

## English Reading – Text 01

***“Pollution and health: a progress update”*** (Fuller et al., 2022):

Urgent attention is needed to control pollution and prevent pollution-related disease, with an emphasis on air pollution and lead poisoning, and a stronger focus on hazardous chemical pollution. Pollution has typically been viewed as a local issue to be addressed through subnational and national regulation or, occasionally, using regional policy in higher-income countries. Now, however, it is increasingly clear that pollution is a planetary threat, and that its drivers, its dispersion, and its effects on health transcend local boundaries and demand a global response.

Commission findings on pollution and health Pollution— ie, unwanted waste of human origin released to air, land, water, and the ocean without regard for cost or consequence—is an existential threat to human health and planetary health, and jeopardises the sustainability of modern societies. Pollution includes contamination of air by fine particulate matter (PM<sub>2.5</sub>); ozone; oxides of sulphur and nitrogen; freshwater pollution; contamination of the ocean by mercury, nitrogen, phosphorus, plastic, and petroleum waste; and poisoning of the land by lead, mercury, pesticides, industrial chemicals, electronic waste, and radioactive waste.

Over the past two decades, deaths caused by the modern forms of pollution (eg, ambient air pollution and toxic chemical pollution) have increased by 66%, driven by industrialisation, uncontrolled urbanisation, population growth, fossil fuel combustion, and an absence of adequate national or international chemical policy. Despite declines in deaths from household air and water pollution, pollution still causes more than 9 million deaths each year globally. This number has not changed since 2015.

More than 90% of pollution-related deaths occur in low-income and middle-income countries. Key areas in which focus is needed include air pollution, lead poisoning, and chemical pollution. Air pollution causes over 6.5 million deaths each year globally, and this number is increasing. Lead and other chemicals are responsible for 1.8 million deaths each year globally, which is probably an undercounted figure.

With the decision made by the Government of Algeria, in 2021, to remove lead from its gasoline supply, lead has now been removed from automotive fuel in every country in the world. This decision represents a major triumph for public health and has resulted in a worldwide reduction of lead blood concentrations in children and a reduction in the prevalence of lead poisoning. However, despite these

advances, lead remains a major threat to health. Analyses have documented that elevated blood lead concentrations and lead poisoning in children, especially in LMICs, are much more widely prevalent than previously recognised. More than 800 million children are estimated to have blood lead concentrations that exceed 5.0 µg/dL, which was, until 2021, the concentration for intervention established by the US Centers for Disease Control and Prevention. This concentration has now been reduced to 3,5 µg/dL. The implications of this finding for children’s intellectual impairment are staggering. Children with blood lead concentrations higher than, or equal to, 5.0 µg/dL could score 3–5 points lower on intelligence tests than children with blood lead concentrations lower than 5.0 µg/dL. Furthermore, higher blood lead concentrations are associated with serious losses of cognitive function. Lead-related IQ losses are associated with increased rates of school failure, behavioural disorders, diminished economic productivity, and global economic losses of almost \$1 trillion annually.

Chemicals have become widely disseminated in the global environment. Undercounting of the disease burden attributable to chemical pollution is probably substantial, because only a small fraction of the many thousands of manufactured chemicals in commerce have been adequately tested for safety or toxicity, and the disease burdens attributable to these chemicals cannot be quantified. Three particularly worrisome, and inadequately charted, consequences of chemical pollution are developmental neurotoxicity, reproductive toxicity, and immunotoxicity.

Evidence is strong and growing that exposure to particular manufactured chemicals, even at low doses, can have adverse effects on fertility and pregnancy. Prenatal and early postnatal exposure to chemicals also appear to be linked to an increased incidence of reproductive diseases later in life, including endometriosis, breast cancer, cervical cancer, uterine cancer, and testicular cancer.

### Questions 1 – 7 (0.5 points each)

Considerando o texto *“Pollution and health: a progress update”* de Fuller et al. (2022), responda:

1. How has the perception of pollution changed in recent years, according to the Lancet Commission on Pollution and Health?

- a) Pollution is now considered less harmful and more locally contained
- b) Pollution is increasingly recognized as a planetary threat that requires a global response
- c) Pollution is seen mainly as an urban problem limited to industrial centers
- d) Pollution is understood as an issue that can be solved exclusively through subnational policies

2. Which of the options below are not listed in the report as forms of pollution?
- a) Air contamination by fine particulate matter (PM<sub>2.5</sub>), ozone, and oxides of sulfur and nitrogen
  - b) Freshwater pollution
  - c) Ocean contamination by mercury, nitrogen, phosphorus, plastics, and petroleum waste
  - d) Natural solar radiation
3. Over the past 20 years, deaths caused by modern forms of pollution have increased by 66%. Which factors contributed to this increase?
- a) Industrialization, uncontrolled urbanization, population growth, fossil fuel combustion, and absence of adequate chemical policies
  - b) Increased access to healthcare, improved nutrition, and longer life expectancy
  - c) Reduction in fossil fuel use, technological advances, and effective environmental policies
  - d) Only population growth and uncontrolled urbanization
4. According to the Lancet Commission, what are the three key areas that need greater focus to address the impacts of pollution?
- a) Air pollution, lead poisoning, and chemical pollution
  - b) Water pollution, plastic waste, and pesticides
  - c) Radiation, noise pollution, and deforestation
  - d) Microplastics, global warming, and soil erosion
5. What are some of the impacts associated with elevated blood lead concentrations in children ( $\geq 5.0$   $\mu\text{g}/\text{dL}$ )?
- a) Improved school performance and higher economic productivity
  - b) Loss of 3–5 points on intelligence tests, cognitive impairments, higher rates of school failure, behavioral disorders, and global economic losses approaching US\$ 1 trillion
  - c) Increased long-term memory and concentration
  - d) Temporary IQ reduction, but no significant economic effects
6. Why is the disease burden attributable to chemical pollution likely underestimated?
- a) Because most chemical-related diseases are easily treatable
  - b) Because the effects of chemical pollution do not affect human health

- c) Because only a small fraction of the thousands of manufactured chemicals have been adequately tested for safety or toxicity
- d) Because chemical pollution occurs only in high-income countries

7. What effects do prenatal and early postnatal exposure to chemicals appear to have on human health?

- a) This exposure increases only the risk of cardiovascular diseases in adulthood
- b) Such exposure reduces susceptibility to infectious diseases
- c) Exposure to chemicals is associated with a higher incidence of reproductive diseases, such as endometriosis, breast cancer, cervical cancer, uterine cancer, and testicular cancer
- d) Exposure to chemicals has no significant lifelong health effects

### English Reading – Text 02

***“Health effects of the Brazilian Conditional Cash Transfer programme over 20 years and projections to 2030: a retrospective analysis and modelling study”*** (Cavalcanti et al., 2025):

Background: In 2024, Brazil celebrated the 20th anniversary of the Bolsa Família Program (BFP), one of the world’s oldest and largest conditional cash transfer (CCT) programmes, covering more than 50 million Brazilians. This study aimed to evaluate the effect of the BFP on overall mortality and hospitalisation rates over the past two decades, and to forecast the potential effects of expanding this programme until 2030.

Interpretation: CCT programmes have strongly contributed to the reduction of morbidity and mortality in Brazil, having prevented millions of hospitalisations and deaths in the past two decades. During the current period of polycrisis, the expansion of CCTs in terms of coverage and benefits could prevent a large number of hospitalisations and deaths worldwide, and should be considered a crucial strategy for achieving the UN health-related Sustainable Development Goal 3.

Although the BFP, and many other CCT programmes worldwide, have been conceptualised and developed mainly to reduce poverty and socioeconomic inequalities, they have also had unexpectedly strong effects on many health outcomes, not only in children, but also in the adults living in the beneficiary families. Therefore, CCT programmes can serve as crucial policies not only for the achievement of UN Sustainable Development Goal (SDG) 1, poverty eradication, but also for

advancements in SDG 3, good health and wellbeing. These co-benefits are particularly important considering that the consequences of the COVID-19 pandemic, climate change, and recent conflicts (the so-called three Cs) have caused substantial setbacks to global poverty and global health.<sup>9</sup> There have been repeated calls worldwide to expand poverty-reduction interventions as potential mitigation policies, increasing the number of benefits, and including the newly impoverished families among the beneficiaries.

Conversely, the rise in public debt in most low-income and middle-income countries (LMICs), following the COVID-19 pandemic, could lead to the implementation of fiscal austerity policies, resulting in budget cuts for social protection and health-care systems. Despite the importance of maintaining the financial balance of public accounts, continuing with social programmes, such as the BFP, should be considered paramount to reduce poverty and social inequalities and promote population health.

In this context, the Global Alliance Against Hunger and Poverty (GAAHP) was created by the Group of Twenty (G20) countries in 2024; its mission underscores the significance of social protection measures, such as the BFP, in tackling global poverty and inequality. By prioritising inclusive growth and poverty reduction, the GAAHP highlights income transfer programmes as essential tools to mitigate the economic impacts of crises, enhance resilience, and promote social stability.

Moreover, the GAAHP advocates for innovative financing mechanisms and strengthened international cooperation to support these programmes, emphasising the urgent need to sustain and expand them—particularly in LMICs—to address economic instability and climate change challenges. A substantial body of research has evaluated the effects of CCT programmes on the use of health services, nutritional status, and a wide range of health outcomes. However, only a few studies have evaluated the effects of CCT programmes on countrywide mortality and hospitalisation rates, and none have analysed the effects of different characteristics of their implementation and coverage over decades, estimating the prevented burden of disease and mortality, and forecasting their future impact. This study aims to evaluate the effects of the first 20 years of the nationwide expansion of the Brazilian CCT programme, both in terms of coverage and benefits, on overall hospitalisation and mortality rates, and to forecast the health effects of alternative implementation scenarios up to 2030, the target year for the UN SDGs.

To the best of our knowledge, this study is the first comprehensive impact evaluation of one of the world's largest CCT programmes on all-age all-cause mortality and hospitalisation, covering its 20-year implementation and integrating projections of the effects of alternative implementation scenarios up

to 2030. Our results show that this CCT programme significantly reduced hospitalisations and deaths in Brazil over the past two decades, with the most notable effects observed in under-5 mortality and hospitalisation of individuals older than 70 years. We found that the expansion of BFP has averted 8 225 390 hospitalisations and 713 083 deaths over the last two decades in Brazil and could be able to prevent an additional 8 046 079 hospitalisations and 683 721 deaths up to 2030.

In Brazil, previous evaluations have also shown that BFP has been able to reduce child, maternal, and disease-specific mortalities, such as mortality from HIV/AIDS and tuberculosis, especially in populations that are the most vulnerable. (...) The success of the BFP in reducing morbidity and mortality in Brazil can be attributed to the multisectoral design of CCT programmes, which integrate direct cash transfers with specific conditionalities. This approach aligns with the Health in All Policies framework,<sup>33</sup> leading to substantial improvements in population health outcomes and advancing progress towards UN SDG 3 (good health and wellbeing) and its related targets. The BFP can affect overall mortality and morbidity through the income effect and the conditionality effect, that is, by transferring direct income to the beneficiary families, improving families' nutrition and living conditions, and by conditioning the income transfer to the use of basic health services for child and maternal health. CCTs are also able to improve a wide range of socioeconomic factors that affect health, such as improved education, reduced income inequalities, and social exclusion. CCT programmes could contribute to psychological and affective pathways that influence health behaviours, for example, by reducing stress and cognitive load, thus enabling more accurate decision making, particularly regarding food security and health promotion. In municipalities with high programme coverage, the large-scale transfer of resources due to BFP could have important spillover effects on the rest of the community, especially in the poorest regions, substantially improving health outcomes, even for non-beneficiaries of the BFP.

The mechanisms that connect the BFP structure to health outcomes align this public policy closely with the UN SDGs, particularly SDG 3: ensure healthy lives and promote wellbeing for all at all ages.<sup>36</sup> Our results suggest that increased coverage and adequacy of the Brazilian CCT programme are linked to reductions in morbidity and mortality across all age groups, with particularly significant effects on under-5 mortality and hospitalisation of individuals older than 70 years. Regular health monitoring helps prevent diseases and improve the general health of beneficiary families, resulting in improved public health indicators. Monitoring also contributes to regular access for benefiting families to the Unified Health System, affecting overall mortality in the long term. Furthermore, by providing a minimum income to families, BFP also contributes to food security, ensuring that children and adults

have access to nutritious food. In the panel, we highlight how this programme aligns with and can contribute to each specific goal.

The GAAHP of the G20 has increasingly recognised the crucial role of CCT programmes, such as the BFP, in addressing global poverty and inequality, particularly as nations grapple with economic instability, climate change, and post-pandemic recovery. As a forum representing the world's largest economies, the G20 has underscored the importance of innovative financing mechanisms and international cooperation to sustain and expand social protection systems. These efforts include leveraging income transfer programmes to foster inclusive growth, mitigate socioeconomic vulnerabilities, and build resilience in low-income populations. Such global emphasis reaffirms the importance of BFP as a model for integrating poverty alleviation with health and education outcomes, setting a benchmark for achieving the UN SDGs.

In conclusion, our study shows that the expansion of one of the world's largest CCT programme has been able to strongly reduce morbidity and mortality over the past 20 years in Brazil, preventing millions of hospitalisations and deaths. CCT programmes have played a vital role in promoting the health and wellbeing of vulnerable populations in LMICs and have made, and will continue to make, important contributions towards achieving the UN SDG 3 targets by 2030.

#### Questions 8 – 13 (0.5 points each)

Considerando o texto ***“Health effects of the Brazilian Conditional Cash Transfer programme over 20 years and projections to 2030: a retrospective analysis and modelling study”*** de Cavalcanti et al. (2025), responda:

8. “In 2024, Brazil celebrated the 20th anniversary of the Bolsa Família Program (BFP), one of the world's oldest and largest conditional cash transfer (CCT) programmes, covering more than 50 million Brazilians. This study aimed to evaluate the effect of the BFP on overall mortality and hospitalisation rates over the past two decades, and to forecast the potential effects of expanding this programme until 2030.”

What was the main purpose of the study described in the article?

- a) To analyze the Bolsa Família Program's role in Brazilian elections
- b) To compare Bolsa Família with other Latin American programmes
- c) To calculate the program's economic cost for the government
- d) To evaluate the health effects of the Bolsa Família Program and project future impacts

9. “The BFP can affect overall mortality and morbidity through the income effect and the conditionality effect, that is, by transferring direct income to the beneficiary families, improving families’ nutrition and living conditions, and by conditioning the income transfer to the use of basic health services for child and maternal health. CCTs are also able to improve a wide range of socioeconomic factors that affect health, such as improved education, reduced income inequalities, and social exclusion.”

According to this text, what are the two main ways through which the Bolsa Família Program (BFP) can affect health?

- a) By reducing government spending and limiting access to services
- b) By income effect (better nutrition and living conditions) and conditionality effect (use of health services)
- c) By expanding private health insurance and strengthening hospitals
- d) By mainly focusing on reducing fertility rates and migration

10. “A substantial body of research has evaluated the effects of CCT programmes on the use of health services, nutritional status, and a wide range of health outcomes. However, only a few studies have evaluated the effects of CCT programmes on countrywide mortality and hospitalisation rates, and none have analysed the effects of different characteristics of their implementation and coverage over decades, estimating the prevented burden of disease and mortality, and forecasting their future impact.”

What research gap regarding CCT programmes does the text highlight?

- a) No studies have examined their impact on education and nutrition
- b) Their economic costs have never been studied
- c) Few studies have assessed effects on national mortality and hospitalisation, and none on long-term implementation and future projections
- d) CCT programmes have not been implemented outside Brazil

11. “Although the BFP, and many other CCT programmes worldwide, have been conceptualised and developed mainly to reduce poverty and socioeconomic inequalities, they have also had unexpectedly strong effects on many health outcomes, not only in children, but also in the adults living in the beneficiary families.”

Besides reducing poverty, what other effect has the Bolsa Família Program shown?

- a) It has weakened adult health while improving children’s education

- b) It has had unexpectedly strong effects on health outcomes for both children and adults
- c) It has mainly affected economic productivity, but not health
- d) It has only benefited women's employment

12. "Regular health monitoring helps prevent diseases and improve the general health of beneficiary families, resulting in improved public health indicators. Monitoring also contributes to regular access for benefiting families to the Unified Health System, affecting overall mortality in the long term. Furthermore, by providing a minimum income to families, BFP also contributes to food security, ensuring that children and adults have access to nutritious food. In the panel, we highlight how this programme aligns with and can contribute to each specific goal."

According to the excerpt, which combined benefits of the Bolsa Família Program (BFP) are mentioned?

- a) Improved public health through disease prevention, stronger links to the health system, and food security
- b) Increased international migration and lower fertility rates
- c) Focus on hospital infrastructure and medical technology
- d) Improved economic productivity and more jobs

13. "Our results show that this CCT programme significantly reduced hospitalisations and deaths in Brazil over the past two decades, with the most notable effects observed in under-5 mortality and hospitalisation of individuals older than 70 years."

What is the overall conclusion of the article?

- a) Expansion of CCT programmes can strongly reduce morbidity and mortality and promote wellbeing
- b) CCT programmes have limited impact on population health
- c) Brazil should replace CCT programmes with unconditional transfers
- d) The Bolsa Família Program is not relevant for public health policies

### English Reading – Text 03

**“Mosquito-Borne Viruses Surge in a Warming Europe”** (Wadman et al., 2025):

This summer, the Italian province of Latina, popular for its beaches, wetlands, and Roman ruins, earned an unwelcome distinction: It was one of two provinces in Italy to log their first-ever cases of infection with West Nile virus (WNV), once largely confined to a hot, humid river valley in the country’s north. France, meanwhile, is experiencing an unprecedented expansion of another arbovirus, chikungunya. It’s a record-breaking season for mosquito-borne diseases in Europe, and health experts are warning that a warming climate will bring more like it.

“Europe is entering a new phase—where longer, more widespread and more intense transmission of mosquito-borne diseases is becoming the new normal,” European Centre for Disease Prevention and Control (ECDC) Director Pamela Rendi-Wagner said in a late August press release.

This year’s intense season for mosquito-borne diseases was “probably influenced by or supported by” an extraordinarily hot summer, particularly in Western Europe, says Tamás Bakonyi, a veterinarian and virologist who is ECDC’s principal expert for vector-borne and zoonotic diseases. Hot weather not only favors mosquito propagation, but also shortens the time needed for an insect that has acquired a virus to become infectious, Bakonyi notes.

Chikungunya virus, which infects an estimated 35 million people globally each year, can cause fever, headache, rash, and excruciating joint pain, and sometimes leads to severe, chronic pain. Its surge in Europe this year has been centered in France, where cases in returning travelers numbered 946 as of 26 August, dwarfing numbers in the past decade. Most were imported from the French overseas department of Réunion, a popular Indian Ocean vacation destination for French travelers, which had a huge outbreak this spring and is part of a tropical belt where the virus is endemic.

But because a key mosquito species that transmits the virus, the Asian tiger mosquito (*Aedes albopictus*), has spread widely in Europe in the past 10 years as the climate has warmed, these imported cases have led to local transmission. “We have *Aedes albopictus* everywhere in France,” says Denis Malvy, an infectious disease physician who focuses on emerging viral diseases at the University of Bordeaux. That chikungunya has followed is “not a surprise.”

The result was an additional, record-breaking 228 locally acquired cases in France, 71 of them in the week that ended on 27 August. (Only 32 cases of local transmission were logged from 2010 through 2024.) The Alsace region in northeastern France reported its first case this summer, which

ECDC called “an exceptional occurrence at this latitude,” and two large clusters, each with about 40 cases of locally transmitted chikungunya cases, have emerged in the region around Bordeaux.

A spokesperson for the French national public health agency wrote in an email that the country’s case numbers and the local transmission constitute “a threat to put on the public health and research agenda at [the] national and international level.”

### Questions 14 – 20 (0.5 points each)

Considerando o texto “*Mosquito-Borne Viruses Surge in a Warming Europe*” de Wadman et al. (2025), responda:

14. The text reports recent news from the summer of 2025 regarding infectious diseases in Europe. Which diseases were cited in the text that were registered during this period in Italy and France, respectively:

- a) COVID-19 and dengue infections
- b) West Nile virus infections and chikungunya
- c) Asian tiger infections and dengue
- d) Unknown respiratory diseases

15. What is NOT expected for a new phase in outbreaks of mosquito-borne diseases in Europe, according to the ECDC Director?

- a) More intensity in future outbreaks
- b) Extended duration of outbreaks
- c) More widespread transmission
- d) Less frequent future outbreaks

16. The text quotes a virologist who notes that the season was marked by an “extraordinarily hot summer”. What is the known effect of hot weather for mosquito-borne diseases, cited by this specialist in mosquito-borne diseases?

- a) Mosquitoes become infectious faster after acquiring a virus in hot weather.
- b) In hot weather conditions, mosquitoes travel from other continents to Europe.
- c) In hot weather, mosquitoes tend to avoid humans.
- d) Breeding sites for mosquitoes are expected to be scarcer in hot weather.

17. According to the text, all of these factors contributed to the circulation of Chikungunya virus in France EXCEPT:

- a) People from France returning from other countries where Chikungunya virus is already circulating.
- b) Global climate warming.
- c) Adaptation of Chikungunya virus for transmission in more than ten species of mosquitoes.
- d) A geographical spread of the *Aedes albopictus* mosquito over France.

18. The expansion of the Chikungunya virus in France was reportedly unprecedented. What can be said about the number of cases of Chikungunya in the reported season?

- a) The total number of cases was record-breaking at 946,000 cases registered in France.
- b) France experienced a large outbreak of 946 locally acquired cases of Chikungunya.
- c) The total number exceeds 1000 cases, including 228 locally acquired cases.
- d) Two large clusters of 228 cases occurred in the Bordeaux area.

19. According to the text, a spokesperson from a French public agency has sent an email about the situation. What was NOT conveyed in this message?

- a) The current epidemiological scenario with Chikungunya virus in the country is alarming.
- b) Chikungunya should be included in a research agenda.
- c) Chikungunya virus transmission is a threat to public health.
- d) The epidemiological situation will impose restrictions on international travel.

20. This article covers a few consequences from global climate warming. Which statement is true, given the overall tone from the article?

- a) Global warming impacts the geographical dissemination and intensity of mosquito-borne diseases.
- b) The transmission of mosquito-borne diseases in European countries, such as Italy and France, is not a cause for concern, as it is less intense than in various tropical countries.
- c) The conditions caused by global climate warming indicate new transmission cycles of mosquito-borne diseases similar to past outbreaks, especially in Europe.
- d) The research agenda should focus only on the clinical factors of mosquito-borne diseases and disregard environmental conditions that facilitate mosquito dissemination.