

# Demographic Trends Shape Unintentional Injury Patterns

**Population aging and urbanization are the key demographic shifts of the 21st century.** Between 2018 and 2050, the share of adults ages 65 and older is projected to increase from one in 11 people to more than one in six globally, while the share of younger people declines. During the same period, the urban population is projected to increase from less than 60 percent of the world's population to two-thirds, while the rural population shrinks.

**These demographic shifts will have profound implications for public safety and the risks of unintentional injuries.** The pace of demographic change will be most dramatic in low- and middle-income countries where a disproportionate share of unintentional injuries occur. The risks for different types of unintentional injuries differ across age groups and between rural and urban locations. Understanding how population characteristics affect the patterns of unintentional injuries today can shed light on the injuries that may pose the greatest future risks and inform intervention plans to reduce the burden of unintentional injuries and associated economic costs worldwide.

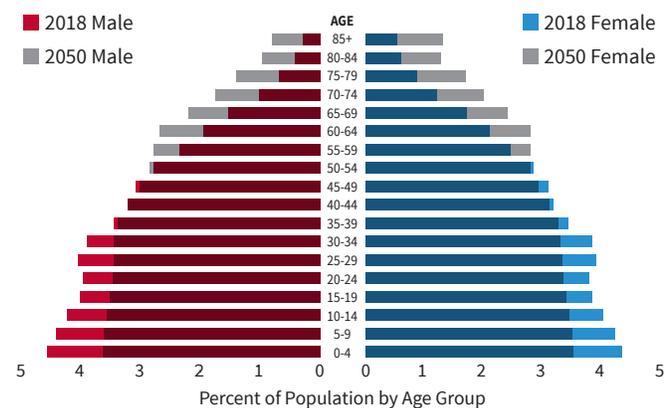
## BOX 1

### The World Is Growing Older

Older adults' (ages 65+) share of the global population is projected to rise from 9 percent in 2018 to 16 percent by 2050. The total number of older adults is expected to more than double, increasing 2.3 times from 0.68 billion to 1.55 billion. The share of the population below age 40 is projected to decline. For example, children's (ages 0 to 14) share is projected to fall from 26 percent in 2018 to 21 percent by 2050; children's total numbers are expected to increase only slightly from 1.97 billion to 2.08 billion.

**Source:** United Nations (UN) Population Division, *World Population Prospects: The 2017 Revision* (New York: UN, 2017).

Age Structure of the Global Population, 2018 and 2050



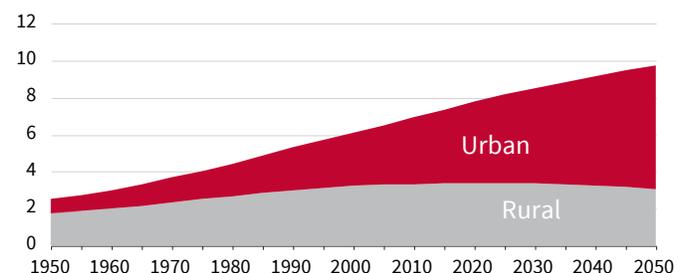
## BOX 2

### The World Is Increasingly Urban

The urban population surpassed the rural population for the first time in 2007 and is projected to increase from 57 percent to 68 percent between 2018 and 2050, growing from 4.2 billion to 6.7 billion. During the same period, the rural population is projected to decline from 43 percent to 32 percent, dropping from 3.4 billion to 3.1 billion.

**Source:** UN Population Division, *World Urbanization Prospects: The 2018 Revision* (New York: UN, 2018).

Global Urban and Rural Populations (in billions)



# How Does Demography Affect

## POPULATION AGING: RISK BY AGE GROUP

### Older Adults



#### Falls

- In all world regions, death rates from falls are highest among older adults, and the risk increases with age.
- Falls make up 48 percent of total disability-adjusted life years (DALYs, see Box 3) due to unintentional injuries among adults ages 70 and older, compared with 18 percent among all age groups.
- Men fall less often than women, but they are more likely to die from their falls because of the other conditions they suffer.
- Compared to older men, older women lose a higher proportion of DALYs due to falls to disability (59 percent among women compared with 44 percent among men) than to premature death.

*Chronic illnesses, functional limitations, and environments not adapted to meet their physical needs likely explain older adults' higher risk of falls.*

### Young People



#### Road Traffic Injuries

- Road traffic injuries are the leading cause of all deaths among young men ages 15 to 29 and the second leading cause among young women (after suicide).
- Road injuries disproportionately affect young men: Young men and women ages 15 to 29 represent 26 percent and 7 percent, respectively, of DALYs due to road injuries across all ages, while they each comprise only 12 percent of the total population.

*More reckless driving, less experience behind the wheel, and higher risk of crashes when driving while impaired among young drivers compared to older drivers partly explain the pattern.*

### Children Under Age 5



#### Drowning

- Children under age 5 account for 28 percent of DALYs due to drowning across all ages, although they make up only 9 percent of the total population.
- Drowning is one of the leading causes of DALYs for children under age 5, accounting for 19 percent of DALYs due to unintentional injuries among this age group, compared to 9 percent among the total population.

*Inadequate adult supervision, poor swimming skills, and proximity to open water sources increase the drowning risk among children.*



#### Poisoning

- Children under age 5 represent 35 percent of DALYs due to poisoning across all ages, although they make up only 9 percent of the total population.
- Poisoning accounts for 7 percent of the total DALYs due to unintentional injuries among children under age 5, compared to 3 percent among the total population.

*Children's curiosity and smaller body size (higher dose of toxin per bodyweight) make them more susceptible to poisoning. Common agents include medicinal drugs and household products (bleach, cleaning agents) in high- and middle-income countries and fuels, such as paraffin and kerosene, in low-income countries.*

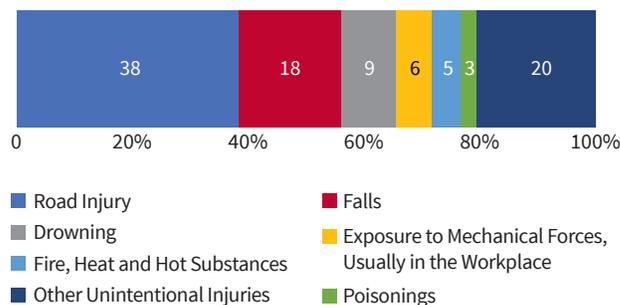
### BOX 3

## Measuring Disability-Adjusted Life Years Due to Unintentional Injuries

Measuring disability-adjusted life years (DALYs) is a way to quantify the overall impact of specific diseases and conditions due to the combined effects of ill-health, disability, and premature death.\* This measure allows policymakers and researchers to compare the burden of unintentional injuries across countries and over time. Globally, road injuries accounted for the largest share of DALYs due to unintentional injuries (38 percent) in 2016, followed by falls (18 percent), and drowning (9 percent). While other types of injuries made up a smaller share of DALYs, substantial variations existed across regions and income levels among countries.

\*Disability-adjusted life years or DALYs consist of years of life lost (YLLs) and years lived with disability (YLDs) due to specific diseases or conditions (DALYs = YLLs + YLDs).

Disability-Adjusted Life Years (DALYs) Due to Unintentional Injuries by Cause (%)



Source: World Health Organization (WHO), *Global Health Estimates 2016: Disease Burden by Cause, Age, Sex, by Country, and by Region, 2000-2016* (Geneva: WHO, 2018).

# Unintentional Injuries?

## URBANIZATION: RISK BY LOCATION

**Rural-to-urban migration and births to urban dwellers contribute to urban growth, altering the risks and causes of unintentional injuries** for both migrants and urban dwellers. Urbanization in low- and middle-income countries typically occurs rapidly and without much planning, thereby increasing risks of unintentional injuries from the growing pressure on infrastructure (such as increased traffic, overcrowding, lack of housing) and increased social inequality (such as growth in informal settlements, substandard housing).

**Because unintentional injury risks are related to socioeconomic levels, higher standards of living associated with urbanization ultimately lower the risk of many injuries**, such as childhood burns. Rising urban living standards also improve access to adequate treatment after injuries, lowering the risk of death and long-term disability.

### Urban Residents



#### Road Traffic Injuries

- Worldwide, road injuries are higher in urban areas than rural areas.
- Death rates from traffic injuries in low- and middle-income countries are more than twice the rates in high-income countries.
- Most road injury deaths are among those riding in vehicles in high-income countries and among pedestrians and motorcyclists in low- and middle-income countries.

### Rural Residents



#### Drowning

- The risk of drowning is higher in rural areas than urban areas.

*Access to more open water sources, such as rivers, ponds, lakes, and water wells, in rural areas largely explain the pattern. Occupations with higher risks of drowning, such as fisheries and operating smaller boats, are also more common in rural areas contributing to higher risks.*

### Rural-to-Urban Migrants

- Migrants typically face higher unintentional injury risks compared to other urban residents because of factors such as greater occupational hazards associated with their jobs and poorer housing conditions with fewer safety measures.
- Migrants may be less likely to access health care following injuries and experience greater health consequences.
- Some migrants, including refugees (involuntary migrants), face high risks of unintentional injuries during migration, such as drowning and traffic injuries.
- Some studies suggest that migrants' families also face high injury risks, including among children who migrated with their parents or remained at their place of origin.

## IMPLICATIONS OF AN OLDER, MORE URBAN POPULATION ON UNINTENTIONAL INJURIES

If the age patterns for the risk of unintentional injuries stay constant, **population aging will result in a substantially greater burden from falls** as the number of older adults grows. Because women generally live longer than men, older women will outnumber older men as populations age, especially in low- and middle-income countries. Because women are more likely to be disabled by falls rather than die, population aging may contribute to a rise in fall-related disability rather than premature deaths.

**The declining proportion of young children will likely lower the risk of drowning and poisoning.** Countries with large numbers of young children today, however, will see rising young adult populations as those children age,

and may experience an increase in road traffic injuries, especially among young men.

If the patterns of unintentional injuries in urban and rural areas continue, **urbanization will also result in a greater burden from traffic injuries**, especially in low- and middle-income countries where most growth in urban populations will be concentrated. Ongoing, intensive efforts by the World Health Organization, the United Nations, and individual countries to address road traffic crashes have, however, already lowered the rates of crashes in many low- and middle-income countries. If these efforts continue to be successful, they may offset some or all the impact of urbanization on increasing the burden from traffic injuries.

**Increasing numbers of rural-to-urban migrants may also increase the burden of unintentional injuries from occupational hazards or substandard housing.** In addition, younger adults are more likely to migrate to urban areas

compared to older adults. If this pattern persists, growing rural-to-urban migration will **increase the proportion of older adults in rural populations, which may increase the burden of unintentional injuries from falls in rural areas**. Rural-to-urban migration of younger generations may also have implications for other injuries among older adults by reducing the physical support available to them. On the other hand, **the decreasing share and number of rural residents may lower drowning risks** in the overall population.

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## LOWERING THE RISK OF UNINTENTIONAL INJURY TO MEET THE GROWING CHALLENGES

Because the risk of unintentional injuries is highly correlated with both countries' income-levels and socioeconomic status within countries, **investments designed to accelerate economic growth** (typically measured by GDP per capita) **and to improve standards of living for all people**, such as in human capital and infrastructure, will likely contribute to reducing the overall risk of unintentional injuries and their associated costs. To translate economic growth to public safety, however, **countries must plan and implement appropriate safety policies and regulations** and ensure that they are sustainable over time.

Some of the specific investments in injury prevention countries can make to curb the projected growing risk levels include:

- **Implementing multifaceted interventions to reduce the risk of falls among older adults**, such as environmental risk assessment; modification of buildings and roads; and training older adults, their caregivers, and health providers on fall prevention measures.
- **Enacting road safety** regulations and enforcement focused on key risk factors, such as speeding, drunk driving, and use of safety measures (helmets, seat belts, and child restraints).
- **Planning and investing in urban infrastructure** (housing, safe roads, and public space) to meet the needs of growing populations and address widening inequalities, including informal settlements.

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## Key References

John D. Kraemer, "Urbanization and Unintentional Injury in Low-and Middle-Income Countries," in *Innovating for Healthy Urbanization*, ed. Roy Ahn, Thomas F. Burke, and Anita M. McGahan (Boston: Springer, 2015).

United Nations (UN) Population Division, *World Urbanization Prospects: The 2018 Revision* (New York: UN, 2018).

UN Population Division, *World Population Ageing 2017: Highlights* (New York: UN, 2017).

World Health Organization (WHO), *Global Health Estimates 2016: Disease Burden by Cause, Age, Sex, by Country, and by Region, 2000-2016* (Geneva: WHO, 2018).

WHO, *Global Status Report on Road Safety 2015* (Geneva: WHO, 2015).

WHO, *WHO Global Report on Falls: Prevention in Older Age* (Geneva: WHO, 2007).