·46	0·07
C	Incomplete – Motor function is preserved below the neurologic level, and more than half of key muscles below the neurologic levels have a muscle grade less than 3.	Spinal cord lesion at neck level (GBD 2010)	0·463	0·682	0·14
		Spinal cord lesion below neck level (GBD 2010)	0·057	0·460	0·14
D	Incomplete – Motor function is preserved below the neurologic level, and at least half of key muscles below the neurologic level have a muscle grade of 3 or more.	Motor impairment, moderate	0·061	0·610	0·27
		Motor impairment, moderate	0·061	0·610	0·27
E	Normal – Motor sensory function is normal.	No long-term disability	-	-	0·01

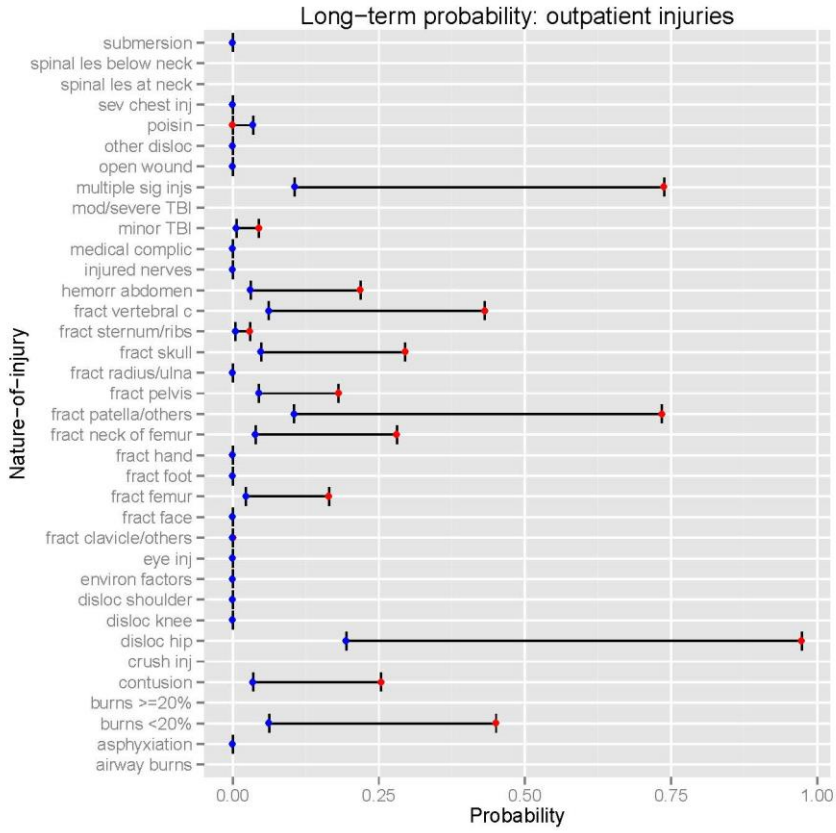
Source: Marino et al. (1999). Neurological recovery after traumatic spinal cord injury: Data from the Model Spinal Cord Injury Systems. Arch Phys Med Rehabil; 80: 1391-6.

Annex Figures 4.1 and 4.2 show the global probability of each nature-of-injury resulting in permanent health loss. These include only injuries that warrant some form of healthcare. All probabilities increase (or decrease) monotonically with age with the exception of those with a constant zero or 100% probability. Blue dots signify the youngest age group (0 to 1) and red dots signify the oldest age group (80+).

Annex Figure 4.1 Range of probability of long-term disability outcome by age by nature of injury for injuries warranting inpatient care



Annex Figure 4.2 Range of probability of long-term disability outcome by age by nature of injury for injuries warranting outpatient care



Disability weights

For the GBD 2010 study a Disability Weights Measurement study was carried out using household sample surveys in five countries (Bangladesh, Indonesia, Peru, Tanzania, USA) supplemented by an open-access online survey.[24] [25] As part of the GBD 2013, an updated set of disability weights has been estimated, including results from four new national surveys in Hungary, Italy, the Netherlands and Sweden, resulting in an expanded set of 235 (from 220 in GBD 2010) disability weights based on the responses from 61,890 people in 167 countries.[24-26] The GBD 2013 disability weights include new health states for conditions that had not yet been covered. Of interest to injuries is the inclusion of a health state for concussion. Furthermore, lay descriptions were rewritten for GBD 2010 health states that were found lacking in consistency or in content. For injuries, incontinence was added to the descriptions of the health states for spinal cord injury and the wording between several amputations descriptions were made more consistent. The GBD 2013 set includes 60 disability weights for injury sequelae (see Annex Table 4.7).[27]

Annex Table 4.7 Disability weights for injury health states in the GBD 2013 study

Amputation of finger(s), excluding thumb	has lost a finger of one hand. At times there is pain and tingling in the stump. [1]	0.005	0.002	0.01
Amputation of thumb (long term)	has lost one thumb, causing some difficulty in using the hand, pain, and tingling in the stump.	0.011	0.005	0.021
Amputation of one upper limb (long term, with treatment)	has lost one hand and part of the arm, leaving pain and tingling in the stump. The person has an artificial arm that makes it possible to lift objects and do daily activities such as cooking, with some extra effort. [1]	0.039	0.024	0.059
Amputation of one upper limb (long term, without treatment) [2]	has lost one hand and part of the arm, leaving pain and tingling in the stump. The person needs help from others to lift objects or do daily activities such as cooking.	0.118	0.079	0.167
Amputation of both upper limbs (long term, with treatment)	has lost part of both arms, leaving pain and tingling in the stumps. The person has two artificial arms that make it possible to do daily activities, with a great deal of extra effort. [1]	0.123	0.081	0.176
Amputation of both upper limbs (long term, without treatment)	has lost part of both arms, leaving pain and tingling in the stumps. The person needs a great deal of help from others to do even basic daily activities such as eating and using the toilet, and the person is very limited in other activities. [1]	0.383	0.251	0.525
Amputation of toe(s)	has lost one toe, leaving occasional pain and tingling in the stump.	0.006	0.002	0.012
Amputation of one lower limb (long term, with treatment)	has lost part of one leg, leaving pain and tingling in the stump. The person has an artificial leg that helps in moving around. [1]	0.039	0.023	0.059
Amputation of one lower limb (long term, without treatment)	has lost part of one leg, leaving pain and tingling in the stump. The person does not have an artificial leg, has frequent sores, and uses crutches.	0.173	0.118	0.240
Amputation of both lower limbs (long term, with treatment)	has lost part of both legs, leaving pain and tingling in the stumps. The person has two artificial legs that make moving around possible, with extra effort. [1]	0.088	0.057	0.124
Amputation of both lower limbs (long term, without treatment)	has lost part of both legs, leaving pain, tingling, and frequent sores in the stumps. The person has great difficulty moving around, has episodes of depression and anxiety, and needs help from others to do many daily activities.	0.443	0.297	0.589
Burns, <20% total burned surface area without lower airway burns (short term, with or without treatment)	has a burn on part of the body. Parts of the burned area are painful, and other parts have lost feeling.	0.141	0.094	0.196
Burns, <20% total burned surface area or <10% total burned surface area if head/neck or hands/wrist involved (long term, with or without treatment)	has scars caused by a burn. The scars are sometimes painful and itchy.	0.016	0.008	0.028

Burns, >20% total burned surface area (short term, with or without treatment)	has a painful burn over a large part of the body. Parts of the burned area have lost feeling, and the person feels anxious and unwell.	0.314	0.211	0.441
Burns, >20% total burned surface area or >10% total burned surface area if head/neck or hands/wrist involved (long term, with treatment)	has scars caused by burns over a large part of the body. The scars are frequently painful and itchy, and the person is often sad.	0.135	0.092	0.190
Burns, >20% total burned surface area or >10% total burned surface area if head/neck or hands/wrist involved (long term, without treatment)	has severe, disfiguring and itchy scars caused by burns over a large part of the body. The person cannot move some joints, feels sad, and has great difficulty with self-care such as dressing and toileting.	0.455	0.302	0.601
Lower airway burns (with or without treatment)	has a burn in the throat and lungs, which causes great difficulty breathing and a lot of anxiety.	0.376	0.24	0.524
Crush injury (short or long term, with or without treatment)	had part of the body crushed, leaving pain, swelling, tingling and limited feeling in the affected area.	0.132	0.089	0.189
Dislocation of hip (long term, with or without treatment)	walks with a limp and feels discomfort when walking.	0.016	0.008	0.028
Dislocation of knee (long term, with or without treatment)	has a knee out of joint, causing pain and difficulty moving the knee, which sometimes gives way. The person needs crutches for walking and help with self-care such as dressing.	0.113	0.075	0.160
Dislocation of shoulder (long term, with or without treatment)	has a shoulder that is out of joint, causing pain and difficulty moving. The person has difficulty with daily activities such as dressing and cooking.	0.062	0.041	0.088
Other injuries of muscle and tendon (includes sprains, strains and dislocations other than shoulder, knee, hip)	has a strained muscle that causes pain and swelling.	0.008	0.003	0.015
Drowning and nonfatal submersion (short or long term, with or without treatment)	has breathlessness, anxiety, cough, and vomiting.	0.247	0.164	0.341
Fracture of clavicle, scapula or humerus (short or long term, with or without treatment)	has a broken shoulder bone, which is painful and swollen. The person cannot use the affected arm and has difficulty with getting dressed.	0.035	0.021	0.053
Fracture of face bone (short or long term, with or without treatment)	has a broken cheek bone or a broken nose or chipped teeth, with swelling and severe pain.	0.067	0.044	0.097
Fracture of foot bones (short term, with or without treatment)	has a broken foot bone, which causes pain, swelling, and difficulty walking.	0.026	0.015	0.043
Fracture of foot bones (long term, without treatment)	had a broken foot in the past that did not heal properly. The person now has pain in the foot and has some difficulty walking.	0.026	0.015	0.042
Fracture of hand (short term, with or without treatment)	has a broken hand, causing pain and swelling.	0.010	0.005	0.019
Fracture of hand (long term, without treatment)	has stiffness in the hand and a weak grip.	0.014	0.007	0.025
Fracture of neck of femur (short term, with or without treatment)	has broken a hip and is in pain. The person cannot stand or walk, and needs help washing, dressing, and going to the toilet.	0.258	0.172	0.356
Fracture of neck of femur (long term, with treatment)	had a broken hip in the past, which was fixed with treatment. The person can only walk short distances, has discomfort when moving around, and has some difficulty in daily activities.	0.058	0.038	0.084
Fracture of neck of femur (long term, without treatment)	had a broken hip bone in the past, which was never treated and did not heal properly. The person cannot get out of bed and needs help washing and going to the toilet.	0.402	0.269	0.541
Fracture, other than femoral neck (short term, with or without treatment)	has a broken thigh bone. The person has severe pain and swelling and cannot walk.	0.111	0.074	0.156
Fracture, other than femoral neck (long term, without treatment)	had a broken thigh bone in the past, which was never treated and did not heal properly. The person now has a limp and discomfort when walking.	0.042	0.027	0.063
Fracture of patella, tibia or fibula or ankle (short term, with or without treatment)	has a broken shin bone, which causes severe pain, swelling, and difficulty walking.	0.050	0.032	0.075
Fracture of patella, tibia or fibula or ankle (long term, with or without treatment)	had a broken shin bone in the past that did not heal properly. The person has pain in the knee and ankle, and has difficulty walking.	0.055	0.036	0.081

Fracture of pelvis (short term)	has a broken pelvis bone, with swelling and bruising. The person has severe pain, and cannot walk or do daily activities.	0.279	0.188	0.384
Fracture of pelvis (long term)	had a broken pelvis in the past and now walks with a limp. There is often pain in the back and groin, and when urinating and sitting for a long time.	0.182	0.123	0.253
Fracture of radius or ulna (short term, with or without treatment)	has a broken forearm, which causes severe pain, swelling, and limited movement.	0.028	0.016	0.046
Fracture of radius or ulna (long term, without treatment)	had a broken forearm in the past that did not heal properly, causing some pain and limited movement in the elbow and wrist. The person has difficulty with daily activities such as dressing.	0.043	0.028	0.064
Fracture of skull (short or long term, with or without treatment)	has a broken skull, but does not have brain damage. The broken area is painful and swollen.	0.071	0.048	0.100
Fracture of sternum and/or fracture of one or two ribs (short term, with or without treatment)	has a broken rib that causes severe pain in the chest, especially when breathing in. The person has difficulty with daily activities such as dressing.	0.103	0.068	0.145
Fracture of vertebral column (short or long term, with or without treatment)	has broken back bones and is in pain, but still has full use of arms and legs.	0.111	0.075	0.156
Fractures, treated (long term)	has slight pain in a bone that was broken in the past.	0.005	0.002	0.010
Injured nerves (short term)	has a nerve injury, which causes difficulty moving and some loss of feeling in the affected area.	0.100	0.067	0.140
Injured nerves (long term)	had a nerve injury in the past, which continues to cause some difficulty moving. The person often injures the affected part because it is numb.	0.113	0.076	0.157
Injury to eyes (short term)	has an injury to one eye, which causes pain and difficulty seeing.	0.054	0.035	0.081
Concussion[2]	has headaches, dizziness, nausea and difficulty concentrating	0.11	0.074	0.158
Severe traumatic brain injury, short term (with or without treatment)	cannot concentrate and has headaches, memory problems, dizziness, and feels angry.	0.214	0.141	0.297
Traumatic brain injury, long-term consequences, minor (with or without treatment)	has episodes of headaches, memory problems, and difficulty concentrating.	0.094	0.063	0.133
Traumatic brain injury, long-term consequences, moderate (with or without treatment)	has frequent headaches, memory problems, difficulty concentrating, and dizziness. The person is often anxious and moody.	0.231	0.156	0.324
Traumatic brain injury, long-term consequences, severe (with or without treatment)	cannot think clearly and has frequent headaches, memory problems, difficulty concentrating and dizziness. The person is often anxious and moody, and depends on others for feeding, toileting, dressing and walking.	0.637	0.462	0.789
Open wound (short term, with or without treatment)	has a cut in the skin, which causes pain and numbness around the cut.	0.006	0.002	0.012
Poisoning (short term with or without treatment)	has drowsiness, stomach pain and vomiting.	0.163	0.109	0.227
Severe chest injury (long term, with or without treatment)	had a severe chest injury in the past that has now healed. The person still gets breathless when walking and feels discomfort in the chest.	0.047	0.030	0.070
Severe chest injury (short term, with or without treatment)	has a serious chest injury, which causes severe pain, shortness of breath and anxiety.	0.369	0.248	0.501
Spinal cord lesion below neck level (treated)	is paralyzed from the waist down, cannot feel or move the legs and has difficulties with urine and bowel control. The person uses a wheelchair to move around. [1]	0.296	0.198	0.414
Spinal cord lesion below neck level (untreated)	is paralyzed from the waist down, cannot feel or move the legs and has difficulties with urine and bowel control. Legs are in fixed, bent positions, and the person gets frequent infections and pressure sores. [1]	0.623	0.434	0.777
Spinal cord lesion at neck level (treated)	is paralyzed from the neck down, with no feeling or control over any part of the body below the neck, and no urine or bowel	0.589	0.415	0.748

	control. [1]			
Spinal cord lesion at neck level (untreated)	is paralyzed from the neck down, with no feeling or control over any part of the body below the neck, and no urine or bowel control. Arms and legs are in fixed, bent positions, and the person gets frequent infections and pressure sores. [1]	0.732	0.544	0.871

[1] Lay descriptions that were revised in European disability weight surveys and adopted in GBD2013

[2] New health states included in European disability weight surveys and adopted in GBD2013

Disability associated with treated and untreated cases

For many nature-of-injury categories, GBD 2013 has a separate disability weight for treated and for untreated cases. Similar to the strategy we employed while estimating the probability of permanent health loss, we used a proxy of health system access to determine the ratio of treated to untreated cases for a given country-year and then assigned a country-year-nature-of-injury category-specific disability weight equal to a weighted average of the treated and untreated disability weight values.

Duration of short-term health loss

The duration of injury is the period of time that there is disability due to the injury. To determine the duration for treated cases of short-term injury we analyzed patient responses of two Dutch Injury Surveillance System follow-up studies of 2001-2003 and 2007-2009.[8 9] These studies collected data at 2.5, 5, 9, and 12 months post-injury asking injury patients if they were still experiencing problems due to their injury.[8 9] If not, the patients were asked how many days they had experienced problems. The injury patients that still reported having problems one year after the injury were assumed to be captured in our analysis of permanent disability. The duration for treated cases of short-term injury was estimated for both inpatient and outpatient injuries, separately. The estimates were supplemented by expert-driven estimates of short-term duration for nature of injury categories that did not appear in the Dutch dataset and untreated injuries. Annex Table 4.8 shows the duration of short term disability by nature-of-injury and the duration multiplier for untreated cases. Short term durations for inpatient and outpatient injuries were empirically derived from the Dutch Injury Surveillance System, unless bolded, in which case they were expert-driven. Untreated duration multiplier means the average factor by which the duration of short-term injury outcomes is increased for a given nature-of-injury category when the injury goes untreated.

Annex Table 4.8 Duration of short term disability by nature-of-injury warranting inpatient or outpatient care and the duration multiplier for untreated cases

Amputation of both lower limbs	N/A			N/A					
Amputation of both upper limbs	N/A			N/A					
Amputation of finger (excluding thumb)	N/A			N/A					
Amputation of one lower limb	N/A			N/A					
Amputation of one upper limb	N/A			N/A					
Amputation of thumb	N/A			N/A					
Amputation of toe	N/A			N/A					
Burns <20% body surface	28	21	35	14	7	21	1.5	1.25	1.75
Burns >=20% body surface or >=10% if include face/hands	60	40	80	60	40	80	2	1.5	2.5
Lower airway burns	28	21	35	28	21	35	1.5	1.25	1.75
Dislocation of hip	40	29	51	31	16	49	2	1.5	2.5
Dislocation of knee	40	24	59	41	32	52	1	1	1
Dislocation of shoulder	62	25	109	54	16	100	1	1	1
Other injuries of muscle & tendon and other dislocations	65	36	94	48	32	63	1	1	1
Fracture of clavicle, scapula, or humerus	64	48	80	52	39	66	1	1	1
Fracture of face bone	46	34	58	37	30	46	1	1	1
Fracture of foot bone	49	31	68	36	27	45	1	1	1
Fracture of hand bone	36	27	44	40	33	48	1	1	1
Fracture of neck of femur	79	57	104	72	45	106	1.5	1.25	1.75
Fracture of patella, tibia, fibula, or ankle	131	77	183	94	63	129	1	1	1
Fracture of pelvis	61	40	85	54	35	76	1	1	1
Fracture of radius or ulna	48	38	59	41	30	51	1.5	1.25	1.75
Fracture of skull	46	34	58	37	30	46	1	1	1
Fracture of sternum or rib(s)	54	38	74	42	30	56	1	1	1
Fracture of vertebral column	85	61	112	75	53	101	1	1	1
Fracture of femur, other than femoral neck	85	55	116	61	39	88	1.5	1.25	1.75
Minor traumatic brain injury	37	31	43	35	26	46	1	1	1
Moderate to severe traumatic brain injury	40	33	48	27	22	32	1	1	1
Foreign body in ear	2	1	3	1	0	2	2	1.5	2.5
Foreign body in respiratory system	4	3	5	2	1	3	2	1.5	2.5
Foreign body in gastrointestinal or urogenital system	4	3	5	2	1	3	2	1.5	2.5
Spinal cord lesion at neck level	28	21	35	28	21	35	1	1	1
Spinal cord lesion below neck level	28	21	35	28	21	35	1	1	1
Non-fatal submersion	4	3	5	2	1	3	1	1	1
Asphyxiation	4	3	5	2	1	3	1	1	1

Crush injury	61	39	98	11	8	13	1	1	1
Injured nerves	62	34	103	36	17	61	1	1	1
Injury to eyes (including foreign body eye)	45	17	77	50	20	83	1	1	1
Open wound	36	30	42	18	10	29	2	1.5	2.5
Poisoning	4	3	5	2	1	3	1	1	1
Severe chest Injury	54	38	74	42	30	56	1	1	1
Internal hemorrhage in abdomen or pelvis	21	14	28	21	14	28	2	1.5	2.5
Contusion	36	30	42	18	10	29	1	1	1
Environmental factors (e.g. temperature, pressure, electricity)	28	21	35	28	21	35	1	1	1
Complications of medical treatment	28	21	35	28	21	35	1	1	1
Superficial injury	42	24	60	18	14	23	1	1	1
Multiple significant injuries	131	77	183	94	63	129	2	1.5	2.5

LL=lower limit; UL=upper limit; N/A=not available

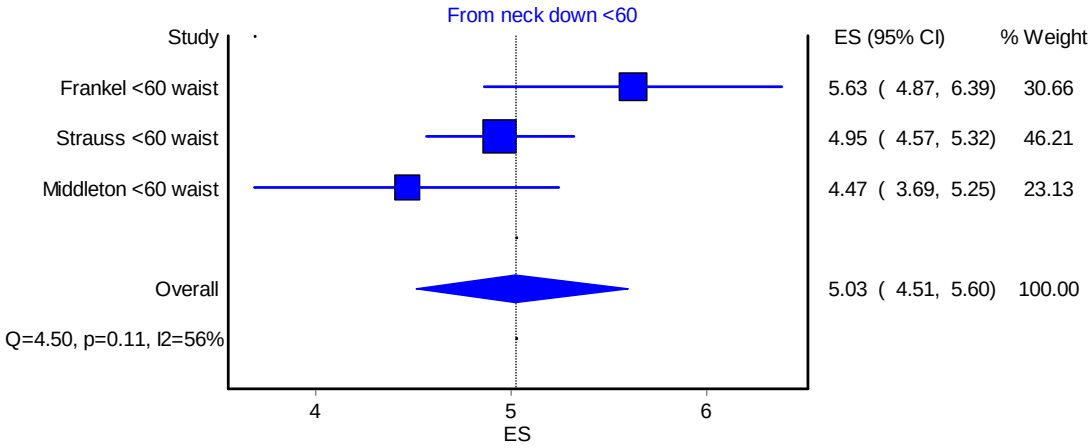
Calculation of prevalence from incidence data – short term injury

For short-term injury outcomes, the prevalence for each cause-of-injury/nature-of-injury/severity-level grouping was estimated as the product of incidence and duration.

Calculation of prevalence from incidence data – permanent health loss

For permanent health loss, we needed to integrate incidence over time to arrive at prevalence estimates while taking into account differential mortality risk for more serious long-term disabilities. We used a random effects meta-analysis to pool data on standardized mortality ratios derived from literature reviews for spinal cord injury, burns covering more than 20% of the body, moderate to severe traumatic brain injury, hip fracture, and multiple significant injuries. Annex Figures 4.3 – 4.9 show the results of the random effects meta-analysis of data on standardized mortality ratios that were derived from literature reviews for spinal cord injury below neck level in patients aged younger than 60 years (Annex Figure 4.3) and patients aged 60 years and older (Annex Figure 4.4), spinal cord injury at waist level in patients younger than 60 years (Annex Figure 4.5) and 60 years and older (Annex Figure 4.6), moderate to severe traumatic brain injury (Annex Figure 4.7), hip fracture in patients aged younger than 75 years (Annex Figure 4.8) and patients 75 years and older (Annex Figure 4.9).

Annex Figure 4.3 Forest plot of standardized mortality ratios in individual samples of spinal cord injury at neck level in patients younger than 60 years*



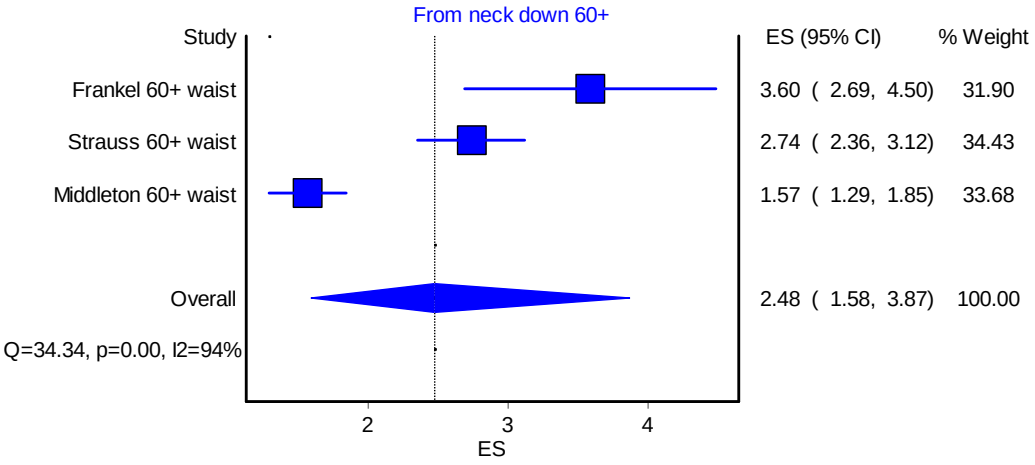
*Studies:

Frankel HL, Coll JR, Charlifue SW, *et al*. Long-term survival in spinal cord injury: a fifty year investigation. *Spinal Cord* 1998; **36**: 266–74.

Middleton JW, Dayton A, Walsh J, Rutkowski SB, Leong G, Duong S. Life expectancy after spinal cord injury: a 50-year study. *Spinal Cord* 2012; **50**: 803–11.

Strauss D, DeVivo M, Shavello R. Long-term Mortality Risk After Spinal Cord Injury. *J Insurance Med* 2000; **32**: 11–6.

Annex Figure 4.4 Forest plot of standardized mortality ratios in individual samples of spinal cord injury at neck level in patients 60 years and olderz*



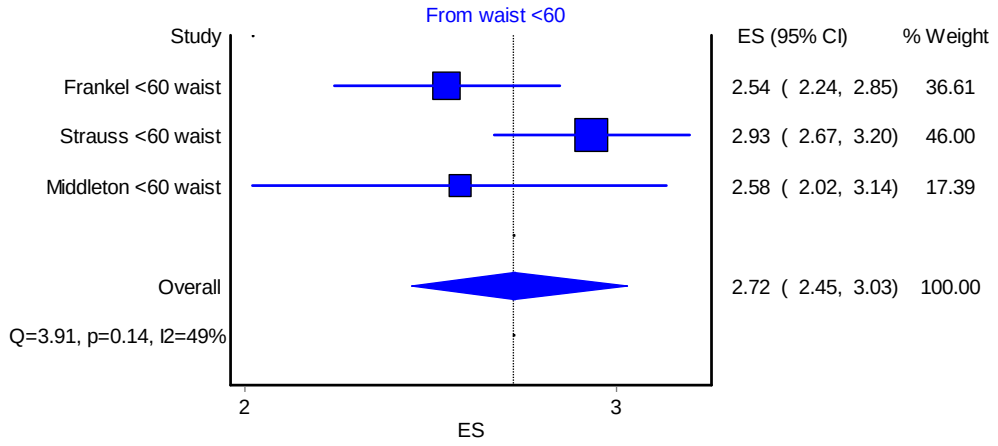
*Studies:

Frankel HL, Coll JR, Charlifue SW, *et al*. Long-term survival in spinal cord injury: a fifty year investigation. *Spinal Cord* 1998; **36**: 266–74.

Middleton JW, Dayton A, Walsh J, Rutkowski SB, Leong G, Duong S. Life expectancy after spinal cord injury: a 50-year study. *Spinal Cord* 2012; **50**: 803–11.

Strauss D, DeVivo M, Shavello R. Long-term Mortality Risk After Spinal Cord Injury. *J Insurance Med* 2000; **32**: 11–6.

Annex Figure 4.5 Forest plot of standardized mortality ratios in individual samples of spinal cord injury at waist level in patients younger than 60 years*



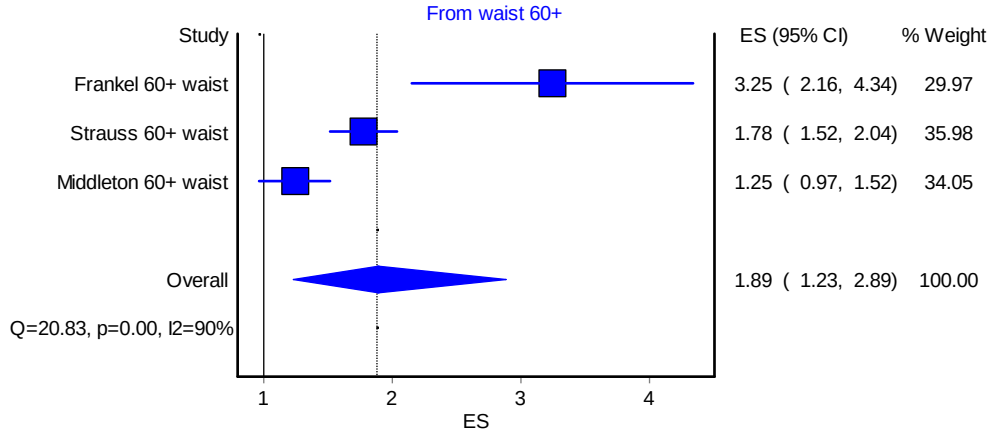
*Studies:

Frankel HL, Coll JR, Charlifue SW, *et al*. Long-term survival in spinal cord injury: a fifty year investigation. *Spinal Cord* 1998; **36**: 266–74.

Middleton JW, Dayton A, Walsh J, Rutkowski SB, Leong G, Duong S. Life expectancy after spinal cord injury: a 50-year study. *Spinal Cord* 2012; **50**: 803–11.

Strauss D, DeVivo M, Shavello R. Long-term Mortality Risk After Spinal Cord Injury. *J Insurance Med* 2000; **32**: 11–6.

Annex Figure 4.6 Forest plot of standardized mortality ratios in individual samples of spinal cord injury at waist level in patients 60 years and older*



*Studies:

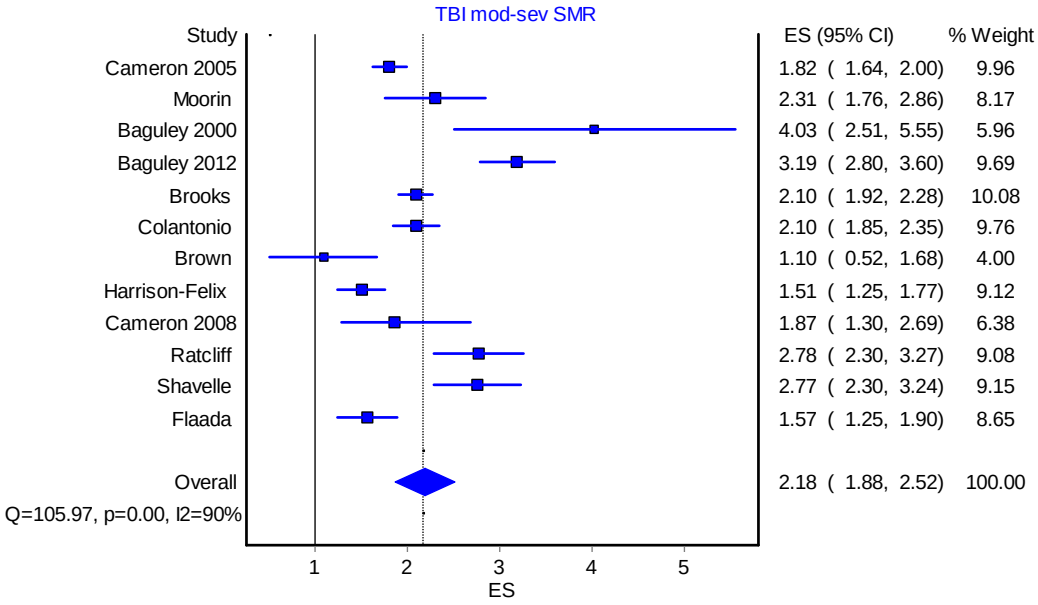
Frankel HL, Coll JR, Charlifue SW, *et al*. Long-term survival in spinal cord injury: a fifty year investigation. *Spinal Cord* 1998; **36**: 266–74.

Middleton JW, Dayton A, Walsh J, Rutkowski SB, Leong G, Duong S. Life expectancy after spinal cord injury: a 50-year study. *Spinal Cord* 2012; **50**: 803–11.

Strauss D, DeVivo M, Shavello R. Long-term Mortality Risk After Spinal Cord Injury. *J Insurance Med* 2000; **32**: 11–6.

Traumatic brain injury

Annex Figure 4.7 Forest plot of standardized mortality ratios in individual samples of moderate to severe traumatic brain injury*



*Studies:

Baguley I, Slewa-Younan S, Lazarus R, Green A. Long-term mortality trends in patients with traumatic brain injury. *Brain Inj* 2000; **14**: 505–12.

Baguley IJ, Nott MT, Howle AA, *et al.* Late mortality after severe traumatic brain injury in New South Wales: a multicentre study. *Med J Aust* 2012; **196**: 40–5.

Brooks JC, Strauss DJ, Shavelle RM, Paculdo DR, Hammond FM, Harrison-Felix CL. Long-term disability and survival in traumatic brain injury: results from the National Institute on Disability and Rehabilitation Research Model Systems. *Arch Phys Med Rehabil* 2013; **94**: 2203–9.

Brown AW, Leibson CL, Malec JF, Perkins PK, Diehl NN, Larson DR. Long-term survival after traumatic brain injury: a population-based analysis. *NeuroRehabilitation* 2004; **19**: 37–43.

Cameron CM, Purdie DM, Kliewer EV, McClure RJ. Long-term mortality following trauma: 10 year follow-up in a population-based sample of injured adults. *J Trauma* 2005; **59**: 639–46.

Cameron CM, Purdie DM, Kliewer EV, McClure RJ (2008) Ten-year outcomes following traumatic brain injury: A population-based cohort. *Brain Injury* 2008; **22**(6):437-449.

Colantonio A, Escobar MD, Chipman M, *et al.* Predictors of postacute mortality following traumatic brain injury in a seriously injured population. *J Trauma* 2008; **64**: 876–82.

Flaada JT, Leibson CL, Mandrekar JN, *et al.* Relative risk of mortality after traumatic brain injury: a population-based study of the role of age and injury severity. *J Neurotrauma* 2007; **24**: 435–45.

Harrison-Felix CL, Whiteneck GG, Jha A, DeVivo MJ, Hammond FM, Hart DM. Mortality over four decades after traumatic brain injury rehabilitation: a retrospective cohort study. *Arch Phys Med Rehabil* 2009; **90**: 1506–13.

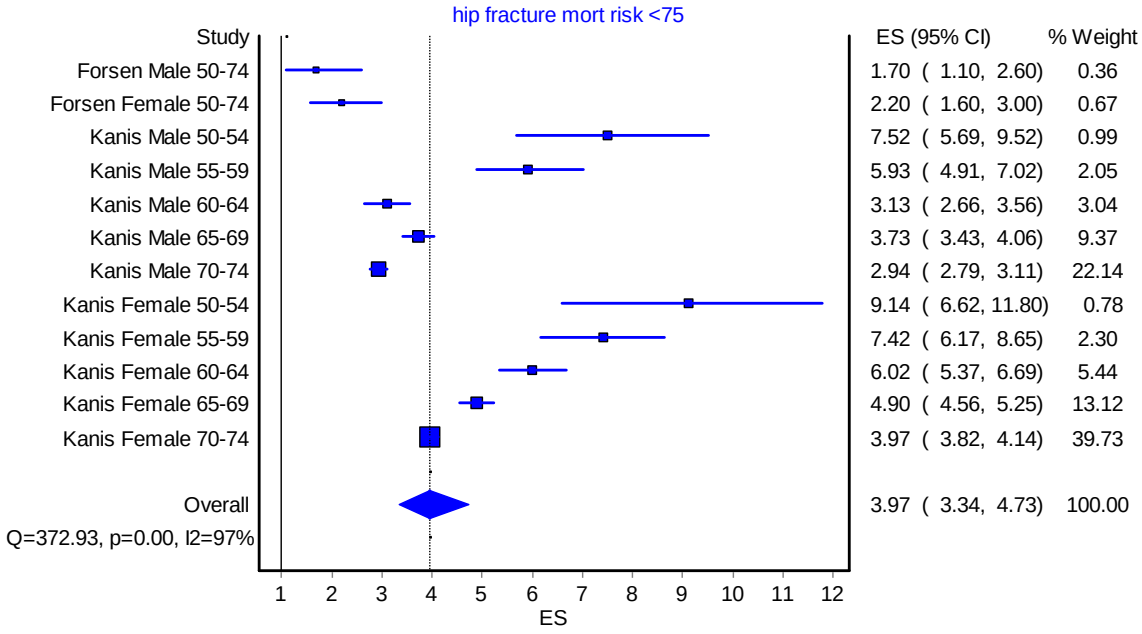
Moorin R, Miller TR, Hendrie D. Population-based incidence and 5-year survival for hospital-admitted traumatic brain and spinal cord injury, Western Australia, 2003-2008. *J Neurol* 2014; **261**: 1726–34.

Ratcliff G, Colantonio A, Escobar M, Chase S, Vernich L. Long-term survival following traumatic brain injury. *Disabil Rehabil* 2005; **27**: 305–14.

Shavelle RM, Strauss D, Whyte J, Day SM, Yu YL. Long-term causes of death after traumatic brain injury. *Am J Phys Med Rehabil* 2001; **80**: 510–6; quiz 517–9.

Hip fracture

Annex Figure 4.8 Forest plot of standardized mortality ratios in individual samples of hip fracture patients younger than 75 years*

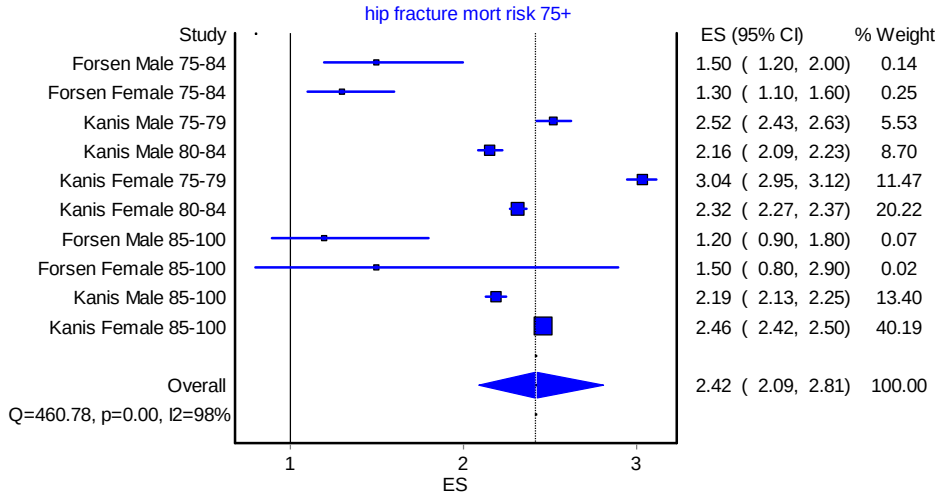


*Studies:

Forsén L, Sogaard AJ, Meyer HE, Edna T, Kopjar B. Survival after hip fracture: short- and long-term excess mortality according to age and gender. *Osteoporos Int* 1999; **10**: 73–8.

Kanis JA, Oden A, Johnell O, De Laet C, Jonsson B, Oglesby AK. The components of excess mortality after hip fracture. *Bone* 2003; **32**: 468–73.

Annex Figure 4.9 Forest plot of standardized mortality ratios in individual samples of hip fracture patients 75 years and older*



*Studies:

Forsén L, Sogaard AJ, Meyer HE, Edna T, Kopjar B. Survival after hip fracture: short- and long-term excess mortality according to age and gender. *Osteoporos Int* 1999; **10**: 73–8.

Kanis JA, Oden A, Johnell O, De Laet C, Jonsson B, Oglesby AK. The components of excess mortality after hip fracture. *Bone* 2003; **32**: 468–73.

Burn injury

It was not possible to conduct a meta-analysis of data on standardized mortality ratios on burns covering more than 20% of the body, because the literature search yielded only one study. The estimated standardized mortality ratios of this study was 5.23 (95% CI 4.16 to 6.28).

Study: Onarheim H, Vindenes HA. High risk for accidental death in previously burn-injured adults. *Burns* 2005; **31**: 297–301.

Multiple significant injury

For multiple significant injury we decided to use the highest standardized mortality ratios of the other injuries (i.e. the 5.23 value for burns covering more than 20% body surface) as we were not able to identify any studies reporting a standardized mortality rate specifically for multiple trauma.

For all other nature-of-injury categories, we assumed no long-term excess mortality. We wrote new code to automate entry of data into DisMod-MR 2.0, application of the correct settings and retrieval of results for the 13,536 combinations of cause-of-injury and nature-of-injury, sex and year. "Application of the correct settings" means that DisMod-MR 2.0 is configured to simply calculate prevalence from incidence numbers, rather than trying to borrow strength through covariates or geographic random effects, because our input already consists of modeled results rather than raw data. Because DisMod-MR 2.0 does not accurately model conditions with sporadic incidence, as occurs with injuries due to forces of nature or war, we developed a simplified differential equation solver that accounted for the epidemiological relationships between incidence, prevalence, and excess mortality without incorporating the Bayesian aspects of DisMod. These Bayesian model fitting techniques, useful when dealing with raw data, were unnecessary for converting modeled incidence to modeled prevalence. By integrating over each year one at a time, our solver properly accounted for geographically and temporally isolated spikes in incidence from these two "shock" causes of injury and allowed us to estimate the prevalence of long-term outcomes for both cause-of-injury categories.

Comorbidity correction

Like all non-fatal estimates in GBD, the prevalence of all causes of long-term injury disability was included in the simulation model to correct for comorbidity assuming a multiplicative rather than additive combination of disability weights for health states that occur in the same person. For pragmatic reasons we did not include short-term disability in the comorbidity simulation modelling as the large number of combinations of cause and nature-of-injury categories would have led to long computing times. The effect of excluding these health states from the comorbidity correction model is small due to the short duration and associated low prevalence.

Section 5. Results - Incidence of injuries by nature-of-injury

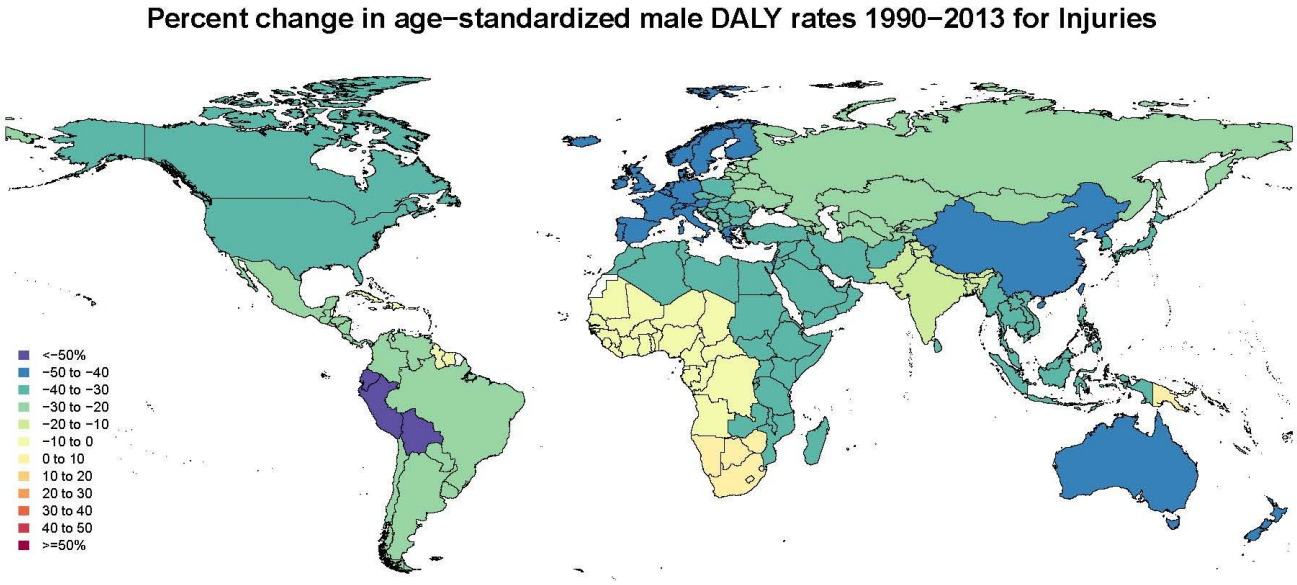
Annex Table 5.1 Incidence of injuries by nature-of-injury

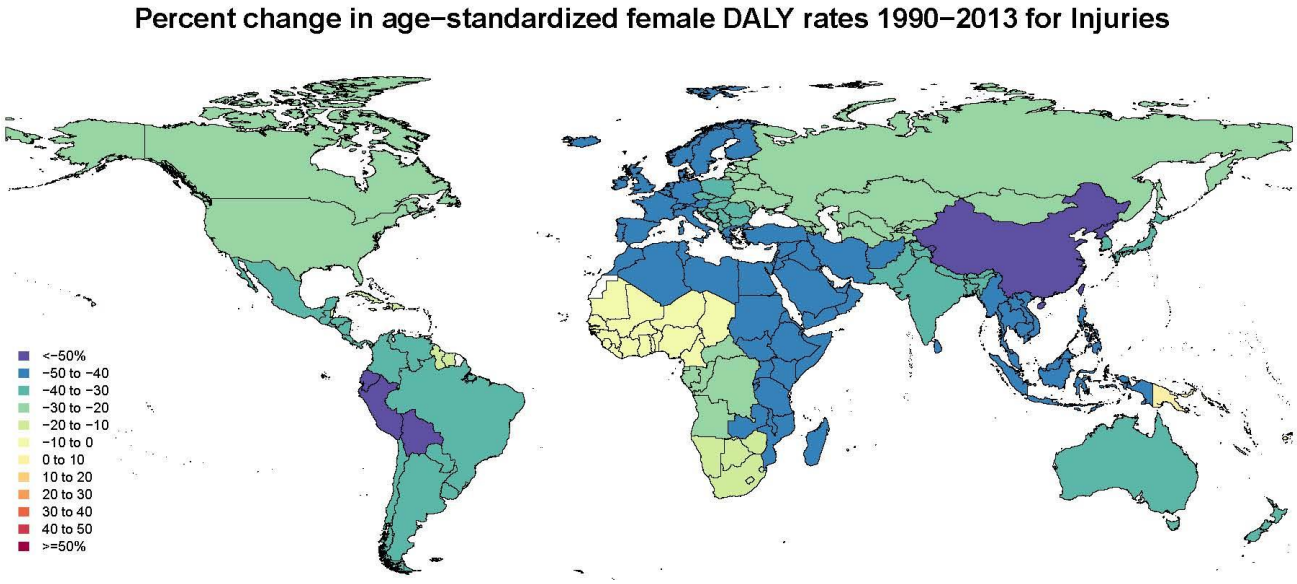
Nature-of-injury	Inpatient Injuries			Outpatient Injuries		
	Incidence (millions)	**Incidence rate per 100,000**	**Proportion (%)**	**Incidence (millions)**	**Incidence rate per 100,000**	**Proportion (%)**
Amputations	0.7 (0.6 – 0.7)	9.2 (8.8 – 9.8)	1.2 (1.1 – 1.2)	4.3 (4.0 – 4.5)	58 (55 – 62)	0.5 (0.4 – 0.5)
Burns	2.7 (2.6 – 2.8)	36 (34 – 38)	4.8 (4.6 – 5.0)	3.0 (2.7 – 3.5)	43 (38 – 54)	0.3 (0.3 – 0.4)
Fractures	21.7 (21.3 – 22.0)	290 (286 – 295)	38.5 (38.1 – 39.0)	108 (105 – 112)	1,438 (1,395 – 1,511)	11.7 (11.5 – 12.1)
Head Injury	5.1 (5.0 – 5.3)	71 (70 – 73)	9.1 (8.9 – 9.3)	5.2 (5.0 – 5.6)	73 (69 – 79)	0.6 (0.5 – 0.6)
Spinal Lesions	0.2 (0.2 – 0.2)	2.4 (2.3 – 2.5)	0.3 (0.3 – 0.3)	--	--	--
Minor Injury[#]	8.3 (8.1 – 8.5)	112 (110 – 115)	14.7 (14.5 – 14.9)	689 (672 – 713)	9,404 (9,166 – 9,789)	75.2 (74.5 – 75.6)
Other Injury	17.6 (17.4 – 18.0)	245 (240 – 252)	31.3 (31.1 – 31.6)	107 (104 – 116)	1,509 (1,449 – 1,660)	11.7 (11.4 – 12.2)
Total	56.2 (55.6 – 57.3)	766 (754 – 783)	5.8 (5.7 – 5.9)	916.4 (894.7 – 950.8)	12,525 (12,193 – 13,.168)	94.2 (94.1 – 94.3)

[#] Minor injury includes 'other injuries of muscle tendon and other dislocations'; foreign body in ear; open wound, contusion and superficial injury

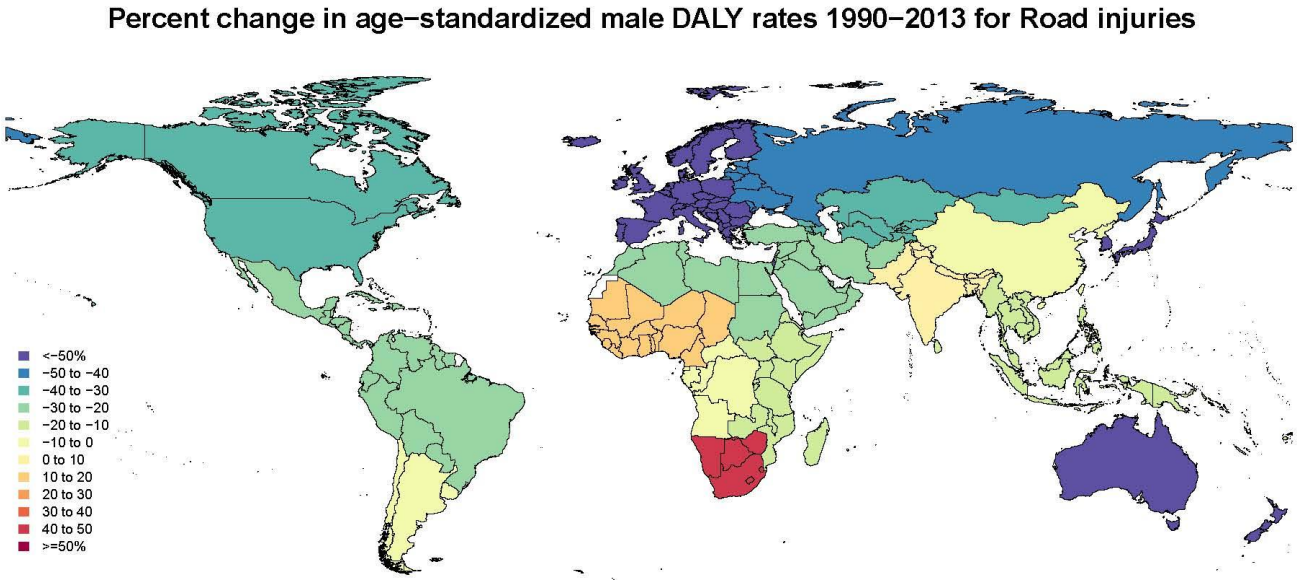
Section 6. Maps by sex of change in injury DALY rates by selected causes

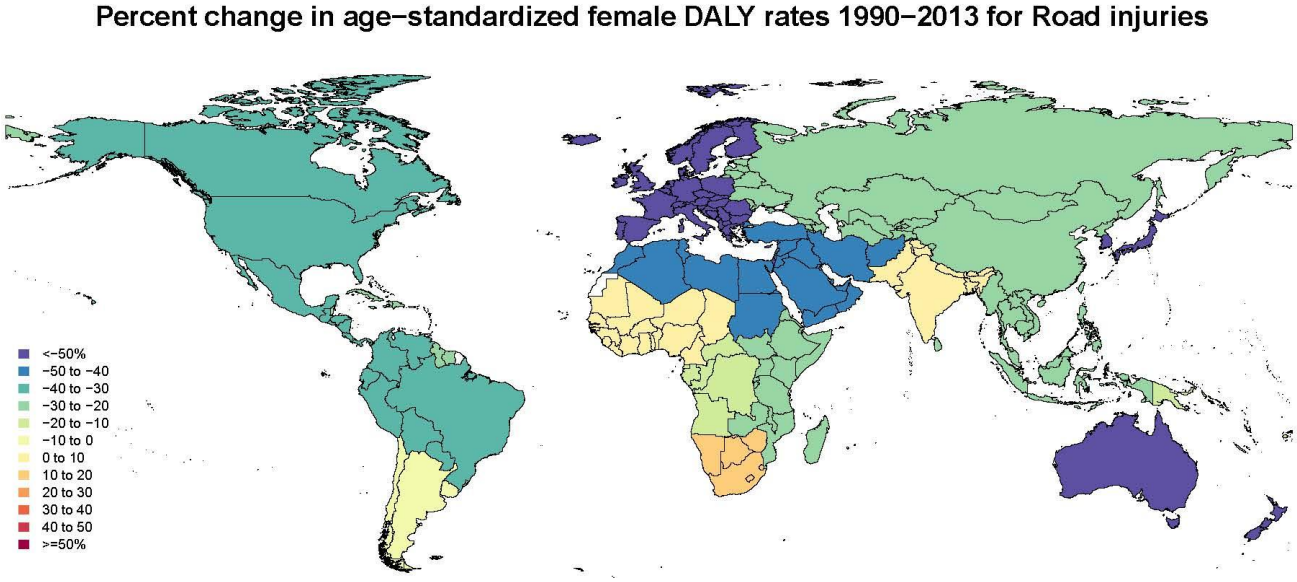
Annex Figure 6.1 Percent change in age-standardized all injury DALY rates 1990-2013 by sex



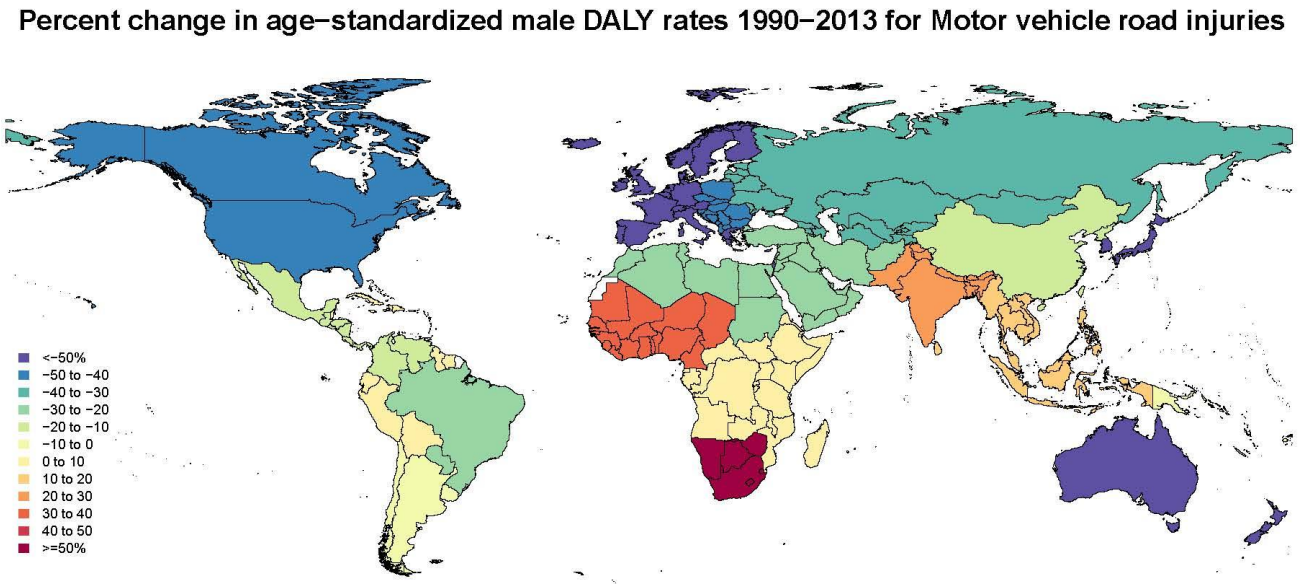


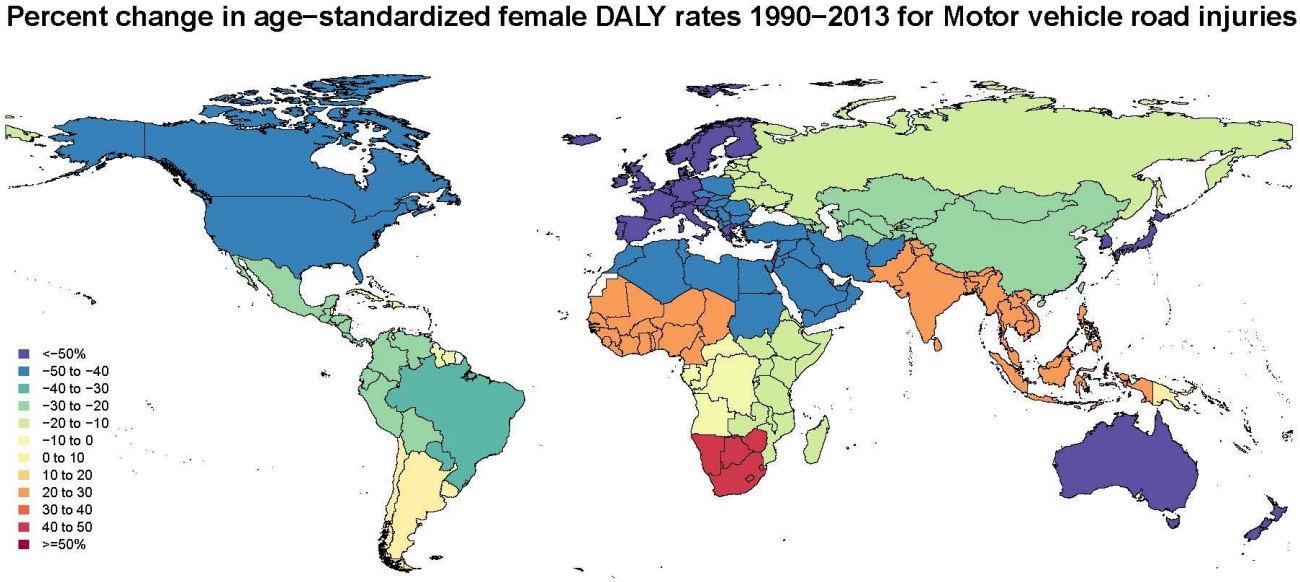
Annex Figure 6.2 Percent change in age-standardized road injury DALY rates 1990-2013 by sex



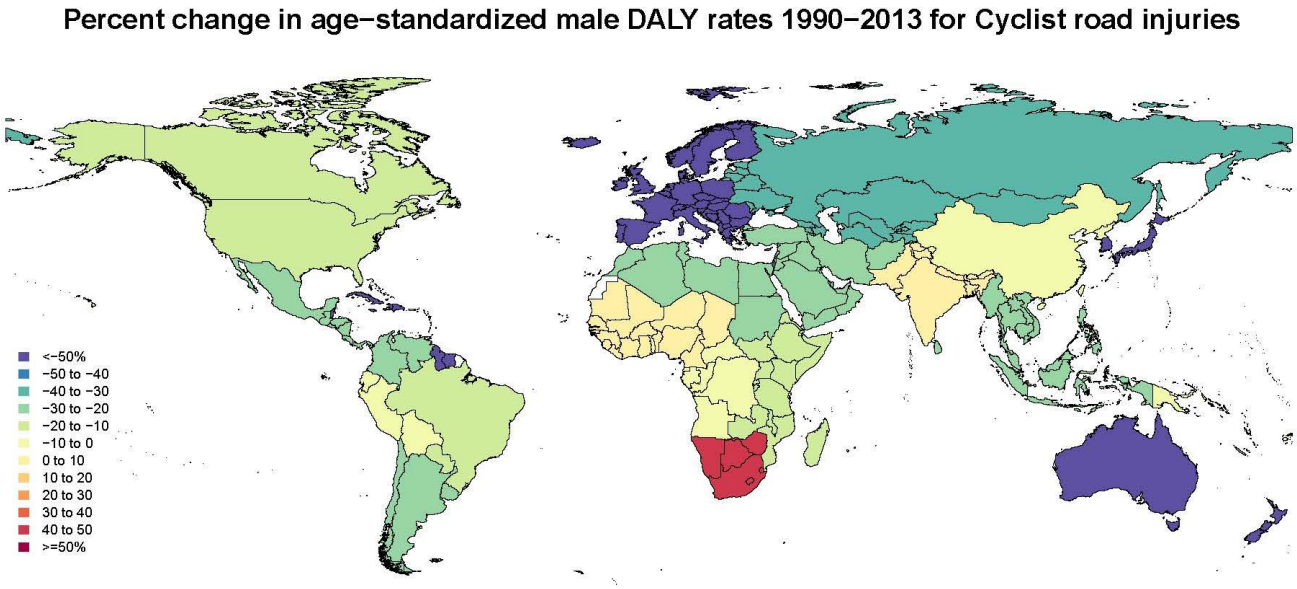


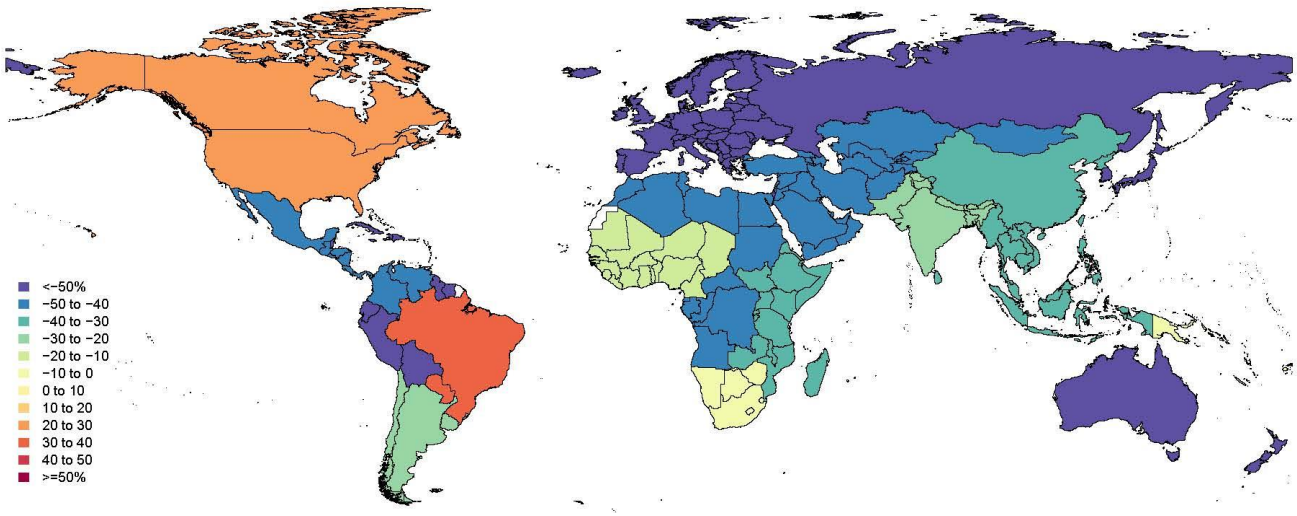
Annex Figure 6.3 Percent change in age-standardized motor vehicle road injury DALY rates 1990-2013, by sex



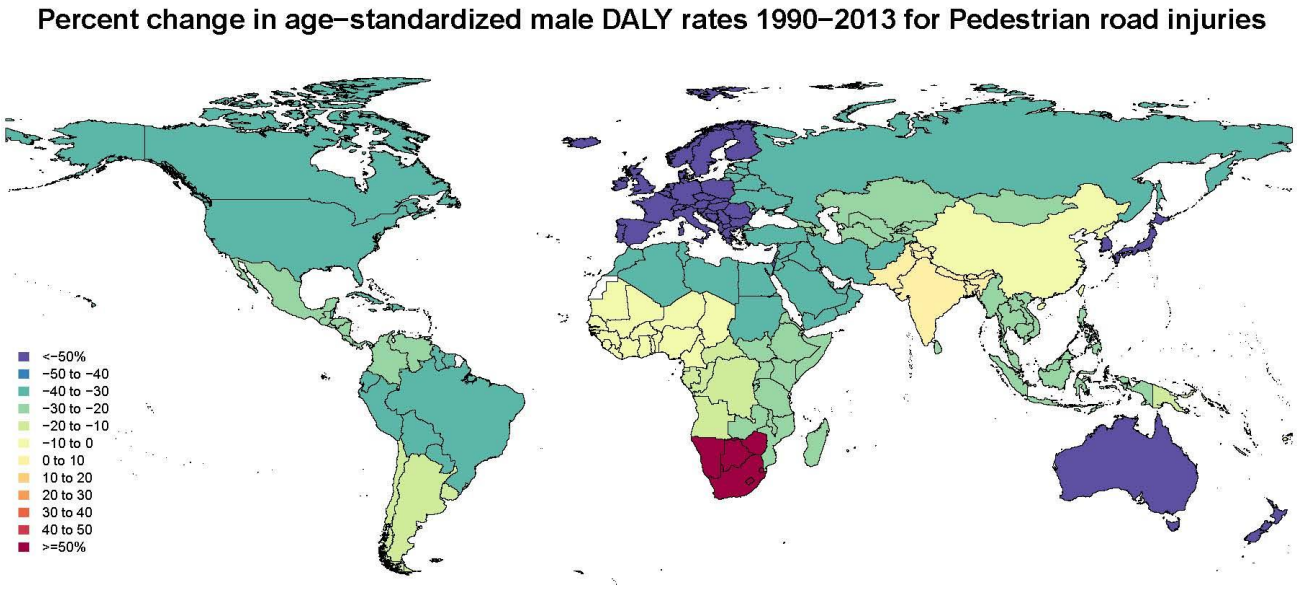


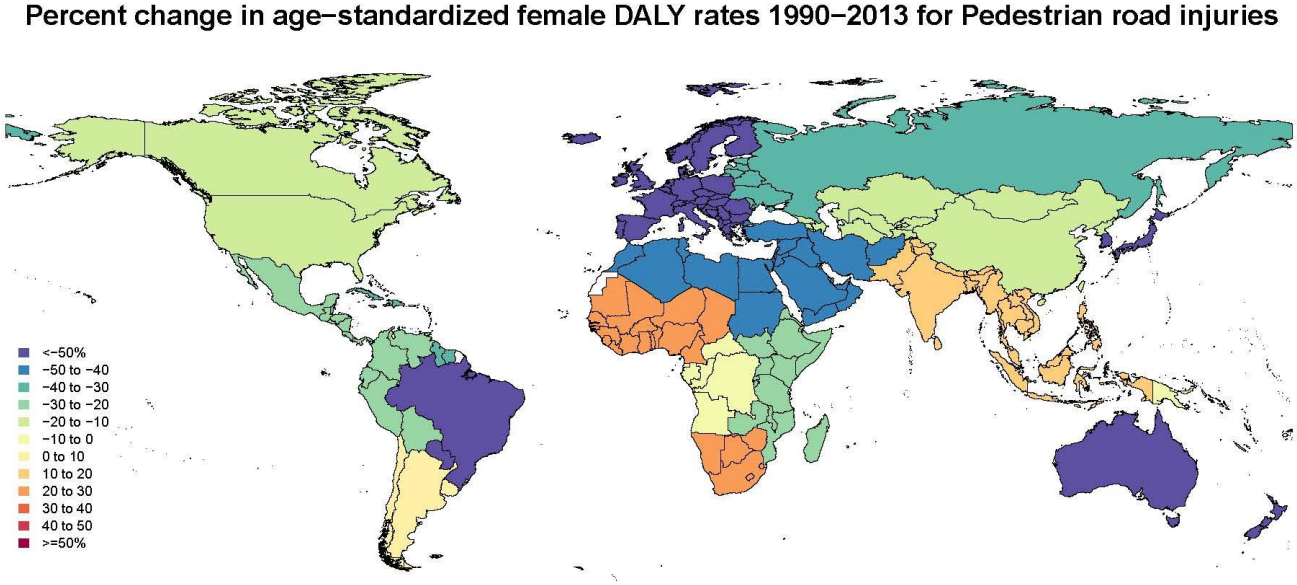
Annex Figure 6.4 Percent change in age-standardized cyclist road injury DALY rates 1990-2013 by sex



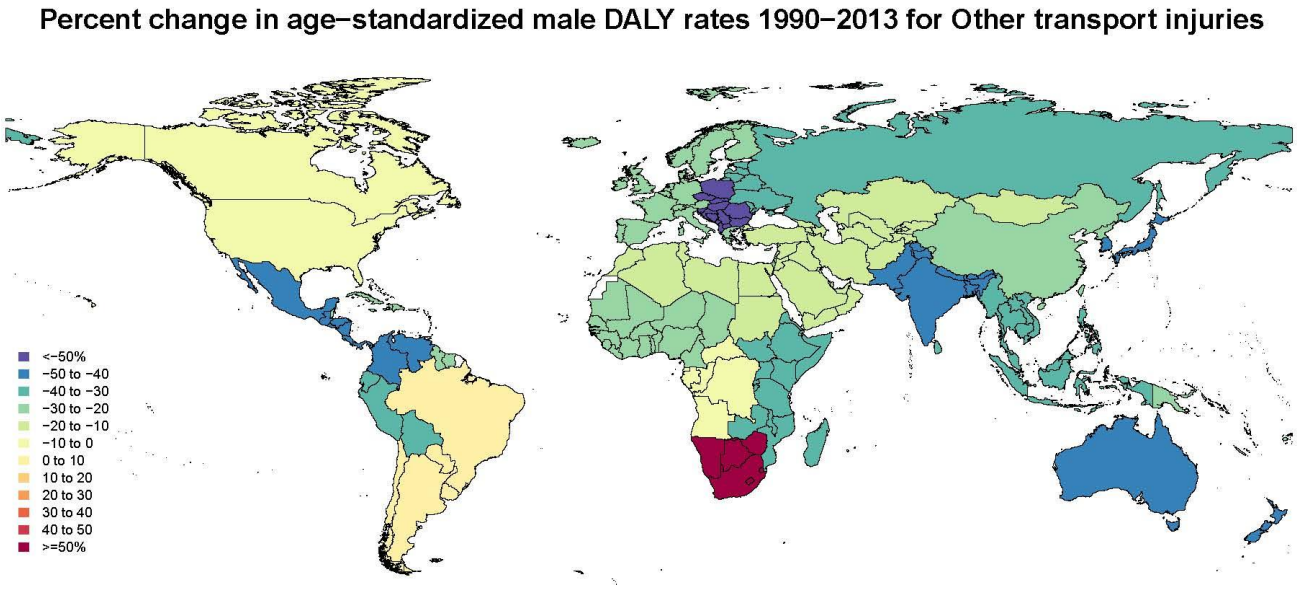


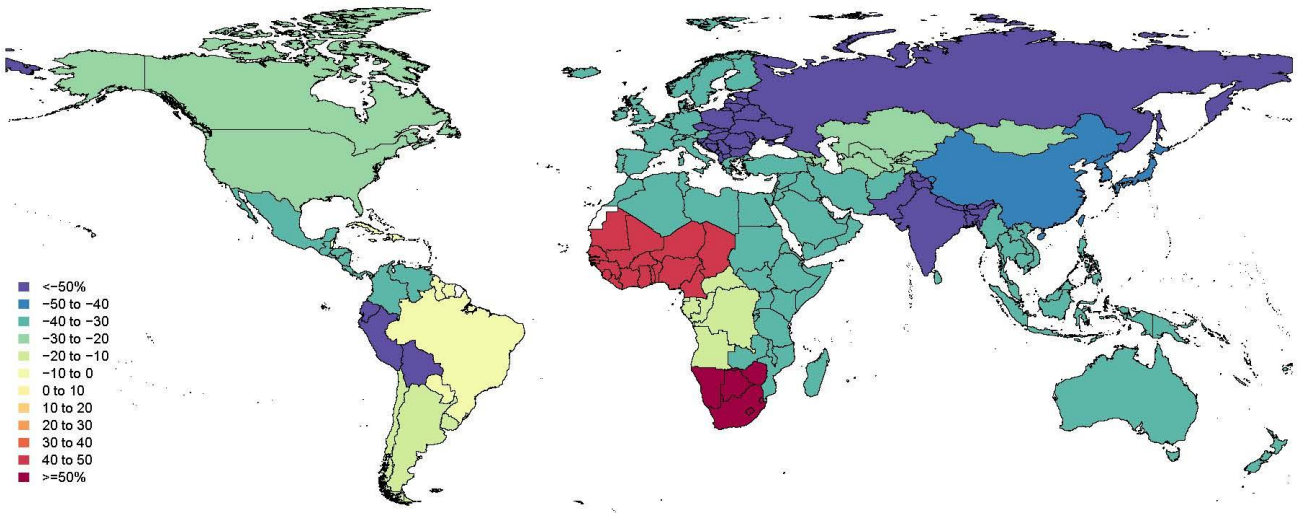
Annex Figure 6.5 Percent change in age-standardized pedestrian road injury DALY rates 1990-2013 by sex.



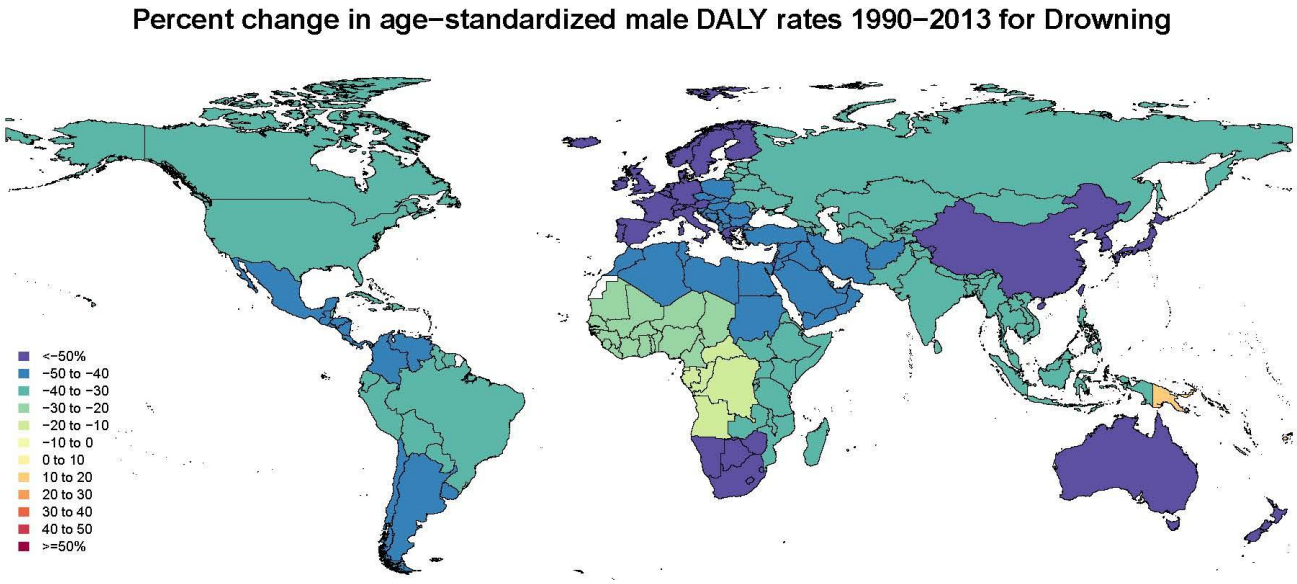


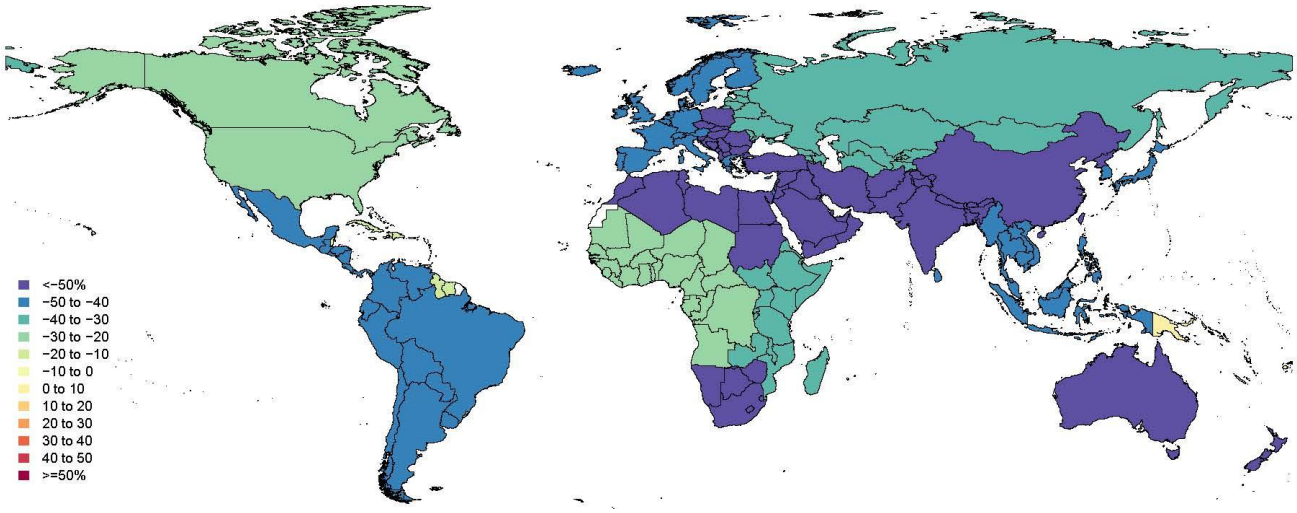
Annex Figure 6.6 Percent change in age-standardized other road injury DALY rates 1990-2013 by sex.



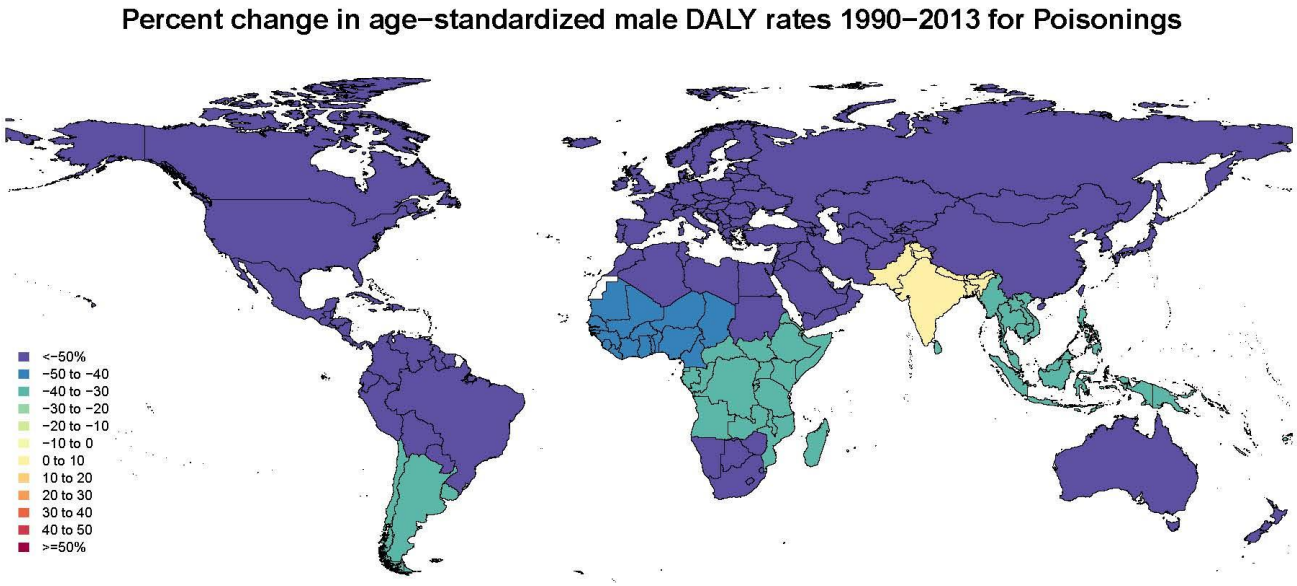


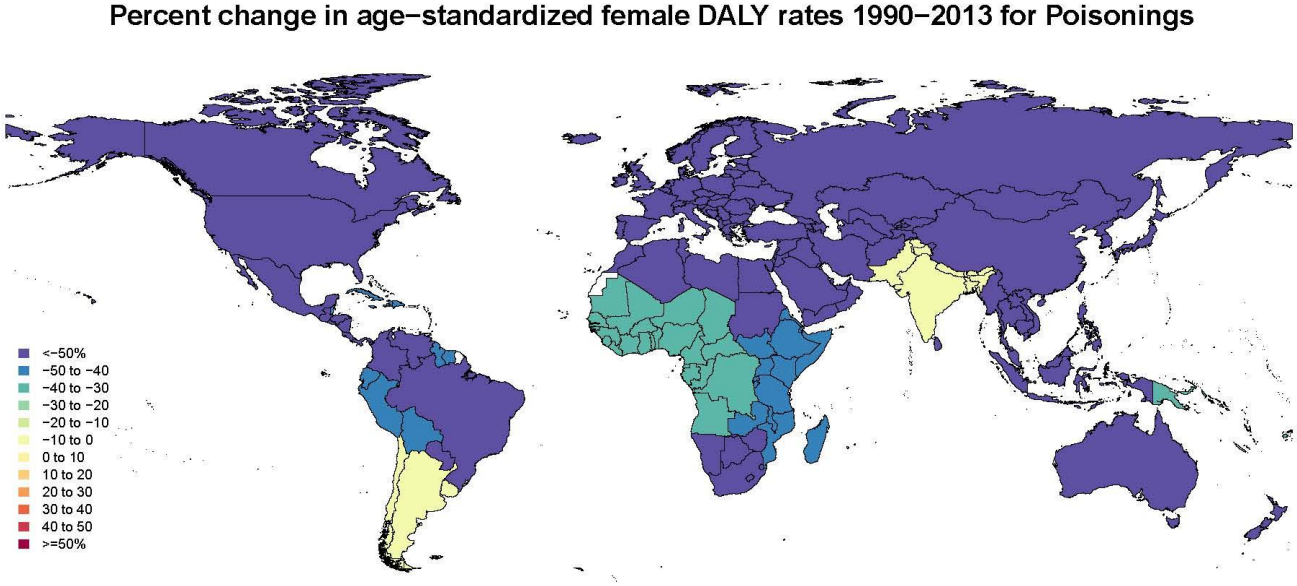
Annex Figure 6.7 Percent change in age-standardized drowning DALY rates 1990-2013 by sex.



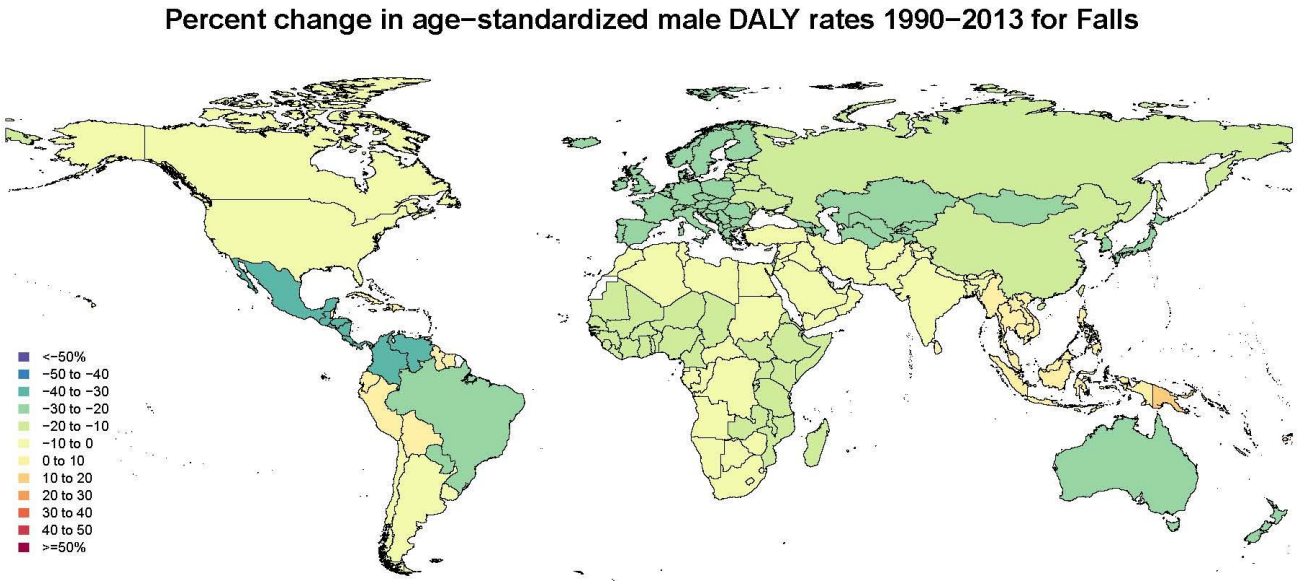


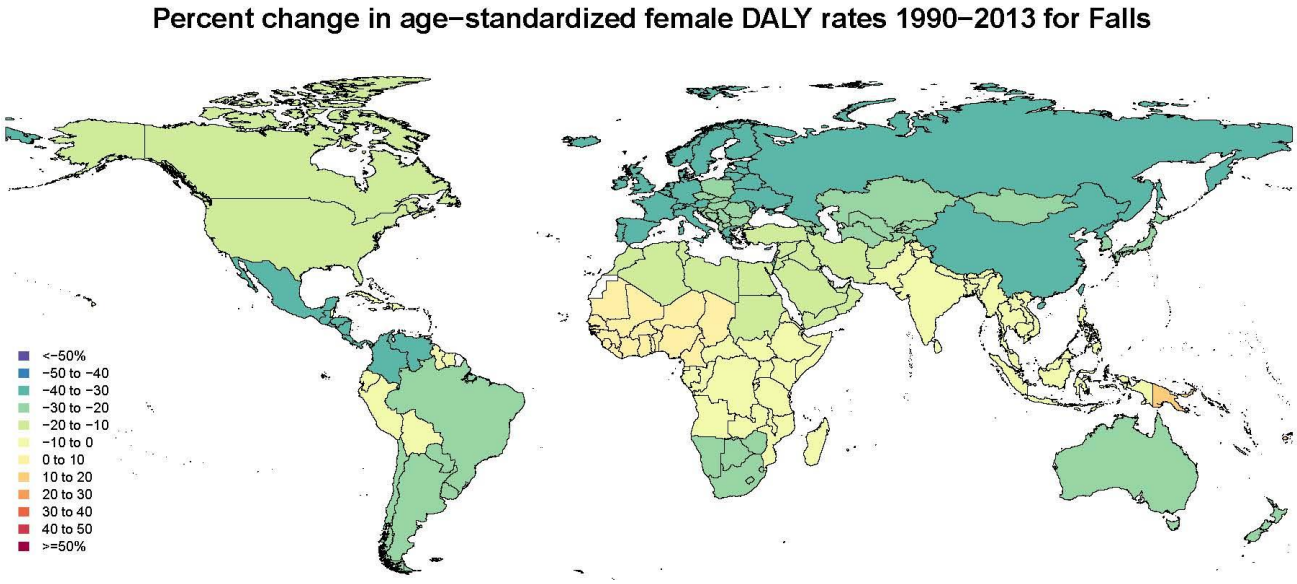
Annex Figure 6.8 Percent change in age-standardized poisonings DALY rates 1990-2013 by sex.



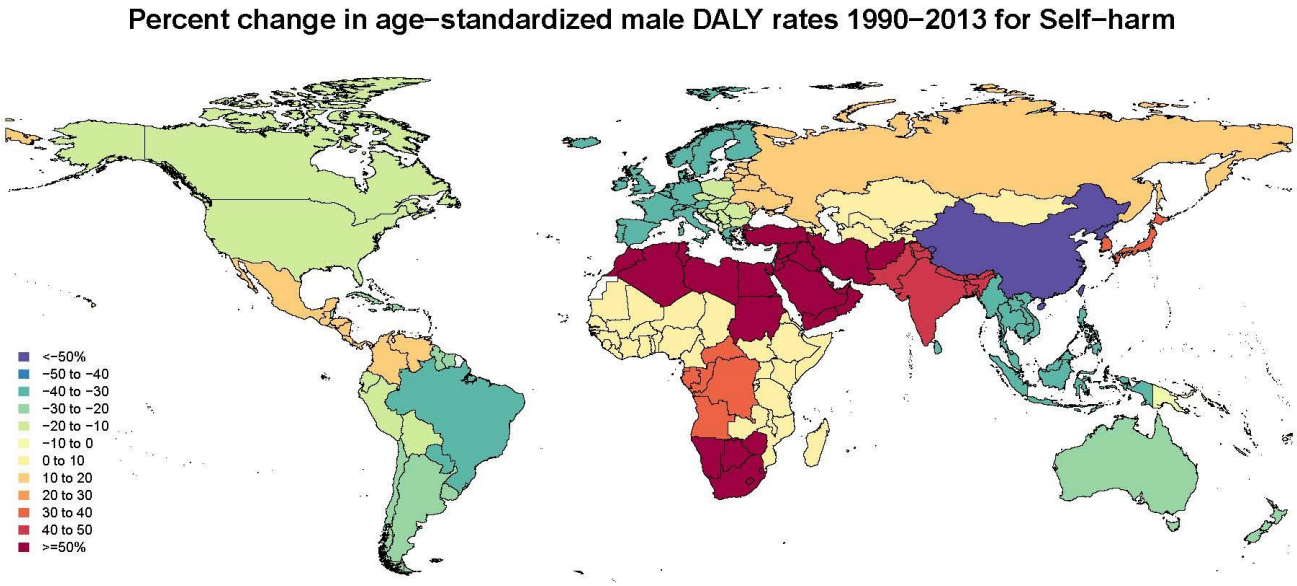


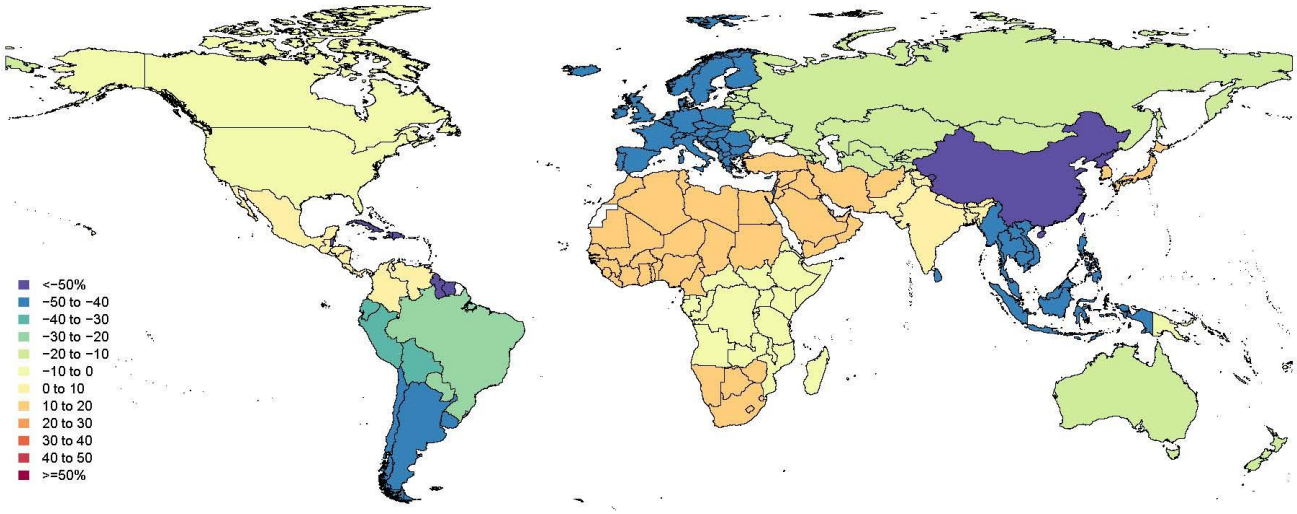
Annex Figure 6.9 Percent change in age-standardized falls DALY rates 1990-2013, by sex



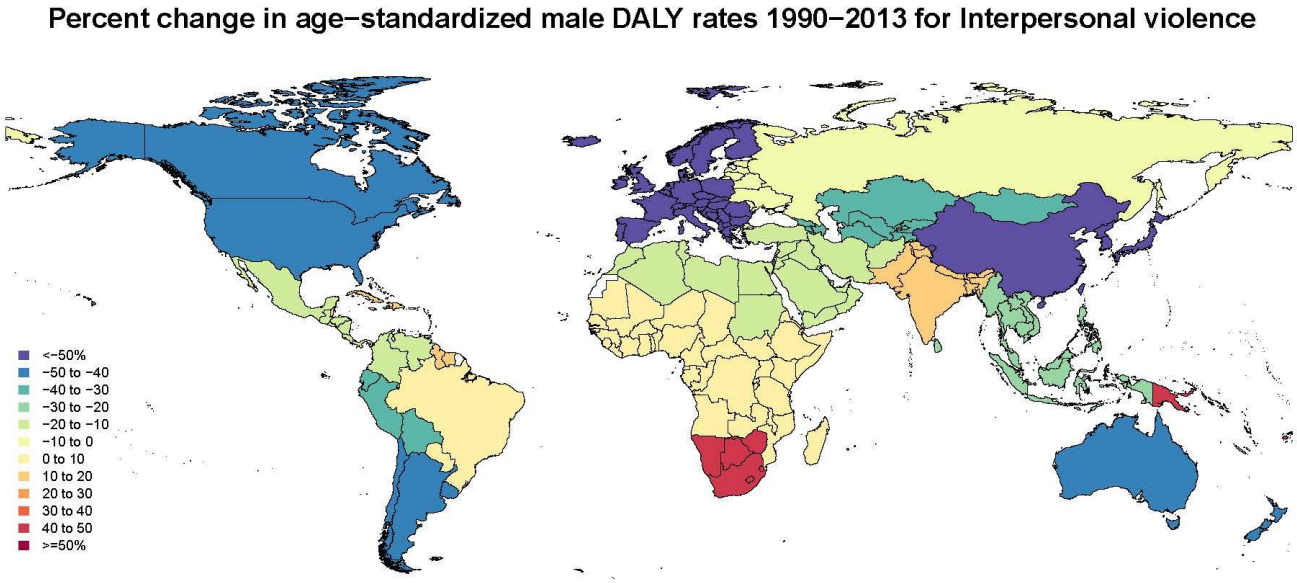


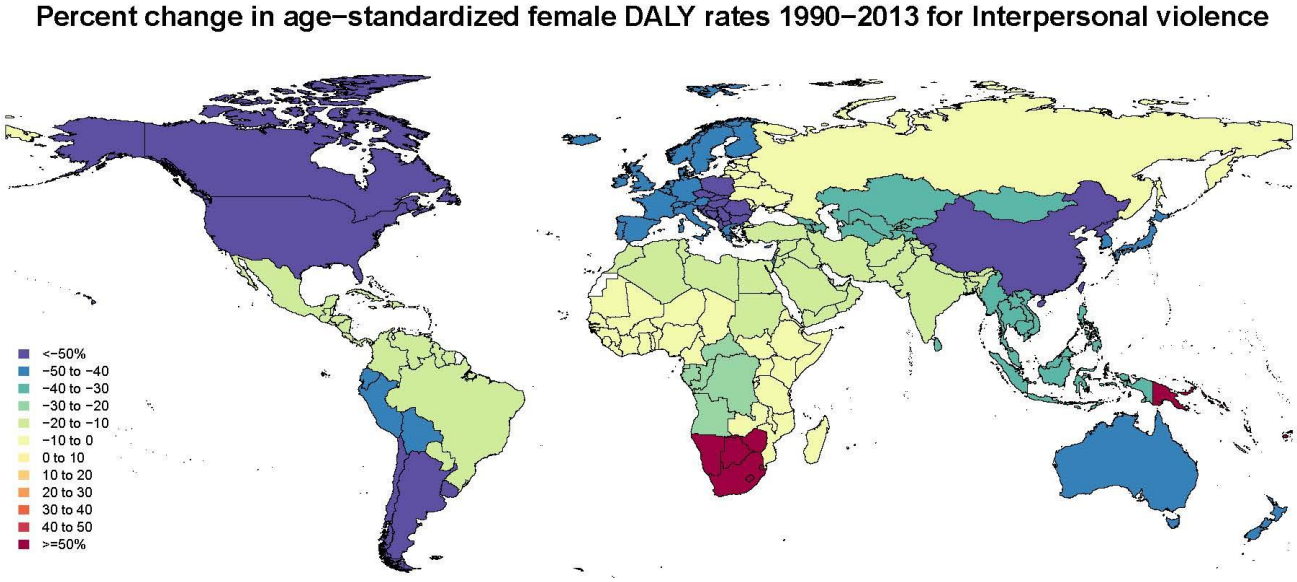
Annex Figure 6.10 Percent change in age-standardized self-harm DALY rates 1990-2013 by sex.





Annex Figure 6.11 Percent change in age-standardized interpersonal violence DALY rates 1990-2013 by sex.





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