



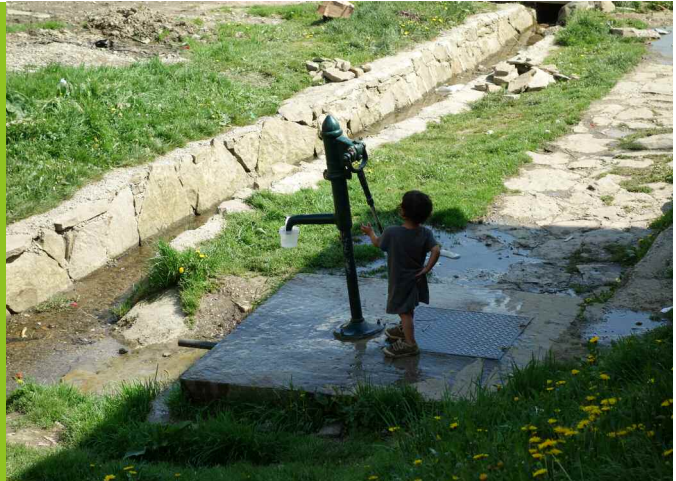
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Author: Michael Olah

## *Health Economies threats: Influenza and Coronaviruses* Original Articles

- ✓ EDITORIAL: HEALTH ECONOMICS THREATS: LESSONS FROM EBOLA, AVIAN INFLUENZA AND CORONAVIRUS
- ✓ ETHNIC AND RELIGIOUS MINORITIES AND THE REFUSAL TO VACCINATE IN EUROPE AND USA
  - ✓ VACCINE REFUSAL AND ITS LEGAL AND ETHICAL CONSEQUENCES
  - ✓ HOSPITAL UTILIZATION TRENDS IN SELECTED NEW EU MEMBER STATES
- ✓ ROMA POPULATION: SOCIAL DETERMINANTS AND PRIMARY CARE OUTCOMES IN SELECTED COUNTRIES OF THE CEE REGION
  - ✓ GLOBAL CLIMATE CHANGE RELATED ZOOONOTIC ID AND IMPACT ON GLOBAL HEALTH CARE ECONOMICS
  - ✓ PREVENTION OF DISEASE-RELATED MORTALITY FROM CHRONIC NON-COMMUNICABLE DISEASES
- ✓ MAPPING THE LITERATURE OF HEALTH EDUCATION: TEXTUAL ANALYSIS OF GOVERNMENT SCHOOLS TEXTBOOKS
- ✓ LATIN AMERICAN IMMIGRATION. PUBLIC HEALTH IMPLICATIONS AND CHALLENGES
- ✓ LOGISTICS, AS INTERVENTION TO SECURE THE SUPPLY OF MEDICINES TO HEALTHCARE FACILITIES BY PHARMACIES AND OTHER DRUG MANUFACTURERS AND SUPPLIERS

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### Photo:

Michael Olah, Socially excluded Roma community  
in Slovakia. As many as 13% of the poorest Roma  
do not have access to flowing water.

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# Editorial

## Health Economics Threats: Lessons from Ebola, Avian Influenza and Coronavirus

Last 40 years at last 6 major epidemics of tropical or subtropical diseases represented major economic losses in Healthcare System and global health financing worldwide:

- 1 – Pandemic of HIV/AIDS from 1980-2000 destroyed Healthcare systems of Subsaharan Africa and caused USD 15 billion losses in labor, taxes and global health economics in 1985 – 2015.
- 2 – Influenza of zoonotic origin (avian and swine) caused USD 5,5 billion losses directly or indirectly in economics of South East Asia, Mexico and US in 2005 to 2014
- 3 – Yellow Fever pandemic in DR Congo and Angola damaged their economic industry mining and oil industry with losses of 2 billion Euro in 2015-2019
- 4 – Zika Epidemics in Latin America and SE Asia and Pacific area practically anuled Olympic and paralympic game and other sport events in 2015 - 2018
- 5 – Ebola Epidemics in Western Africa caused 20 000 deaths and 5-8 billion USD losses on African economy
- 6 – Finally, at least 3 coronavirus epidemics were noted within last 20 years: SARS (2002-2005 in China), MERS in 2015-2019 in Saudi Arabia and Korea and current CoV in central China 2019-2020.

Common features are that all 6 epidemic are caused by

- (i) Highly contagious viruses with high transmission
- (ii) All are of zoonotic origin
- (iii) No vaccines are apart of Yellow Fever available

Fortunately, financial in injection and economic support of World Bank, WHO and global found and vastly the huge investment of private pharmaceutic industries generated effective treatments, due to rapid development of antiviral agents (24 antiHIV drugs in 24 years, 2 anti-influenza, 2 anti-ebola, 4 anti SARS/CoV and one anti Zika chemotherapeutics were registrated worldwide. For Yelow fever, fortunately, effective vaccine exists for 50 years and against Ebola, vaccine was introduced in 2018.

In conclusion economic losses and mortality generated a emerited (joint) response more rapidly, then the disease spreads uncontrolled to millions.

The question is, until when?

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# Ethnic and Religious Minorities and The Refusal to Vaccinate in Europe and USA

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Original Article

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## Abstract:

Religious facts in the refusal of vaccination are repeated world-wide.

**METHODS:** The aim of this presentation is to analyse religious/ethnic risk factors for vaccination problems.

**RESULTS:** The number of refusal events is increasing mainly in high resource/income countries.

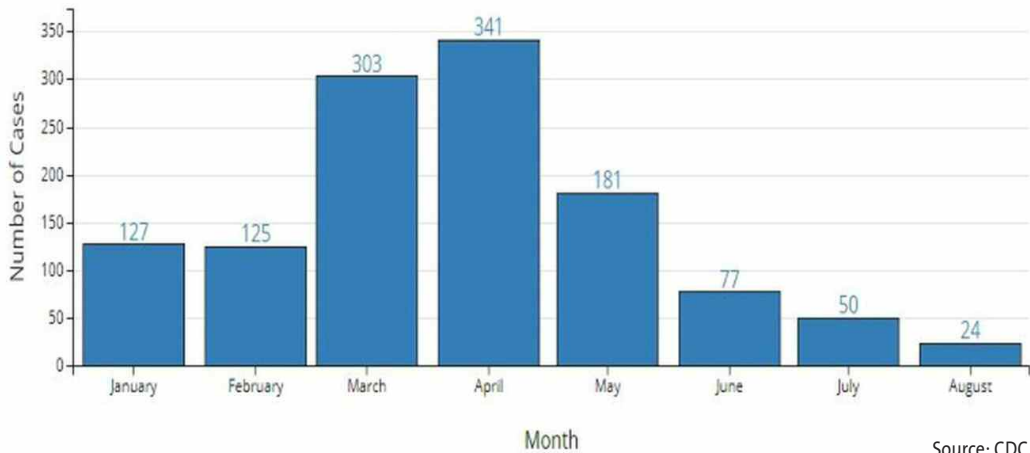
**CONCLUSION:** Legislation, education, interreligious dialogue are advisable in prevention of the increase of unvaccinated children.

## Introduction

Low rates of vaccination within specific groups has been reported (1-5) in Amish, Orthodox, Jewish, Roma, Mennonites and other religious/ethnic groups and can potentially leads to the spread of disease outbreaks. Researching attitudes, beliefs, religious views, medical reasons, etc. may help us to better understand the complexity of the problem of decreasing vaccination rates in developed high resource countries.

### United States:

## Measles Cases Reported by Month in 2019

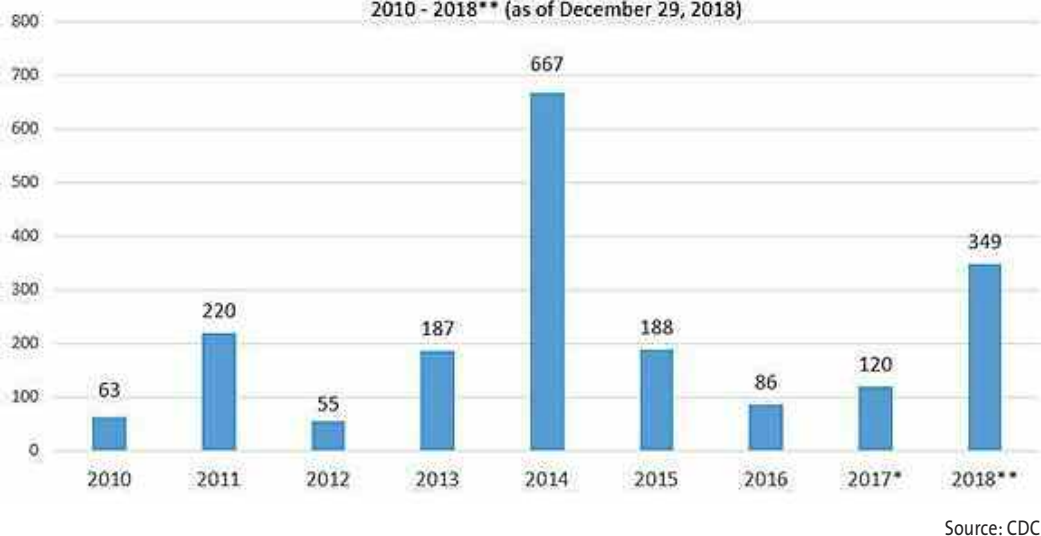


From the beginning of the year through Thursday, 1,241 individual cases of measles have been confirmed in 31 states, the CDC said.

### United States:

## NUMBER OF MEASLES CASES REPORTED BY YEAR

2010 - 2018\*\* (as of December 29, 2018)



Graphic above shows the number of measles cases reported by year since 2010.



## Reasons for Current Outbreaks

Tourism and immigration are known risk factors for failure of elimination of diseases which are known as partially or completely eliminated/eradicated (Polio, measles, diphtheria etc.): in Israel polio; Ukraine measles; Philippines diphtheria. Perception of parents may be strongly influenced by religion/ethnic habits. Lack of perceived importance is observed as well. Financial issues usually play only very minor roles. Health provider perception (for said groups) may be pooled as well.

## Importance of Vaccination

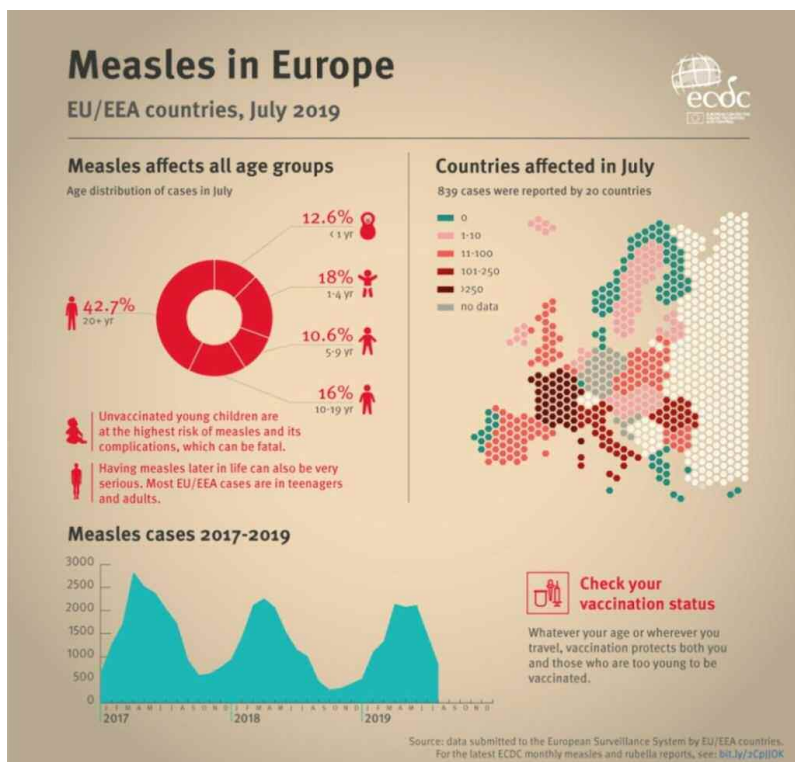
In 2017, there were 110,000 measles deaths globally, mostly among children under the age of 5. Measles vaccination resulted in an 80% drop in deaths between 2000-2017 worldwide. In 2017, about 85% of the world's children received one dose of measles vaccine by their first year through routine health services – up from 72% in 2000. During 2000-2017, measles vaccination prevented an estimated 21.1 million deaths (WHO 2019).

## Amish Communities

Amish Communities are groups of traditionalist Christian Church fellowships. Their approximate population is 330,270 with an estimated 68% vaccinated; childhood immunization rate is low; information regarding the decision to vaccinate is insufficient. According to the 10 years study of Penn State Children's Hospital 215 Amish children = 8% were vaccinated; unvaccinated were twice more likely to experience hospitalization. (American Journal of Epidemiology, 2018).

## Mennonite Community

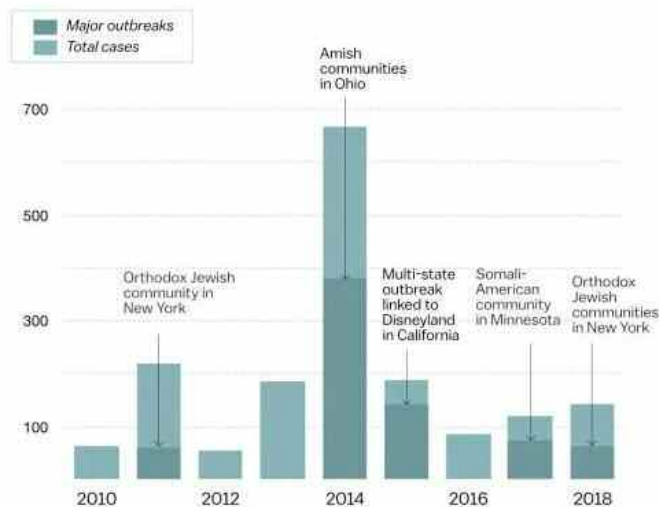
Observations are very similar to Catholic/Amish values. Estimated population in US is 308,030, globally 1 million. They do not seek healthcare until they are very sick or if their ability to work is limited. Medical advice they seek from other community members. They prefer natural remedies and immunization in this community is limited. (Armer, J.M., Radina, M.E. 2006).



Source: ECDC 2019

## America's biggest recent measles outbreaks

2010-2018 (as of October 6, 2018)



Source: CDC

### Orthodox Jewish community

Members of this religion share religious observance and cultural practices. They live closely within their own communities: in London 200,000 members; Salford UK 10,000 members; Atwerp, Belgium 15000 members; USA 6.9 million. Study shows a vaccination coverage of 79%. Many outbreaks were epidemiologically linked to Israel.(Lernout T. et al. 2009)

### Roma population

There is 6-8 million Roma people in Europe. Among them vaccination is very low. According to the study of 251 Roma children 39% had minimum vaccination. There is insufficient information regarding the decision to vaccinate. Living in poor economic conditions and improper housing leads to potential spread of disease. (Fournet et al. 2018) (Papamichail et al.2017).

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# Vaccine Refusal and its Legal and Ethical Consequences

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## Abstract:

Vaccine refusal as a part of anti-vaccination campaign is of great concern. This note highlights the praxis of the EU/US governments to use legal and economic influence to stop the decrease of the percentage of vaccination coverage as a threat to the global health in development countries of EU/US.

## Introduction

Vaccination coverage presents since 2000 a surprising paradox - in developing (low economic insecure) countries the coverage is increasing also due to free support financed by the World Bank (WB) and the Global Fund (GF). However, in developed - high income countries the coverage with basic vaccines has been a decreasing trend due to irresponsible journalism and anti-science groups dominance in some media and social nets. Some large European cities report less than 85% coverage for basic vaccines (tetanus, diphtheria, pertussis, hemophilia B, hepatitis B, polio, pneumococcus) at birth, & in 1 and 8 - 12 years of life (vaccines against measles, rubella, mumps). This phenomenon cause - in the era open visa free policy of the EU to Ukraine and other non-Schengen states an unprecedented threat. (1-2)

## Action from EU/US

How EU Member States and US react.

At least three independent reactions are needed to stop this negative phenomenon:

- 1 Financial - Fines for basic vaccine refusal e.g. in Italy may reach 10,000 Euros, other member states expect penalties between 500 to 5,000 Euros.
- 2 Ban of access to school - Slovakia passed a bill proposal (2019) to not allow unvaccinated children into pre-school education. Some Scandinavian states do not allow those children to attend kindergarten and some US states (New York, California) exclude unvaccinated even from primary school. In 2015-2020 in communities of Pennsylvania (Amish, Mormons, Orthodox Jewish) quarantine measures were introduced.
- 3 Refusal of Entry and Asylum process. Turkey does not allow to enter TK for migrants without vaccine record and apply MMR and Polio - DTP directly on the border. UK denies asylum process for vaccine refusals.
- 4 Failure to break quarantine is subject to high penalties in Czech Republic, PR China during the COVID-19 epidemics in 2020.

## Conclusion

The vaccination coverage decreased from 2010-2020. Vaccine refusal as a part of an anti-vaccination campaign is of great concern. This

note highlights for EU/US governments use legal and economic influences to stop the decreasing percentage of vaccination coverage as a threat to global health.

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# Hospital Utilization Trends in Selected New EU Member States

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## Abstract:

**INTRODUCTION:** Healthcare economy for hospital management is mandatory.

**METHOD:** Analytic study of essential data on hospital utilization in selected new EU member states is presented.

**RESULTS:** Trends in hospital rates, occupancy rates and screenings are closer to EU average within the last 20 years.

**CONCLUSIONS:** Certain goals, e.g. Occupancy rate 85% and increase of preventive screenings rate to 60% are highlighted.

## Introduction

New member states entering the EU during 2000-2004 (the V4 countries: SK, CZ, PL, HU; and ES, LT, LU) are required to match their healthcare to older EU member states by 2030. In addition, a second group – the so called Balkan and South East Mediterranean countries - Malta, Cyprus, Romania, Bulgaria, Croatia (2005 - 2015) also are required to approach EU medical care levels by 2025 - 2035. (1-14) The goal of this analytic paper is to present the data of hospital utilization trends in a selected EU member state - SK.

## Method

Longitudinal analysis and critical review of data/trends of healthcare attributes of the Hospital healthcare system, including occupancy rates, efficiency, screenings and other indicators has been performed from official and NGO sources in 2000 - 2020.

## Results and Discussion:

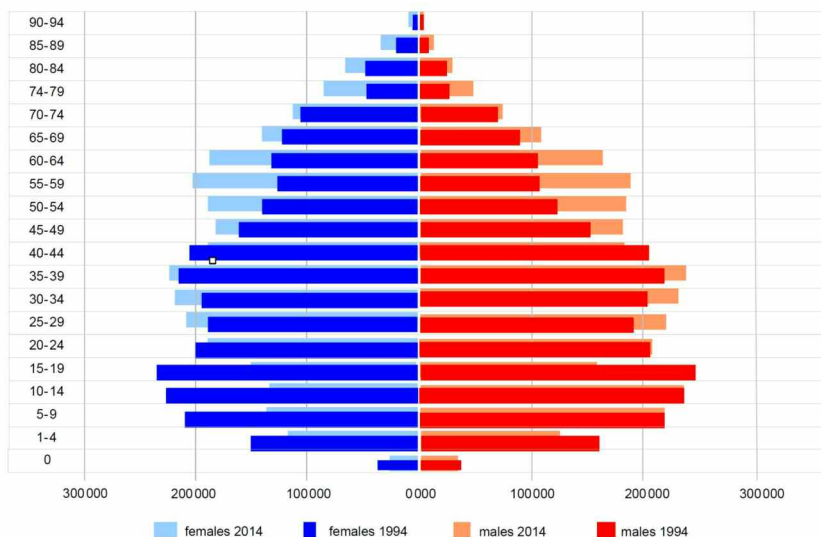
**1 – Current Healthcare System:** reflecting Demographics and Status Quo of the Slovak

healthcare system is characterized by (i) Universal coverage; (ii) Competitive insurance model; (iii) Three health insurance companies (one state-owned and two private insurers); (iv) Ministry of Health sets standards for the healthcare system; (v) Health Care Surveillance Authority oversees health insurance, provisions and purchasing markets.

**2 – Slovakia is a „new“ EU member state within V4.** It has a population of 5.4 million with 46.2% of the population living in rural areas. Key Health Characteristics include: (i) Aging society; (ii) Low birth rates and immigration rates; (iii) Life expectancies lower than the EU - women 80.5 years, men 73.3 years.

**3 – Healthcare in an Economic Framework.** In 2014, health expenditures accounted for 7.9% of the GDP. The hospital debt and lack of investment reached €3.9 - €8.3 billion below the EU average. Out-of-pocket payments comprise private expenditures. Inpatient services are funded by a diagnosis-related group system initiated in 2017. Outpatient services are funded by a capitation model.

Demographics of SK



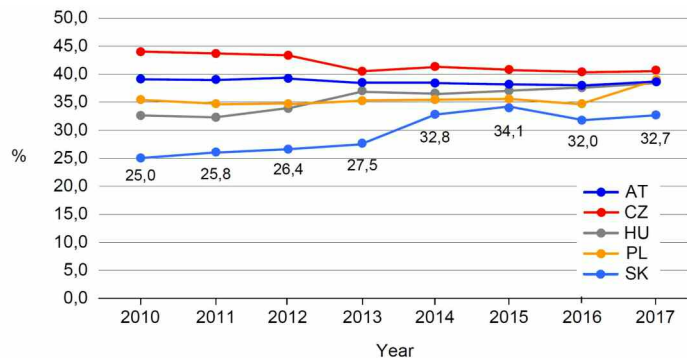
Healthcare reforms in 2004 – 2020



Comparison of AT, CZ, HU, PL, SK based on data from OECD (Organization for Economic and Co-Operation and Development, <http://stats.oecd.org>).

Note: cost increase for SK from 25% in 2010 to 32.7% in 2017 (see detailed numbers).

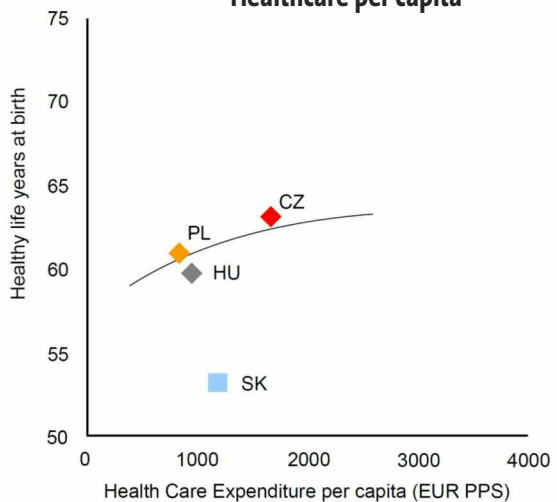
### Hospital Expense % of Total Healthcare Costs in 2010 - 2017



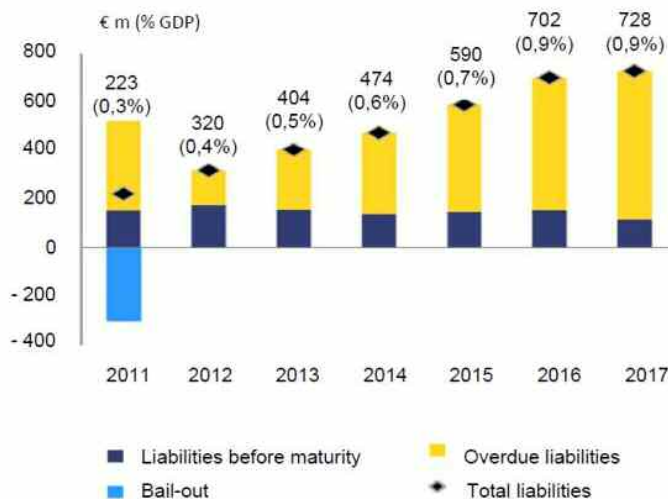
Comparison of V4 (SK, CZ, HU, PL) plot based on data from [1]

Increase in non-communicable diseases is related partially to a higher life expectancy. Circulatory disease, cancer, diabetes mellitus and mental disorders are the leaders. Hospitals are operating with considerable liability deficits: (i) 2011 bail out; (ii) €728 Million debt for ministry hospitals; (iii) 0.1% point trend; (iv) Private Hospital systems moving into the country.

### Healthcare per capita



### Cost Effectiveness of SK healthcare system (plot based on data from [1])





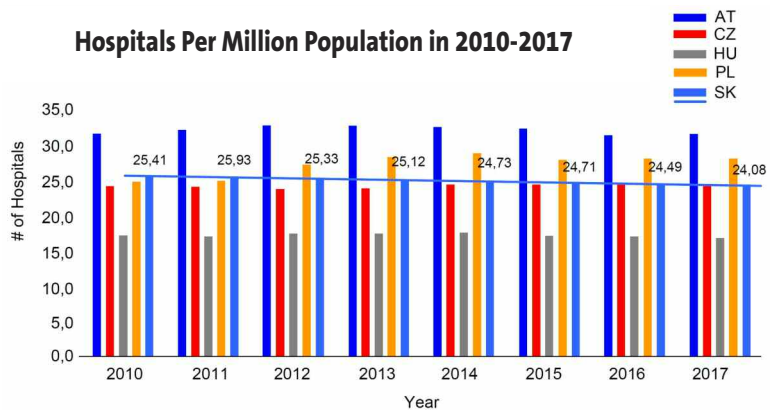
**4 – Healthcare trends:** The number of hospitals per million population is decreasing. The total number of hospitals was reduced from 140 in 2010 to 134 in 2017. Reduction in average length of stay is observed. The number of acute care beds decreased by 30% since 1990s and is 4.2 beds/1000 persons. The goal by 2030 is to reduce acute care beds to 2.5/1000 persons. The curative

care occupancy is 67.8%. The occupancy rates are decreasing and surplus of beds and facilities is noted. Outdated hospital infrastructure is of concern. The goal by 2030 is to reach an occupancy rate of 85%. Lack of screening facilities and lengthy travel have been identified as key reasons for low screening rates. The goal by 2030 is to improve the rate of preventive screenings to 60%.

Comparison of AT, CZ, HU, PL, SK based on data from OECD (Organization for Economic and Co-Operation and Development, <http://stats.oecd.org>).

Note: slight linear decrease for SK present/indicated.

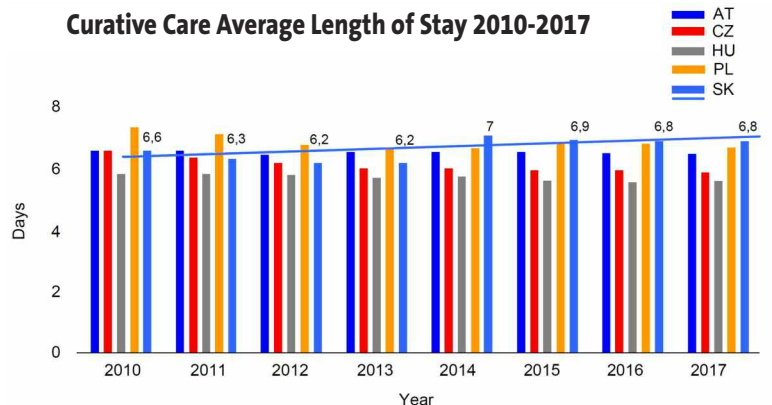
**Hospitals Per Million Population in 2010-2017**



Comparison of AT, CZ, HU, PL, SK based on data from OECD (Organization for Economic and Co-Operation and Development, <http://stats.oecd.org>).

Note: linear increase for SK present/indicated.

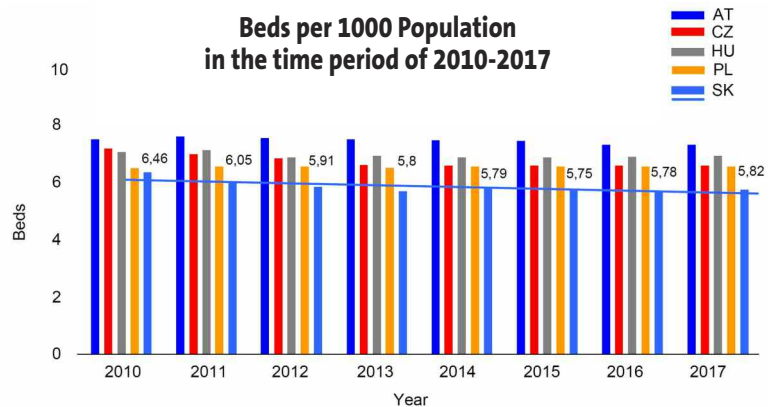
**Curative Care Average Length of Stay 2010-2017**



Comparison of AT, CZ, HU, PL, SK based on data from OECD (Organization for Economic and Co-Operation and Development, <http://stats.oecd.org>).

Note: slight linear decrease for SK present/indicated.

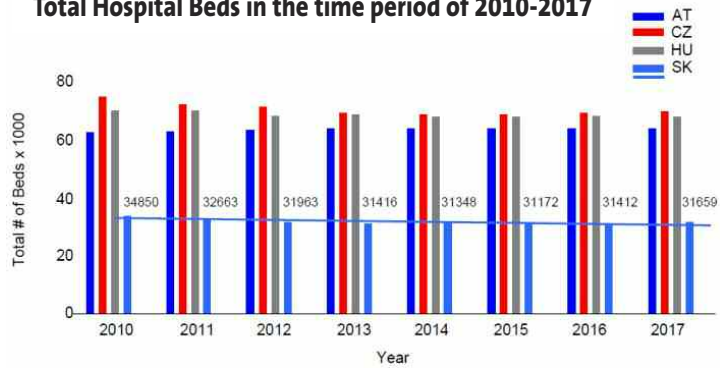
**Beds per 1000 Population in the time period of 2010-2017**



Comparison of AT, CZ, HU, SK based on data from OECD (Organization for Economic and Co-Operation and Development, <http://stats.oecd.org>).

Note: slight linear decrease for SK present/indicated.

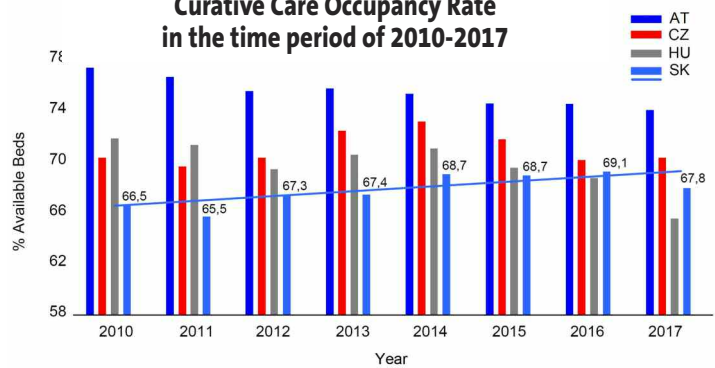
**Total Hospital Beds in the time period of 2010-2017**



Comparison of AT, CZ, HU, SK based on data from OECD (Organization for Economic and Co-Operation and Development, <http://stats.oecd.org>).

Note: slight linear increase for SK present/indicated.

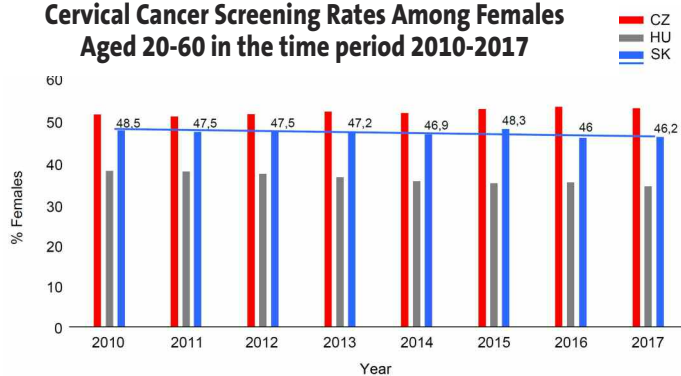
**Curative Care Occupancy Rate in the time period of 2010-2017**



Comparison of CZ, HU, SK based on data from OECD (Organization for Economic and Co-Operation and Development, <http://stats.oecd.org>).

Note: slight linear decrease for SK present/indicated.

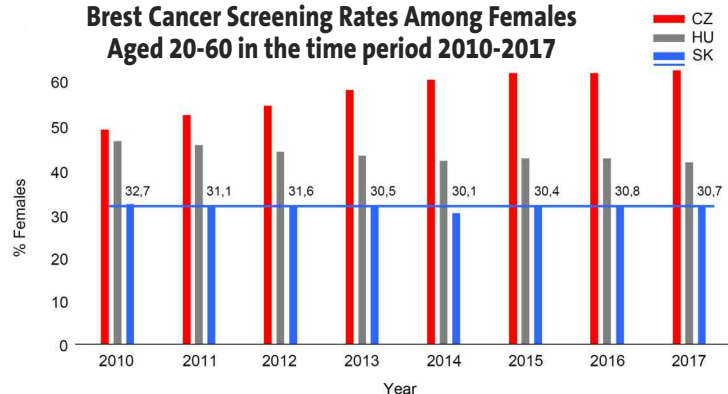
**Cervical Cancer Screening Rates Among Females Aged 20-60 in the time period 2010-2017**



Comparison of CZ, HU, SK based on data from OECD (Organization for Economic and Co-Operation and Development, <http://stats.oecd.org>).

Note: slight linear decrease for SK present/indicated.

**Brest Cancer Screening Rates Among Females Aged 20-60 in the time period 2010-2017**



## Conclusions

Strategic Plan Initiatives for 2030 include: (i) Reduce acute care beds to 2.5 per 1000 inhabitants; (ii) Increase occupancy rate to 85%; (iii) Increase preventive screenings to 60%; (iv) Empower General Physicians as gate keepers to reduce spending, (v) Convert inpatient hospital beds into long-term care beds to reduce inpatient spending and increase long term care revenues; (vi) Invest in hospital infrastructure; (vii) Continue to Reduce total number of hospitals and reduce curative care bed days.

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# Roma Population: Social Determinants and Primary Care Outcomes in Selected Countries of the CEE Region

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Original Article

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## Abstract:

**INTRODUCTION:** Several marginalized communities in Central Eastern Europe suffer unequal access to primary healthcare services. The most populous ethnic and minority group in the European region is the Roma people, with nearly 10 to 12 million people in European countries, among them 6 to 8 million living in the European Union.

**METHODS:** Primary healthcare determinants of selected minority groups and communities were analyzed based on publicly available databases and/or publications.

**RESULTS:** Longitudinal and comparative analysis of primary healthcare determinants in minority communities in the Central Eastern Europe Region showed differences in social and primary care determinants. Many barriers to accessing healthcare facilities, such as economy, lack of trust by Roma for healthcare providers, and physical communication were identified. There is a significant difference in trust on healthcare providers by both the Roma population and by non-Roma population; similarly, financial stability is another factor that becomes an impediment to access to free healthcare services.

**CONCLUSIONS:** Joint activities plus local authorities' commitment is essential in solving the barriers to primary healthcare as well as inequalities from the perspective of marginalized minorities.

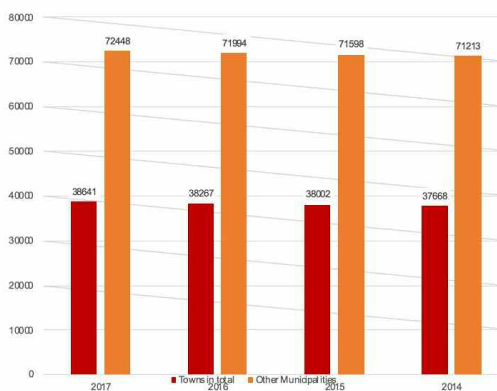
## Introduction

According to *European Agency for Fundamental Rights*, the most populous ethnic and minority group in European region is the Roma people, with nearly 10 to 12 million people in European countries, among them 6 to 8 million living in the European Union. They are an integral part of the region for nearly more than thousand years, but still, they are living enormously in compromised conditions in the member nations of the region. They are found here and there in the countries, called different names like, gypsies, travelers, Sinti etc. Roma population in the European countries are facing multiple problems. The problems range from economic hardship, lack of education, healthcare, and discrimination in different aspect of life. Despite the fact that they are citizens of many countries, they lack many fundamental rights. The *Charter of Fundamental Rights of the European Union* couldn't ensure their fundamental rights to have proper treatment and access to education.

The Roma people migrated from some Northern part of India in 9<sup>th</sup> to 14<sup>th</sup> century in different stages to Europe. Initially they migrated to Khorasan (present Iran) from India, then they migrated to European countries – mostly Central and East Europe and later in Western Europe in little numbers as well. The number varies from 380,000 to 500,000 Roma people who are currently now in Slovak Republic (Figure 1). According to Immigration Canada, only one-third of total Roma population live in a township and the rest live in municipalities; Roma people live in segregated communities in 153 out of 584 (total number) municipalities.(1-14)

There are several human rights organizations and voices in place in the greater European region for the last 10 years or more. The *European Agency for Fundamental Rights (FRA)* did a survey on it and acknowledged the presence of severe discrepancies among the minority groups. The survey revealed the presence of prejudice throughout the member states in the region.

**Roma population by year**



Sources: European Union Agency for Fundamental Rights, European Union Agency for Fundamental Rights <https://fra.europa.eu/en/theme/roma>; Regional Statistics Yearbook of Slovakia 2018 (last update 22.02.2019); <https://www.cia.gov/library/publications/the-world-factbook/geos/lo.html>

Efforts are being made to reduce the inequalities within genders among the Roma population in member state countries in European region. But, there are no significant differences from the conditions before the efforts started. The condi-



tions within Roma population for women are worse than that of Roma men. The most notably worse areas for women are employment, housing, preventive treatment, and access to education. Harassment and physical violence are also miserable in the lives of Roma women. All women have historical sufferings of gender discrimination in aspects of life in the greater parts of the world. Roma women in the European regions are facing additional challenges including extreme poverty, exclusion and overall discrimination reinforcing their disadvantages even further.(14-28)

## Methods

According to the Statistical Yearbook of Slovakia, the Roma population makes nearly 2% (111, 089) of the total Slovakia population (5,445,040). The structure of health facilities is included in Figure 2. However, many researchers mentioned that the Roma population living in Slovakia is much higher. The number varied from study to study and the differences between the government report and other sources are huge. According to CIA factsheet, the percentage of Roma population in Slovakia is 7% to 11% of its total population and it is underestimated in governmental statistics. None of the sources could reveal or offer the reasons behind this difference in numbers. Is it that Modern Roma people do not want to be excluded from the job market because of fear of possible discrimination? Or are they afraid to express their ethnicity for the fear of some other social discrimination?

### Health facilities in Slovakia

	2013	2014	2015	2016
Health Facilities in Total	13022	13040	13099	13160
General OPC	2907	2863	2837	2846
Specialized OPC	6167	6157	6148	6120
Poly Clinics	69	71	73	72
General Hospitals	74	73	73	73
Special Hospitals	43	44	43	42
Institute for Treatment	19	17	18	18

Source: Statistical Yearbook of the Slovak Republic 2018, page 177, Last update: 10.0

The discrimination, segregation and oppression are part of life for the Roma population throughout Europe and Roma in Slovakia are not outside of the vicious cycle. To find out the reasons for inequality in all aspects of life, secondary data were studied. Few of the social determinants were studied before preparing this paper and presentation. The question was raised about the motivation to work on Roma population. It was mentioned in the presentation meeting anonymously that the term 'Roma' is a restricted word. They preferred marginalized group or other minority population rather than 'Roma'. And, according to the same source, any research by Slovak people is unallowable, but a foreigner can talk about it to some extent.

Social determinants include the conditions where people are born, live, get health support, enjoy a good environment, have good jobs and gain financial ability all of which ultimately hugely impact the health of those people. This paper will elaborate on a few of those social determinants and their impact on health outcomes. Usually, health is dependent on socio-economic conditions, but in the case of Roma this not only depends on socio-economic conditions but also the socio-demographic factors.

The data were collected secondarily from previous studies: the CIA fact sheet, World Health Organization, European Commission, European Council UNDP, internationally published articles and different acceptable agencies. The health outcomes of social determinants, demographics, access to health care, barriers to health care, education, segregation in education, health outcomes in localities of different density of Roma inhabitants, housing and employment among Roma and Non-Roma were compared.

## Result and Discussion

The closer look of the findings match the findings of many other research articles. The Roma people are entangled with poor socio-economic conditions that lead to very poor living conditions. The CIA fact sheet revealed that 100% of Slovak people are getting pure water to drink and use for other daily activities. This is contrary to another finding sourced from the Slovak Embassy in Ottawa is referred to in an Immigration and Refugee Board in Canada quoting that the Roma population have only 11% of access to running

water. The same source also mentioned that only 45% of Roma population has sewage connection and the majority of electric connections were noted as illegal. According to the statistical yearbook of Slovakia 2018, the number of healthcare facilities didn't grow much in the four years 2013-2016. The number of general practitioners is noted as 50.5 per hundred thousand people in Slovakia as a whole (Figure 3).

### Accessibility of primary care services in Slovakia

Nr. of GPs per 100 000 population <sup>Year</sup>	50.5 <sup>07</sup>
Shortage of GPs	Yes, some regions
Home visits/week by GPs <sup>Year</sup>	9-
Payments for a visit to a GP	No
Payments for prescription medication	Some
Payments for a referred specialist visit	No
Payments for a home visit by GP	No
% patient satisfaction with PC prices & access <sup>Year</sup>	Price: 86 <sup>07</sup> Access: 83 <sup>07</sup>

Sources: European Observatory on Health Systems and Policies; 2015; <https://www.ncbi.nlm.nih.gov/books/NBK458725>

People do not have to pay for the general physician or for the specialists, but the patient has to pay for the medications. Pavol Jarcuska *et al* (2013) and other research groups (9.16-26) identified many barriers to accessing healthcare facilities: economy, lack of trust by Roma for healthcare providers, and physical access. There is a significant difference in trust towards healthcare providers by the Roma population and by the non-Roma population; similarly, financial stability is another factor that becomes an impediment to access to free healthcare services. Physical access is another difficulty either due to bad roads or lack of any timely and affordable transport system is the third major obstacle. According to the European Union report on the health status of the Roma population, fear of discrimination also is an important obstacle to reach a healthcare facility. All barriers ultimately, recourse the Roma to use so called improvised home-healing. According to Andrea Madarasová Gecková *et al* (2014) (9), nearly 81.3% Roma population only had elementary education (Non-Roma 2.3%); only 2.3% Roma people had higher education (76% Non-Roma); 89.6% people Roma had no job (26.4% Non-Roma); 65.5% people receive social benefits (7.6% Non-Roma receiving) (Figure 4).

### Education and employment

Education	Roma	Non Roma
Elementary	360 (81.3%)	9 (2.3%)
Apprenticeship	73 (16.5%)	84 (21.4%)
Higher	10 (2.3%)	300 (76.3%)
Unemployment	396 (89.6%)	102 (26.4%)
Receiving Social Benefit	290 (65.5%)	28 (7.2%)
Lack of Basic Household Facilities	281 (62.2%)	78 (19.4%)

Sources: Cent Eur J Public Health, Supplement 2014, <https://cejph.szu.cz/pdfs/cjp/2014/88/11.pdf>

They also observed that employment and education had a direct impact on perception and health status of individuals. The Immigration and Refugee Board of Canada also focused issues on education, finding that 30% of Roma children go to special schools for mental disability; nearly 88.6% students of all 21 schools for mental health issues in Slovakia. Only 15-20% of Roma children can pass grade 9. In 2012, UNDP conducted a survey within mainstream schools in Slovakia and found that nearly 43% of Roma students in those schools are being taught in segregated classrooms. Previous studies concluded that trust, money, access and fear of segregation are important obstacles. Kolarčík, Peter *et al* (2009) mentioned that Roma people do not use healthcare facilities as do the non-Roma population; there is statistical significance. Only 19% of Roma children are found to be vaccinated, whereas this percentage remains 95-98% among the non-Roma population. A retrospective cohort study at the Gynecology and Obstetrics Clinic of Louis Pasteur University Hospital in Košice (2018) by Jana Diabelková, Kvetoslava Rimárová, Peter Urdzík, Erik Dorko, Andrea Bušová observed that smoking, drugs and alcohol during pregnancy, preterm births, low birth weight births, low education and underage pregnancy are significantly higher among the Roma population.(17-21) Similarly, previous studies marked that Roma people suffer from poverty, lack of education, lack of employment, poor trust to healthcare providers and above all have poor health status. Measuring health and health risks in the designated Roma settlements in Slovakia – facts and reflections (2017) discovered the truth

of very low life expectancy among Roma population, especially extreme low (mid 40s) in segregated community. According to Soltès *et al* in 2014, life expectancy among non-Roma population is nearly 70 years, to the contrary life expectancy among the segregated Roma population as low as 43 years.

## Conclusions

Slovakia is a country with solid economic stability. Overall health status is better than many other Central and East European countries. For the Roma population in Slovakia like in any other European country, living with low socio-demographic conditions, health outcomes as effect the poor, healthcare and poverty are significant. There are lots of potentials to improve the situations of Roma population. Addressing social determinants of health is important for improving health and reducing longstanding disparities in health and healthcare.

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# Global Climate Change Related Zoonotic ID and Impact on Global Health Care Economics

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Original Article

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## Abstract:

Global climate change may cause natural catastrophes, as well as an increase of vector-borne diseases (VBD) due to an emergence of anthropologic migration from tropics/ subtropics to mild climate zones. Caused unpredictable outbreaks are followed by large economic losses in global health economics. Recent outbreaks with their financial impact within the last 10 years are described and analyzed.



## Introduction

Global climate change is characterized by global warming and subsequent climate related natural catastrophes which are secondary and partially anthropic (rainforest change in Amazon; extensive drought in the Sahel regions of Africa; floods due to hurricanes in Caribbean; typhoons in SE Asia). Those climate changes are related to a re-emergence of new zoonotic pathogens from the tropics and subtropics and the mild climates of Europe, USA and Mainland China. (1-5)

## Example of climate related zoonotics

### 1. Zika, chikungunya and dengue invasion into Europe

The spread of Zika and chikungunya caused huge economic losses for the organizers of Olympic; Paralympic; Asia Pacific Games; World Championship of Samba; and Carnival in Brasilia, Singapore, India and Pacific Islands. However, due to the vector (same for all three viruses/diseases - *Aedes Aegypti* and *Aedes Albopictus* mosquitoes - those three diseases also invazded Europe; dengue in Madeira in 2017; chikungunya in Rimini in 2014; in Réunion and Marseille from 2010 to 2017 causing substantial economic losses to the tourist industries in Mediterranean Europe. (1-3, 5)

### 2. Leishmaniosis in the Balkans

Leishmaniosis is endemic in North/Central Africa. However, global warming caused the emergence of the sand fly vector from North Africa to Turkey, Greece and the Balkans, including Croatia, Albania, Bosna and Kosovo where the incidence of both visceral and cutamon leishmaniosis in appeared in Mediterranean tourists resorts. (2-5)

### 3. Malaria in Greece

In recent years (2015-2018) small epidemics of Maleria Parasites *Plasmodiumalciparum* a and *Plasmodium vivax* have been observed in the Athica Province in Greece and southern Sicily. The vector emerged probably through migration of birds (annual migration) from the Nile Delta. (1-5)

### 4. Coronavirus COVID-19 and avian influenza

At least 5 outbreaks of Avian flu and COVID-19 in China and EU, UK and USA (2020) caused

great economic losses. Avian has been reflected with the route of migrating birds from the Nile Delta to Balaton Lake and Neusiedler Lake in Hungary, Austria and Slovakia, on their routes to the countries of the thousands lakes (Finland, Poland). Fortunately, no (yet) cases of bird to human influenza have occurred. Coronavirus (flu bats, snakes etc.) devastated mainland China, Iran, Italy etc. in early 2020. (2-5)

## Conclusion

Global climate changes also have caused an increase of vector born communicable (infects) diseases with global health consequences and extensive financial losses not only to health care, but to global economies in developed high-income regions (EU, USA).

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# Prevention of Disease-related Mortality from Chronic Non-communicable Diseases

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Original Article

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## Abstract:

The disease-related mortality from chronic non-communicable diseases is an emerging issue of global health in middle to high income countries. Cardiovascular and cerebrovascular diseases, chronic obstructive pulmonary disease, dementia and diabetes mellitus are of special concern. Over time, the major risks undergone transition from the traditional to the modern ones. Although the major health risks are considered global, their geographic variations must be taken seriously into account when planning preventive strategies for specific countries or regions.

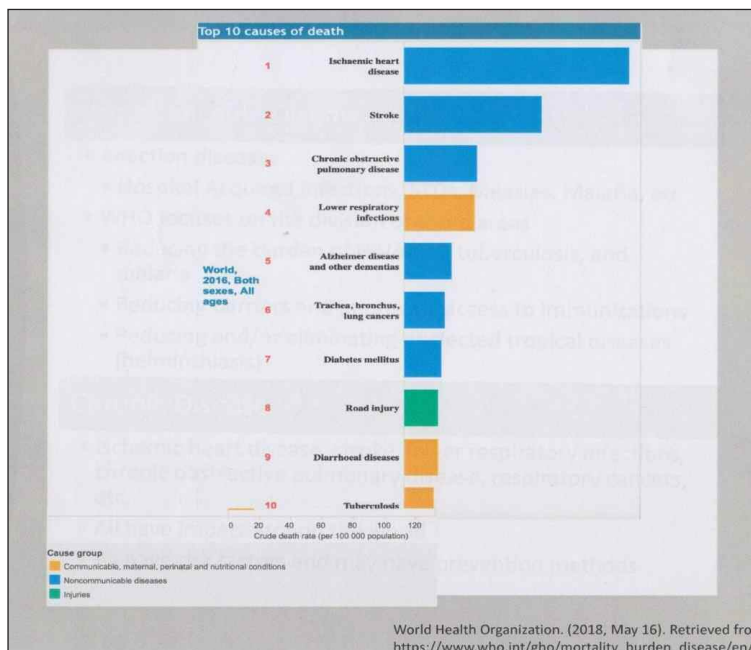
## Introduction:

The disease-related mortality accountable to chronic non-communicable diseases (NCD) constitutes an increasing burden for public health, social and financing systems worldwide. If looking at the WHO ranking (2018) of leading 10 death causes (see Figure 1), it is striking that 6 of them belong to non-communicable diseases (ischaemic heart disease, stroke, chronic obstructive pulmonary disease, Alzheimer disease and other dementias, respiratory cancers and diabetes mellitus). Moreover, the top 2 NCD (ischemic heart disease and stroke) are permanent unbeatable leaders of the chart since decades (1-16). Alone cardiovascular diseases killed 17.65 million people in 2015 according to the WHO statistics. The time dynamic of some other NCD over last 15 years shows a remarkable progression however. For instance, deaths from diabetes increased from 1.0 million to 1.6 million and deaths from dementia doubled. The financial impact of NCD is permanently growing on one side and unmasking insufficiency, inefficacy and inequity of most financial schemes on the other side. According to the estimations of World Bank (2019) 20% to 40% of health spending is wasted, whereas the healthcare spending pushes people into extreme poverty at the same time. (17-25)

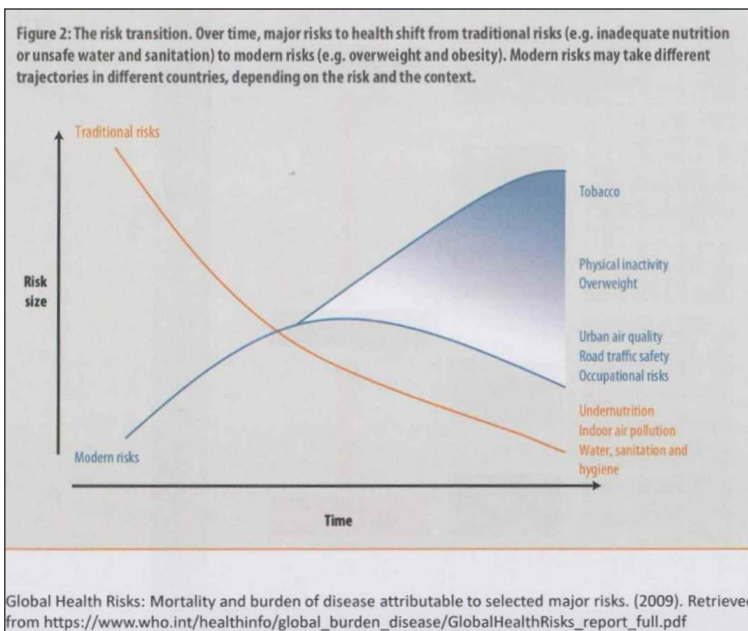
## Chronic Non Communicable diseases

All chronic NCD are truly global: they have impact around the entire world and affect countries from high, middle and low income groups. On the same instance they all have known health risks which can be defined as factors that raise the probability of adverse health outcomes. The top 5 worldwide leading health risks are currently high blood pressure, tobacco use, high blood glucose, physical inactivity, overweight and obesity according to the WHO Global Health Risk Report (2009). Considerably enough all of them belong to the so called „modern risks“ as compared to the traditional ones (Figure 2). Apart from inherited genetic/biological constitution there are 4 important sets of determinant conditions (health behavior, clinical care, social and economic factors, physical environment) that influence individual and public health (Figure 3). Each of these four cardinal sets consists of many-fold specific entities which may be addressed by health policies, programs and interventions aimed to improve major health outcomes (length of life and quality of life). Consequently, most of the NCD may be prevented by appropriate prevention methods (5-10).

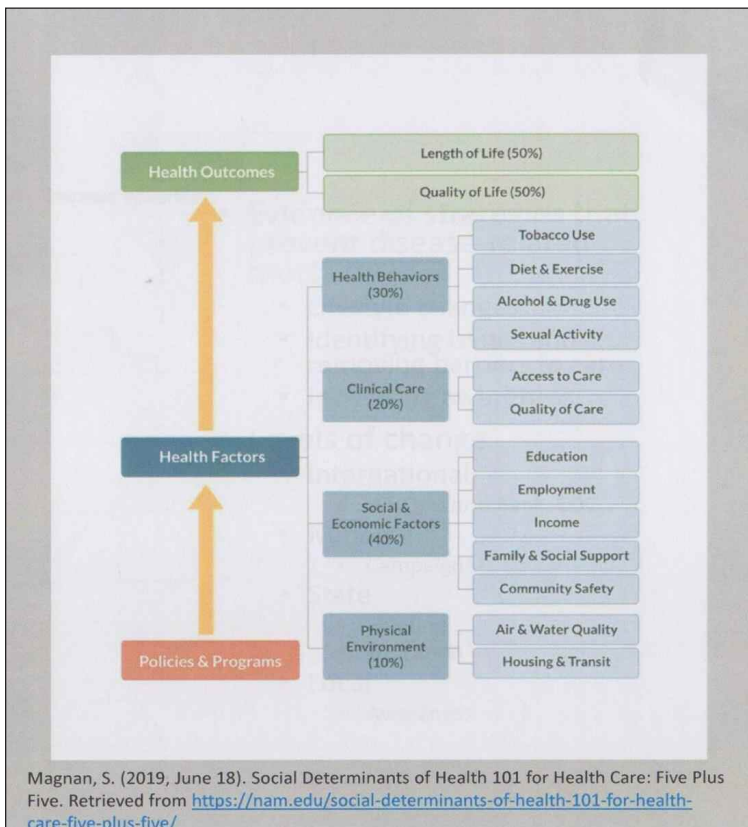
**Figure 1.** Top 10 diseases attributable to worldwide mortality.



**Figure 2.** The risk transition



**Figure 3.** Sets of preventable health determinants.



## Prevention strategies

When it comes to prevention strategies, there is a lot of evidence on their effectiveness, whether they are striving for lifestyle changes, identifying issues and removing barriers to care or just increasing awareness. The impact level of individual preventive tools may however differ depending on their characteristics. Typically, the global impacts are managed and assessed by renowned international agencies such as WHO, World Bank or CDC. Campaigns at a national level are funded and executed by dedicated state agencies. Table 1 presents an authors overview of internationally proven prevention strategies and their risk influences.

Although displaying common global characteristics, there are certain specific differences in NCD resulting from socio-geographic variations of various communities and countries. The most developed countries such as Australia, Germany or United States tend to show higher prevalence of substance abuse with consequent obesity, diabetes, cardiac diseases, cancer and mental health problems, whereas the emerging/developing countries like Mexico, Romania or Brazil suffer from environmental pollutions (unsafe water, indoor smoke, malaria, air pollution, road traffic, lead exposure and others) and low average edu-

cation level. The underdeveloped countries such as Afghanistan, Chad or Nepal are devastated by health inequality, as well as deficit of knowledge and services (Brown 1966, Orach 2009). Improved sanitation may serve as a demonstration of progress in some developing countries (Gutiérrez 2015) over last 25 years (Figure 4).

An example of structurally elaborated preventive actions against cardiovascular recurrence and mortality is shown on Figure 5 As clearly depicted, the means of primordial prevention are complemented by targeted interventions within realms of primary and secondary prevention.

## Conclusion

Health policies and programs should be forward looking, while having an anticipative vision with clear focus on prevention. Settling on current conditions may assure only limited actual improvement but not ensuring sustainable development. To ensure efficacy of preventive interventions, a reasoned redistribution of public resources may be necessary. Ensuring systematic access to education, healthy environment and healthcare services is crucial to achieve best possible health outcomes.

**Table 1.** Overview of proven prevention strategies.

Dietary and lifestyle factors	Type 2 CVD		Dental		Birth		Metabolic		Sexual	
	diabetes		Cancer	Fracture	Cataract	defects	Obesity	syndrome	Depression	dysfunction
Avoid smoking	↓	↓	↓	↓	↓	↓		↑		↓
Pursue physical activity	↓	↓	↓	↓	↓	↓		↓	↓	↓
Avoid overweight	↓	↓	↓	↑	↓			↓		↓
<b>Diet</b>										
Consume healthy types of fats <sup>a</sup>	↓	↓						↓		
Eat plenty of fruits and vegetables	↓		↓	↓	↓	↓	↓	↓		
Replace refined grains with whole grains	↓	↓					↓	↓		
Limit sugar intake <sup>b</sup>	↓	↓		↓			↓	↓		
Limit excessive calories							↓	↓		
Limit sodium intake	↓									

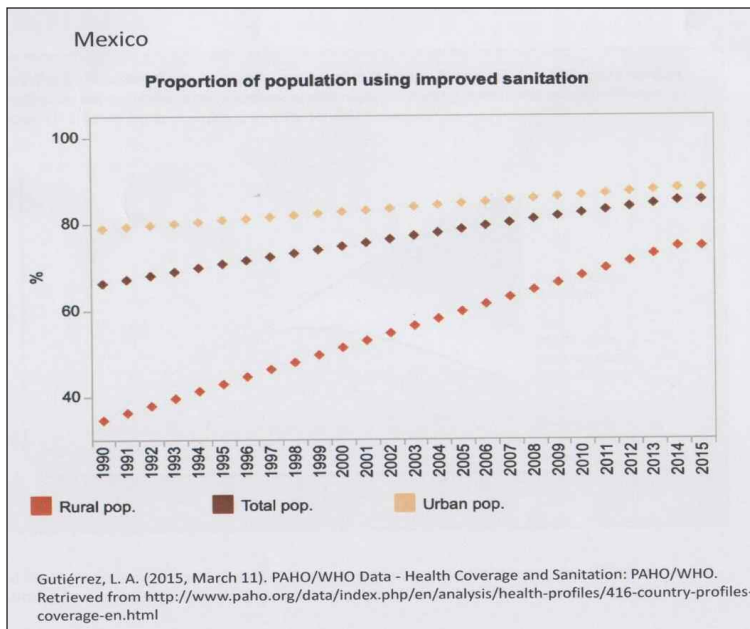
Source: Authors' summary of a review by the [WHO and FAO 2003](#); [Bacon and others 2003](#); [Fox 1999](#); [IARC 2002](#).

Note: Bold = convincing; Standard = probable relation; ↑ = increase in risk; ↓ = decrease in risk.

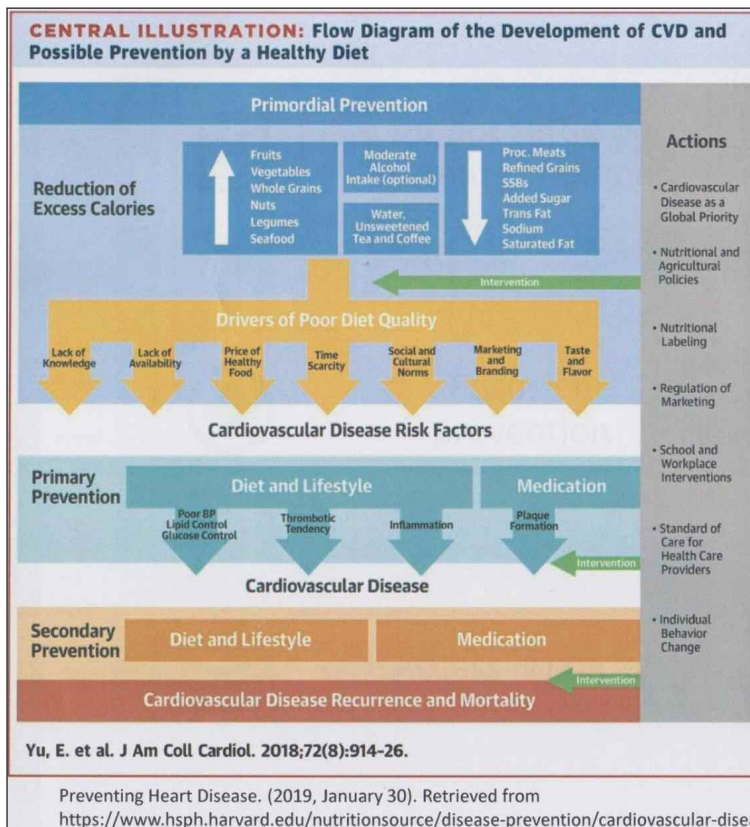
a. Replace trans and saturated fats with mono- and polyunsaturated fats, including a regular source of N-3 fatty acids.

b. Includes limiting sugar-based beverages.

**Figure 4.** Evolution of sanitation availability in Mexico.



**Figure 5.** Structured actions in preventing cardiovascular diseases.





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# Mapping the Literature of Health Education: Textual Analysis of Government Schools Textbooks

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## Abstract:

This study aims to see if text books in Khyber Pakhtunkhwa's Swat District contain an adequate amount of literature related to health education. The research methodology used to reach any conclusion(s) regarding health education/promotion contents in government school textbooks was qualitative in nature considering textual analysis of vital subjects taught in 9<sup>th</sup> and 10<sup>th</sup> grades in the District. Analysis confirms that school syllabus/books lack health education literature, giving a solemn conclusion that government schools students might remain un-

able to live a healthy life as adolescents and adults. The study recommends that government schools textbooks should be revised for inclusion of contents related to preventive healthcare measures to enable students to spend a healthy life now as well as during their later life.

## Introduction

Health issues as well as strategies to cope up with them are cornerstones of most policies governments across the globe make irrespective of their economic and political standings. Policy-makers are fast realizing that health issues could be greatly resolved if, along with providing top-notch medical facilities at hospitals and other healthcare centers, effective communication strategies are designed for institutions like schools and colleges to make youngsters aware about health problems and their prevention. If governments particularly those of the poor nations start taking appropriate steps for improving health literacy not only would it help decrease the number of patients at hospitals but it would possibly be the first step towards implementation of a comprehensive strategy involving focus on all factors namely social, cultural, biological, psychological, environmental and economic (Jourdan, 2011) which contribute to healthy life of individuals.

Health is quite a subjective matter, different people thinking differently about the meaning of good health varying from individual to individual and community to community (Yazachew, Alem, 2004). WHO believes initiatives like Health Education (HE) consisting of well-planned opportunities in shape of communication designed to improve health literacy like advancement of knowledge and rising life skills will be helpful in developing a society mindful of health issues. (WHO, 1998). The same is called HP or Health Promotion, meaning educating people about any disease/illness or enabling them to become conscious about their health and thus take solid steps for adopting a healthy lifestyle (WHO, 2005).

Several indispensable authorities have established a strong link between health literacy and school health education precisely stating that the promotion of health literacy is important for students to adopt and maintain healthy behaviors and have enhanced quality of life (Joint Committee on National Health Education Standards, 1995).

Healthy children learn better both physically and psychosocially. Other research asserts that a healthy life as well as successful formal school experience are basically the result of healthy growth in very early childhood particularly during the first 3 years (McCain & Mustard, 1999).

Community health, no doubt, flourishes at schools, considering the learning institutions are gathering points in any society. Shaping children's minds since early age, schools are important locations for work on health education; with the efforts under way for health education and welfare of students at schools being largely acknowledged. Likewise, major exchange of views on various important forums have long been witnessing discussion on ongoing efforts and the subsequent progress made in connection with health education at school levels. (Pommier, Guevel, Jourdan, 2010).

Since school children comprise a major chunk of society, educational institutions, besides academic responsibilities, have great potential for making community fully aware of health issues as well (Noland *et al*, 2004). Similarly, other researchers believe that school children's development, growth and body weight are of great significance as they provide us community's general health status (Vashisht, Krishan, Devlal, 2005).

Referring to Hawkins & Anderson (1996) who put emphasis on health-related dangerous behaviors which effect an individual's emotions, cognitive ability and quality of life, it's important to note that the impact of these risk behaviors on health has resulted in making health education one of the top priorities of top national and international organizations at a global level. (Rutter & Quine, 2004). And, the same is the case with health promotion at schools in order to avoid health risks in adulthood.

Health education is one of the important tasks for policymakers for primary schools, according to the UNAIDS (1999), with curricular and extra-curricular activities at educational centers seen as ideal means to promote health growth. But sadly

health education, to borrow Bartlett's words, have never remained a priority in school syllabus with stakeholders including teachers and administrators failing to compose an inclusive syllabus containing contents related to health education. (Bartlett, 1981). Health Education has always been considered a 'rainy day' course as the same researcher also asserts that a minor budget is allocated for teaching of such 'rainy day' courses usually taught by poorly-trained and irrelevant professionals.

We need to re-examine our school curriculum, suggests Gulzar (2008). While others lay emphasis on course syllabus since it's considered as an efficient way to facilitate students in their education including health education/promotion (Grunert, 1997; Pastorino, 1999). However, sadly many faculty members hardly give any thought to developing an inclusive outline (Woolcock, 2003). In fact, it is various life skills programs which can help children and adolescents achieve a healthy life (WHO, 1994). Evidence from China, Guinea, India as well as Mexico show that children with ailments don't attend school since it's illness that stop them from coming to school (Carron & Chau, 1996). This brings us to the point that interventions regarding promotion of health in schools are becoming emphatically clear. The fact dawning on most stakeholders is that developing countries have long been faced with problems including protein deficiency in children who have sadly been gripped with micronutrient deficiency disorders, helminthic infection and temporary hunger (Levinger, 1992).

Like other disciplines in the field of education, enabling individuals to gain knowhow of HE will not only help the country achieve health targets but also economic context. Ours is sadly a developing nation unfortunately facing poor health statistics. Here the school syllabus is designed in a way that a very meager amount of content related to health education/promotion is included. Likewise, the teaching staff in the provision of health education is untrained. The only noticeable discipline taught to improve healthcare is 'physical education' which hardly covers the basics of preventive healthcare measures and the same is considered as an auxiliary subject. Considering poor status of preventive healthcare prevailing in Pakistani society, these researchers easily observe that a 10<sup>th</sup> grader irrespective of

gender is mostly not able to define normal health which leads individuals to make easily preventable health-related mistakes.

Comparing this scenario to the developed world, it can easily be argued that most people there know some of the very important health concepts while being knowledgeable about the importance of safe drinking water and food; how major infections spread; first aid measures are given/taken; how personal hygiene is taken care of among other preventive healthcare measures.

## Argument of the Study

Preferably, health learning should happen at a young age before negative patterns of behavior and interaction take root. Because of their contact to children and adolescents at a very high level, schools are an appropriate place for the introduction of life skills education (WHO, 1994). According to a research study of US Department of Health and Human Services (2007), health risk behaviors that contribute to leading causes of death are often developed during childhood and prevention is the best cure for chronic disease. School health education provides the basis for inculcating behaviors in our young people to prevent or delay the inception of the leading causes of death. Moreover a WHO (WHO, 2003) research has verified that effective school health programs are powerful and should be launched through a sequenced and well-planned curriculum at both primary and secondary schools before the onset of the risky behaviors.

Individual differences should be focused in preparing curriculum wherein students learning should be target and result-oriented (Glatthorn & Jailall, 2000). Similarly, the structure of the courses should not be insensitive to gender issues apart from catering for children of diverse abilities and backgrounds. Furthermore, the discipline taught at schools should not ignore other challenging health issues including HIV/AIDS. In a nutshell, it should be based on emphatically-defined learning outcomes which should be properly sequenced and grade-wise (Kraft, 1995).

Also, new evaluation of health education research proves assurance of having an optimistic impact on academic achievement as it has on health outcomes. Well-designed school-based health interventions can facilitate students to prevent disease and injury (Botvin *et al*, 1995).

Sadly, the current fields of research show a flawed school syllabus as a result of which students are unaware about basics of their health which in turn leave them exposed to negative mental, physical and social impacts on their well-being. The same is the case with Swat's youths who are exposed to various physical and microbial health hazards owing to lack of proper health education at schools in the district.

The focus of this study zeros in on various curricular causes of inadequate health education as a result of which students and the community at large suffer. Although, Swat's literacy rate is high as compared to province of Khyber Pakhtunkhwa's other districts, the school syllabus is quite low on contents related to health issues which are hardly helpful for the greater cause of health education. The major increase in the communicable and non-communicable diseases in this area are easily blamed on the low level of awareness programs about health in schools.

## Research Methodology and Results

During the process of inquiry four of the vital subjects of 9<sup>th</sup> & 10<sup>th</sup> grades namely Biology, General Science, Health and Physical Education and Islamic Education were selected purposively for content analysis to decipher how much preventive healthcare subject-matter they carry. Considering the main theme of Health Education, a comprehensive page-to-page content analysis of the selected books was conducted the analytical summary of which is presented sequentially below.

**Biology for 9<sup>th</sup> & 10<sup>th</sup> Grades:** It is one of the main subjects taught to science students in classes 9 and 10. The book taught in the discipline has a total of 18 chapters equally divided into 9 and 10 grades. With some information regarding the human body, the contents included in this course are: all about basic biological terms; solution of various biological problems; discussions on composition of cells and tissues; while various other sections cursorily deal with issues like biodiversity, circulation and enzymes.

The same course contains brief deliberations on different systems of gaseous exchange, homeostasis, coordination, support and movement and reproduction. The only chapter apparently related to health education is chapter 8 titled 'Nutrition' wherein the literature deals with various nutrients and a balanced diet apart from other important

aspects of human physical needs (see Annex-I). In a nutshell, out of 18 chapters only one chapter is having some information somehow complementing contents related to preventive healthcare measures.

**General Science for 9<sup>th</sup> & 10<sup>th</sup> Grades:** General Science is one of core subjects in Arts and Humanities taught in 9<sup>th</sup> & 10<sup>th</sup> grades. Half chapters in a single General Science book are taught in 9<sup>th</sup> class with the rest in 10<sup>th</sup> grade. Among all 11 chapters, only two are about human health and diseases with chapter 4 being titled 'Human Health' and chapter 5 named 'Diseases: Causes and Prevention' (see annex-II). However, the fact is that both chapters contain only supportive material in connection with improving students' health while the other nine chapters are about other technical matters.

**Health & Physical Education (HPE) for 9<sup>th</sup> & 10<sup>th</sup> grades:** There are 19 chapters in this subject with 9 being covered in 9<sup>th</sup> class while the rest in 10<sup>th</sup> grade. Textual analysis of health and physical education subject shows that 6 chapters (1, 10, 12, 13, 16 & 17) are about making students aware of health issues (Annex-I) while the rest comprised technical knowhow about athleticism and sports in general. However, the same discipline contains rules and principles related to various physical therapies, exercises and games which don't clearly fall in the gambit of health education. Likewise, other chapters in the book deal with principles of body and joint movements in addition to various other concepts which are hardly related to preventive healthcare measures. Still, no denial of the fact that the 6 chapters having content on health education amply contain literature related to: health education and promotion; with some prominent concepts being the definition of health education; how various diseases are prevented and cured; how school environment could be helpful in a healthy life; discussion on healthy diet and ways to prevent infectious diseases.

Notwithstanding such rich content comprising 30-40% literature on HE - the subject of health and physical education has only been catering to 25% of total students, sadly. (see annex-III).

**Islamic Education (Compulsory) for 9<sup>th</sup> & 10<sup>th</sup> Grades:** This subject containing a total of 17 Lessons is divided into three parts: **Part 1**



having 7 lessons which contain Quranic verses with Urdu translation; **Part 2** has only 1 chapter having Hadiths, their Urdu translation and explanation; **Part 3** sees interpretation of different religious concepts with the same part containing 9 chapters. Among these 9 chapters only 1 chapter 'Ablution & Physical Cleanliness' is somehow related to health education (see annex-IV).

#### **Annexure-I Book Contents- Chapter Titles of Biology for Classes 9 & 10**

##### **Biology for Class 9 & 10**

1. Introduction to Biology
2. Solving a Biological Problem
3. Biodiversity
4. Cells & Tissues
5. Cell Cycle
6. Enzymes
7. Bio-energetic
8. Nutrition
9. Transport

##### **Biology for Class 10**

10. Gaseous Exchange
11. Homeostasis
12. Coordination
13. Support & Movement
14. Reproduction
15. Inheritance
16. Man & His Environment
17. Biotechnology
18. Pharmacology

#### **Annex-II Book Contents- Chapter Titles of General Science for Classes 9 & 10**

##### **General Science for Class 9 & 10**

1. Introduction (The Role of Science)
2. Our Life & Chemistry
3. Biochemistry & Biotechnology
4. Man & His Health
5. Diseases: Causes & Prevention
6. Environment & Natural Resources
7. Energy
8. Electricity
9. Electronics
10. Science & Technology
11. Space Research & Pakistan Atomic Energy Plan

#### **Annex-III Book Contents- Chapter Titles Health & Physical Education for Classes 9 & 10**

##### **Health & Physical Education for Class 9**

1. Introduction to Physical Education
2. Physical Movements
3. Gymnastics and Physical Activity
4. Posture and Posture Imbalance
5. Massage
6. Physical Fitness- Characteristics of a Good Athlete
7. Tournament System
8. Sports Rules
9. Athletics Rules

##### **Health & Physical Education for Class 10**

10. Importance of Physical Education
11. Recreation and Small Area Games
12. Definition of Health, Community Health and its Importance
13. Health Prevention
14. Training: Physical Exercises for correcting Posture
15. Joints and Muscles
16. Healthy School Environment & Infectious diseases
17. Our Food
18. Sports Rules
19. Athletics Rules
20. Introduction to Physical Education
21. Physical Movements
22. Gymnastics and Physical Activity
23. Posture and Posture Imbalance
24. Massage
25. Physical Fitness- Characteristics of a Good Athlete
26. Tournament System
27. Sports Rules
28. Athletics Rules
29. Importance of Physical Education
30. Recreation and Small Area Games
31. Definition of Health, Community Health and its Importance
32. Health Prevention
33. Training: Physical Exercises for correcting Posture
34. Joints and Muscles
35. Healthy School Environment and Infectious diseases
36. Our Food
37. Sports Rules
38. Athletics Rules



## Annexure-IV Book Contents- Chapter Titles of Islamic Education (Compulsory) for Classes 9 & 10

### Book Name and its Contents Islamic Education (Compulsory) for Classes 9 & 10

#### Part-I

Initial 7 chapters contain Quranic Verses & Translation

#### Part-II

Chapter 8- Ahadith & Translation

#### Part-III

1. Introduction to Quran
2. Following Allah & His Prophet (PBUH)
3. Knowledge & its Importance
4. Zakat
5. Physical Cleanliness
6. Patience & Our individual & Collective Life
7. Importance of Daily Life
8. Migration & Jihad
9. Human Rights

## Conclusion

Textual analysis of textbooks shows that the contents regarding health education are insufficient and provide students with inadequate knowledge about preventive healthcare measures. The main discipline about health education namely HPE contains sizeable percentage points -between 30% and 40% - of material about health education and health promotion but sadly the discipline is taught to a low number of Arts students, bringing us to the point that only the discipline of HPE is having a sufficient amount of literature - that is more than one third of the total health and physical education subject content - but it is taught to only 25% students while the rest of the books absolutely lack any HE material.

Speaking conclusively, it is evident that government school text books lack any contents regarding health education and promotion resulting in failure of students to lead a healthy life by protecting themselves from various diseases. The same make students adopt unhygienic behavior which influences their health in adolescence as well as adulthood. In a nutshell, it can be hypothesized that:

“Limited health education contents in current school syllabus leads to various ailments and adoption of unhealthy behavior among students in their early and later life”.

## Suggestions

- 1 Students in government schools must be offered health education through a course outline which is comprehensive and helpful in attaining practical skills to make individual's health improve. Also, the same discipline must provide knowledge regarding major infective diseases to students of all shades.
- 2 Basic contents of health education like hand-washing technique, first aid measures, transmission and prevention of major infectious diseases among other preventive healthcare measures must be included in an HPE syllabus. Furthermore, HPE syllabus should be offered to both Arts and Science students.
- 3 The Public Health Department must develop a uniform health education curriculum for schools as well as for training HPE teachers to help students develop a health protective behavior.
- 4 Also, an HPE book sufficient in HE contents like first aid measures etc. must be provided in schools, homes and grounds apart making the discipline of HPE compulsory for science students.

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# Latin American Immigration. Public Health Implications and Challenges

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Original Article

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## Abstract:

**INTRODUCTION:** The World Health Organization (WHO) addressed „RIGHT TO HEALTH“ in 2013 as a „fundamental right of every human being“. Globalization has changed how we interact in the global community.

**METHODS:** There is no single, uniform and coordinated system because of fragmented markets and differences and variations among individual states. The Affordable Care Act (ACA) debate is still a controversial topic.

**RESULTS:** Major global actors should link together, including public – private sector partnerships. Public health should be in the interest of the society.

**CONCLUSION:** The situation of immigrants calls for a global action plan. Access to health is a global issue. Promoting access to health for all requires Global Policies. There is a need for conceptual framework while recognizing public health risks.

## Introduction

The World Health Organization (WHO) addressed „RIGHT TO HEALTH“ in 2013 as a “fundamental right of every human being“. Globalization has changed how we interact in the global community. (1-4)

The World Health Report 2000 suggests 3 goals for every health system:

- 1 Good health
- 2 Responsiveness to the expectations of the population
- 3 Fairness of financial contribution

The WHO Framework Includes 6 building blocks addressing: good service, workforce, information services, financing, leading and governance and equitable access to health care.

## Specific Factors Influencing the Health Care System in the United States

There is no single, uniform and coordinated system because of fragmented markets and differences and variations among individual states. The Affordable Care Act (ACA) debate is still a controversial topic. It seems like health care is a privilege, not a basic human right.

28.5 million Americans have no health insurance. Being uninsured negatively affects health.

Social determinants of health are:

- Housing
- Employment
- Food security
- Education
- Access to care
- Transportation

These are often problematic in uninsured people which further negatively impacts their health state.

Health Care in the United States is expensive. The annual expenses are 3.5 trillion USD. Despite that, life expectancy in the USA is decreasing. Drug prices are 3-6 times higher than in Europe. Administrative costs are high. Research in health care is essential, but expensive. With more technological developments the costs of

diagnosis and treatment can go up. Terrorism is yet another challenge. Still, there is a lack of commitment to universal coverage.

## Immigration to USA and Health Care

There are at least three broad categories of immigrants:

- Voluntary immigrants - come to join their relatives who are already settled in the US or to fill job vacancies.
- Refugees and asylum seekers - enter the United States to avoid persecution in their country of origin.
- Undocumented immigrants – enter United States illegally.

Undocumented immigrants are not a homogenous group. There are several types including:

- 1 Persons that legally entered the nation state or territory, but remained there after their visa/permit expired.
- 2 People who applied for refugee/asylum status and were denied, but remained in the country.
- 3 People whose socio-economic position changed and they could not renew residence permit.
- 4 Individuals who used fraudulent documentation to enter.
- 5 Persons that entered the country unlawfully including those who were smuggled in.

Various federal, state and local policies determine health. In some cases they criminalize immigrants; in other cases they integrate immigrants through expanded rights and eligibility for health care and social services.

Deportability goals are: control of immigration enforcement, create surveillance of communicable diseases, and identify non-citizens at risk.

Expansion of eligibility and rights helps incorporating immigrants into society. It facilitates their inclusion, seeks to reduce inequalities and safeguards their human right to health.

The Federal Government has exclusive authority to regulate who enters the USA and assign their legal status. Individual states apply public

programs and policies to non-citizens. Many immigrants live in a state of flux, surveillance, enforcement and deportation. That creates barriers to accessing health care, distrust of healthcare providers. Racialized environment can be harmful to people of color and lead to targeting people. There were numerous examples of this in Europe in the 1990s; Cuba in the 1980s; NAFTA (North American Free Trade Agreement) between Mexico, USA and Canada. These backgrounds pose a challenge for health care. We need a joint public health approach and coordinated health policies.

There are 11.5 million people in boarder communities: 42 US counties and 39 Mexican municipalities.

Boarder residents share:

- Resources and environmental problems
- Air quality
- Water quality
- Animal control
- Infectious Diseases: hepatitis A, Salmonella, tuberculosis, dengue, leprosy, rabies
- Mental health (PTSD)
- Substance abuse

In sum, immigration has significant barriers in many countries: economic, administrative, cultural, social, and political. It also poses threat of terrorism.

Barriers to health care for undocumented immigrants include:

- Lack of employment
- Financial problems
- Fear of deportation
- Discrimination
- Laws and policies
- Bureaucratic obstacles
- Public health system

Several countries, including the USA, EU states, Canada, Scandinavia, Costa Rica have policies that limit access to health care for undocumented immigrants.

## Conclusion

The situation of immigrants calls for a global action plan. Access to health is a global issue. Promoting access to health for all requires Global Policies. There is a need for conceptual framework while recognizing public health risks. Safety-net healthcare facilities should concentrate on primary care, prenatal care, CDM and ef-

fective vaccinations. They should include screening for prevalent infectious diseases. (5-9)

There are ethical and professional obligations involved in helping the vulnerable populations. (10) Health care providers have to have in mind cultural diversity and they need linguistic competency training. Major global actors should link together, including public – private sector partnerships. Public health should be in the interest of the society.

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# Logistics, as Intervention to Secure the Supply of Medicines to Healthcare Facilities by Pharmacies and other Drug Manufacturers and Suppliers

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## Abstract:

Globalization, expanded product portfolios due to acquisitions and new requirements for products and services have dramatically changed the supply chains in the pharmaceutical industry in general, but also pharmacies in particular, in recent years. In addition, digitalization opens up new opportunities, but poses major challenges for the logistics of required medicines. Hygiene standards, avoidance of supply bottlenecks and rapid supply must be guaranteed, especially in healthcare facilities such as hospitals, retirement homes and nursing homes. Especially in these facilities, a supply of appropriate medication is often vital for survival.

## Introduction:

A secure and cost-effective supply of necessary or desired goods is the goal of both the consumer and the supplier. Globalization, expanded product portfolios due to acquisitions and new requirements for products and services have dramatically changed the supply chains in the pharmaceutical industry in general, but also pharmacies in particular, in recent years. In addition, digitalization opens up new opportunities, but poses major challenges for the logistics of required medicines. Hygiene standards, avoidance of supply bottlenecks and rapid supply must be guaranteed, especially in healthcare facilities such as hospitals, retirement homes and nursing homes. Especially in these facilities, a supply of appropriate medication is often vital for survival. The reason for this is the age structure and state of health of the customers. In order to maintain this supply, the responsible body must deal with the distribution of the logistics of important medicines. Distribution logistics therefore takes care of supplying customers with the desired and required medicines and focuses on the distribution and availability of saleable medicines. It forms an interface between marketing and sales.<sup>1</sup>

## Drug distribution logistics

Distribution itself is described as „the macro-economic distribution of the objects of distribution (goods, services, rights, fees, information). In practice, the (narrower) terms sales, distribution and sales are used more frequently. Usually, distribution is defined as all processes between producers and traders up to the final customer in the sales channel. Redistribution refers to the processes from the consumer/consumer via dealers to the return of goods, recycling or disposal.<sup>2</sup>

The distribution channel is „the part of the distribution system designed by the manufacturer to ensure the sale of his products/services and the distribution of the necessary information.

Important decisions are: the number and type of stages of the distribution channel, the number and type of distribution bodies involved at each stage of the distribution chain and the organization of cooperation between the individual elements of the distribution channel.<sup>3</sup>

Distribution logistics forms part of the logistics chain and is part of the distribution policy, which together with product policy, communication policy of pricing policy and delivery conditions form the marketing mix. However, before goods are procured, they must either be taken from the assortment or ordered externally. To do this, the assortment of your own pharmacy must be planned and, if necessary, topped up. Assortment planning comprises several levels:

- with regard to the contents of the assortment
- to the extent
- On the composition of the assortment with regard to the concept for assortment marketing

How the content of the assortment is compiled, i.e. which products are included in the assortment, depends mainly on

- Origin
- Price range
- Demand
- Suitability of the special operating forms off. The composition itself can be arranged according to various characteristics, for example according to raw materials (leather, fabric) or according to
  - buyer-dependent requirements, e.g. fishing equipment
  - Special needs related to the region, e.g. hunting needs
  - complementary aspects, e.g. washing machines
  - Compensation aspects to compensate for fluctuations in sales, e.g. tennis articles
  - Price range
  - Self-sellability, i.e. goods that the customer can put together himself, e.g. food.<sup>4</sup>

<sup>1</sup> Vgl. Koether, Reinhard: Distribution logistics: Efficient delivery security, 2012, 2014, Wiesbaden, p.3

<sup>2</sup> Springer Gabler Verlag: Gabler Wirtschaftslexikon, keyword distribution, (22.02.2016) viewed at: <http://wirtschaftslexikon.gabler.de/Archiv/56409/distribution-v10.html> [29.03.2020]

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<sup>4</sup> Vgl. Corbat, Peter: Logistics in sales companies, 2009, Norderstedt, p.61

The aim of assortment planning is to increase the performance of the overall assortment.<sup>5</sup> Especially pharmacies, but also manufacturing pharmaceutical companies have to deal with the quantity, the medicines produced or to be stored. Quantity planning „determines the material requirements (requirement for assemblies, parts, materials, and so on) from the production program using the BOMs. The independent requirements determined in production planning are exploded using the BOMs stored in the system or by mathematical statistical procedures (dependent requirements)“.<sup>6</sup>

Article or material master data is normally used for quantity planning, whereas product structure data is used for bills of material. Quantity planning can be divided into requirements determination, procurement calculation and inventory management.

Requirements determination is a calculation-intensive process that is usually computer-controlled. Since in quantity planning, requirements are calculated by date, assembly and procurement times must always be included in the calculation. Various methods are used for this, such as:

- Deterministic determination of requirements (here the bills of material are the basis for the calculation)
- Stochastic determination of requirements (based on expectation and consumption-oriented procedures and assuming a minimum stock level)<sup>7</sup>

Inventory management forms the basis for quantity planning.<sup>8</sup>

Bills of material play an important role, especially in the manufacturing industry, as they take on a form of information processing. Depending on the production process, a distinction is made between:

- Quantity Bills of Material
- Modular parts lists
- MRP parts lists
- Structure Bills of Material<sup>9</sup> and are needed in the following area:
  - in the construction for the design and product definition
  - in the control of products for material management and the programming and selection of manufacturing technologies
  - in product procurement
  - in the calculation of offers as a basis for cost accounting.<sup>10</sup>

In addition to the planning and procurement of goods – in this case especially medicines – these must also be brought to the customers. This is the responsibility of so-called transport logistics. Transport logistics means „the holistic view of all the working and information methods necessary for a transport process“.<sup>11</sup> This includes the interaction of:

Administrative variables such as transport, vehicle or personnel administration

- Operational variables such as control or strategies in transport
- Disposable variables such as transport technology<sup>12</sup>

The task of transport logistics is the provision and management of goods in the internal production process at the lowest possible cost. Transport logistics is geared towards the goal of optimising transport in terms of unloading, loading, capacity utilisation, handover and identification.

But transport alone does not make for good logistics. The storage of medicines and, if necessary, new production also play an important role in the supply process. Warehousing is understood to be the storage of the material. Warehousing is part of materials management and

<sup>5</sup> Vgl. Corbat, Peter, 2009. p.61

<sup>6</sup> Wenzelmann, Christoph/Plass, Christoph/Gausemeier, Jürgen: Future-oriented corporate design: strategies, business processes and IT systems for the production of tomorrow, 2nd edition, 2014, München, p.34

<sup>7</sup> Vgl. Cronjager, 1994, p.120

<sup>8</sup> Vgl. Cronjager, 1994, p.120

<sup>9</sup> Vgl. Vahrenkamp, Richard: Production management. 2008, Munich, p.130.

<sup>10</sup> Vgl. Vahrenkamp, 2008, p.130

<sup>11</sup> Martin, Heinrich: Transport and warehouse logistics: planning, structure, control and costs of intralogistics systems, 2014, Wiesbaden, p.97

<sup>12</sup> Vgl. Martin, 2014, p.97

serves as a buffer to compensate for fluctuations in the sales or purchasing market. The most important tasks of warehousing are therefore

- Prevention of possible supply bottlenecks, for example due to supplier strikes
- Speculation on profits due to possible rising prices
- Maintenance of capacity in order to be able to secure supplies in the long term
- Securing stability in order to achieve flow-free growth, which can be achieved by influencing private cash management, for example
- Securing sales, for example by storing rare or less common goods or commodities
- Generating an income, for example by taking over warehouse keepers for third parties<sup>13</sup>
- Warehouse logistics is the generic term which includes both the types of warehouses and the storage of goods. „Warehouse logistics has the task of designing systems for all types of storage, picking and conveying of goods from goods receipt through all stages of production or storage to goods issue“.<sup>14</sup> The better the logistics in the warehouse, the easier it is to access the appropriate medication. In today’s world, everything happens automatically. This is achieved not least through digitalisation. So-called pharmacy robots and systems enable efficient inventory management, the optimisation of work processes and the improvement of patient safety. By using automated inven-

tory management, which facilitates packaging, storage and picking, wholesalers in particular, but also manufacturers, can plan and produce more efficiently.<sup>15</sup> Hospitals can also benefit from this to keep a better overview of their own stock. Software solutions for drug supply can be particularly worthwhile for these facilities. The software manages the stock of medicines and thus helps to keep an overview of the entire warehouse. A cross-system stock overview „enables costs to be controlled and the disposal of expired medicines to be avoided by optimising purchases and replacing medicines with a short shelf life.“<sup>16</sup>

In addition, automated drug storage and picking processes help reduce dispensing and dosing errors, “while creating more efficient workflows.“<sup>17</sup> In addition to automation, is also the disposal of expired drugs. This is a challenge not only for hospitals, but also for manufacturers, pharmacies and other health care facilities, because for a long time the disposal of goods, including medicines - although a key factor in economic processes - was ignored. This deficit was eliminated by internal and external processes. As a result, waste disposal no longer has a cross-sectional function, but is now integrated as a fourth part of logistics in the overall process. The following table explains waste disposal logistics in more detail:

<b>Definition</b>	Disposal logistics is a „scientific discipline that deals with the material flow optimization of internal and external waste streams“. <sup>18</sup>
<b>Goals</b>	In addition to avoidance, the optimisation criteria focus on the recycling of waste as well as the reduction of waste quantities, the use of disposal technologies that are environmentally compatible and the exploitation of the value creation potential that exists in waste. <sup>19</sup>
<b>Taks</b>	<ul style="list-style-type: none"> <li>• Recording of waste streams</li> <li>• Optimization of information and material flows</li> <li>• Expansion of external and internal organisational structures.<sup>20</sup></li> </ul>

<sup>13</sup> Vgl. Albers, Willi: Handbook of Economics (hdWW): Warehousing to oligopoly theory, 1980, Stuttgart – New York, p.1

<sup>14</sup> Rupper, Peter: Corporate logistics, 1995, Zurich, p.353.

<sup>15</sup> Vgl. Martin, 2014, p.98

<sup>16</sup> Swisslog Healthcare (22.03.2020), Automation for central pharmacies, <https://www.swisslog-healthcare.com/de-de/1%C3%B6sungen/zentralapotheken> [29.03.2020]

<sup>17</sup> Swisslog Healthcare (22.03.2020), Automation for central pharmacies, <https://www.swisslog-healthcare.com/de-de/1%C3%B6sungen/zentralapotheken> [29.03.2020]

## Illustration 1: Disposal logistics.<sup>21</sup>

With the help of disposal logistics, the manufacturer should solve the problems of avoiding, reducing and recycling waste. For a production company, responsibility refers to the entire life cycle of a product. This recycling management should help the consumer to minimize the consumption of resources or enable the product to be recycled as a secondary raw material.<sup>22</sup>

Disposal logistics therefore helps to avoid waste, dispose of medicines professionally and protect the environment.

## Conclusion

As has been shown so far, logistics is complex on the one hand, but on the other hand it is also important in order to be able to supply health care facilities with the necessary drugs. However, in order to be able to supply them, all processes in the pharmacy as well as those of drug manufacturers and suppliers must be taken into account. Because if medicines are missing due to incorrect storage or unit invoicing, health care facilities must also wait for deliveries, some of which are vital, or even switch to other products. It is therefore evident that logistics only works if all areas of this are taken into account. Automated processes can help to avoid errors and thus save lives.

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<sup>18</sup> Quelle: Compiled afterh Arnold et al., 2008, p.487

<sup>19</sup> Vgl. Arnold et al., 2008, p.488

<sup>20</sup> Vgl. Arnold et al., 2008, p.487

<sup>21</sup> Quelle: Compiled afterh Arnold et al., 2008, p.487

<sup>22</sup> Vgl. Arnold et al., 2008, p.488

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