Welcome

Health & Well-being in Urban Environment
How long is a piece of string?
Health and Well being

• Not the same

• Health is not the absence of disease

• WHO definition of health 1948 - WHO Constitution
  
  – a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity
Physical environment and health: Your health is determined by where you are

- Postcode lottery at birth determines your life
- Outdoor exposures
- Indoor exposure
- Medical geography
- Exposures
- Access to community
- Access to exercise
- “Your zip code is a better predictor of your health than your genetic code.”
  - Melody Goodman, Harvard

The Lens of Climate Change and Urbanisation

- More people
- New arrivals
- May not keep pace with infrastructure
- Hotter/ or wetter/drier climate or both?
- Displacement of people: food, water, employment, cultural
- Noncommunicable diseases versus infectious diseases
Urban versus rural

The new urban world

The Guardian, 2007

https://www.youtube.com/watch?v=zF4KEvmWTVk
Dahlgren/Whitehead: European strategies for tackling social inequities in health – levelling up part 2 (WHO report, PDF)
Where world's population lives….

- 50.5% of the world’s population now residing in urban environments


Urbanization Will Change The (Developing) World

*Forbes* Feb 24, 2015
Urbanisation

Urbanisation for:

• Better employment opportunities
• Better access to education and health services, etc.
• Search for a mate

It is estimated that by 2050, 67% of the world’s population will be urban dwellers


Challenge is to balance urban sprawl with urban densification

With increasing urban density, there is increasing demand for green space.

Urbanisation and health

• Benefits
  o ready access to healthcare
  o Sanitation
  o secure nutrition

• Drawbacks
  o Overcrowding
  o Pollution
  o social deprivation
  o stress-related illness

• In less economically developed countries – “Western” disease

Godfrey and Julien,
Clinical Medicine
Vol 5 No 2 2005
Increasing population

- Natural environments change
- Demand for resources
- Proportion in variety of built environments changes = urbanisation

Rise of noncommunicable diseases and reduction of infectious disease

• Remembering it’s not just a rural / urban divide

• Growth of peri – urban areas (good and bad of urban environments)
Urban Health risks

• Certain infectious diseases that thrive when people in crowded living conditions
• Acute and chronic respiratory diseases from industrial pollution exposure
• Urban lifestyles (behavioural?)
  o Physical inactivity, unhealthy diet, tobacco and alcohol
• Injury
  o Motor vehicle collisions, violence and crime
Almost a quarter of all disease caused by environmental exposure

DISEASES WITH THE LARGEST ENVIRONMENTAL CONTRIBUTION

WHO, 2006

Abbreviations: COPD = Chronic obstructive pulmonary disease.
Lead-caused mental retardation is defined in the WHO list of diseases for 2002, accessed at: www.who.int/evidence.
DALY represents a weighted measure of death, illness and disability.

For each disease the fraction attributable to environmental risks is shown in dark green. Light green plus dark green represents the total burden of disease.
Low to Middle Income Countries differs from High Income Countries

- **Unsafe water**, and poor sanitation.
- **Indoor smoke** – solid fuels in domestic cooking and heating
- **Malaria** kills over **1.2 million** people annually (but no longer in Sri Lanka)
- **Urban air pollution** generated by vehicles, industries, and energy production kills **800 000**
- **Road traffic** injuries are responsible for **1.2 million** deaths annually
- **Sanitation** - billions defecate in the open
- **Lead exposure** causes cognitive effects in one third of all children globally – **230,000**
- **Climate change** impacts – including more extreme weather events, changed patterns of disease and effects on agricultural production **150 000**
- **Unintentional poisonings** excessive exposure to, and inappropriate use of, toxic chemicals and pesticides **355 000**
- **Suicide** – one third of completed suicides worldwide are via consumption of agrochemicals – **220,000**
What is a healthy ecology?

- Water
- Air
- Climate change
- Temperature
- Weather events > fires, dust and floods
- Plant growth
- Ocean productivity
- Wilderness regions > wild animal as reservoirs of zoonotic infectious diseases
- Population growth
Heat and Health

- Heat island effect = city dwellers
- Workers out of doors
- Factory workers in hot climates in less industrialised work
- Field workers/subsistence farmers (combined with poor water quality and chronic kidney disease)
- Sri Lanka and Meso-America
- Bushfires – firefighters and population respiratory health
- Increase rainfall – flooding and health outcomes
• Urban Heat Island (UHI) Effect
• Faster temperature increases in urban areas, especially minimum temperatures.
• Greater heat wave & high temp health impact
• Mitigation potential
  o Green Spaces/Green roofs
  o Better Building Design
  o Orient Buildings – wind
  o Avoid ‘Wall effect’ – access to sea breeze for coastal cities
Infectious disease

- Population density changes the risk of disease
- Changes the types of disease
- 70% of new or emerging diseases are zoonotic (animal origin-jumping species barrier)
- Increased by exposure to animals (that may be unhealthy)
  - Reduction in wild animal reserves (urban encroachment)
  - Animal monoculture to feed large populations
  - One Health concept: animal human and ecosystem
  - Use of wild animals as protein source
  - Dogs/monkeys in cities
Noncommunicable Disease

- Exposure to air, water and food
- The big five:
  - Cancer
  - Asthma
  - Heart disease
  - Mental health
  - Diabetes
- Complex diseases with genetic, environmental and behavioural risk factors
Walkability

Frank et al., 2003 Health and Community Design
Ecological Health - Ecosystems approach – dealing with the complexity

- Advantages - Traditional paradigm too simplistic

- Cholera
  - Handle of the Broad Street pump 1854 verses cholera pandemic since 1961
  - Due to population size and connectedness, inability to supply clean water, urban infrastructure

- DDT
  - Removed mosquitoes
  - Resistant mosquitoes, plus insect/bird imbalance, depletion wetland for fish

“Complex problems need complex solutions”

- Disadvantages

- Human centric

- Timing – 30 year cycles

- What is normal?

“healthy ecosystems must be economically viable”

- Disease and parasitism are normal in pre-industrial nature
Co-benefits

- Cycling and carbon
- Public transport and mental health
- Green space:
  - mental health and social connectiveness
  - obesity: asthma/cancer/cardiac disease/diabetes - Space to exercise
  - exposure to a range of bacteria – healthy immune system and inflammogenic environment
Co-benefits – green space

• Reduces
  o Flooding
  o Noise
  o CO₂ and dust
  o Urban heat islands

• Ecological connectivity = valuing nature

“We cannot win this battle to save species and environments without forging an emotional bond between ourselves and nature as well – for we will not fight to save what we do not love.”

- Stephen J Gould – Eight Little Piggies 1993
Benefits of Urban Trees
Planning and Design for Health

1) Existing conditions of health and well-being in India: Linkages with current planning of cities and design of buildings

2) Approach to designing or planning sustainable cities or habitat to promote well-being and better occupant health

3) Projects which have explored the subject or posed possible solutions
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HealthyPolis

@healthypolis

https://sites.google.com/site/healthypolisnetwork/
Health & Well-being in Urban Environment
Optimal position for Faculty\School\Unit name

Main heading - Arial font

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