

Digital Health

Spring 2025

UNIVERSIDAD POLITÉCNICA DE MADRID



Health Around the World

Agenda

- Questions from last week?
- Icebreaker: What country would you like to visit?
- Today's learning objective: Discipline literacy; critical analysis skills; applied and integrative learning; ethical reasoning, and global or civic engagement
- Survey questions about health around the world (2 videos)
- Review articles
- Global Health video and discussion
- Complete comparative analysis
- Complete ideal health system worksheet
- Summary and next session

Surveys

- What does "health" mean to an entire country?
- Why is it difficult to compare health metrics among countries?
- Answer the following questions based on factors that contribute to overall health (clean water, tobacco use, blood pressure, obesity, life expectancy, infant mortality)

Survey Question 1



- What countries have the healthiest populations overall?
- Name the top three (3)

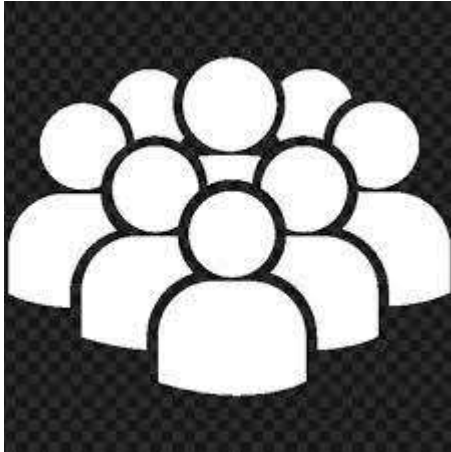
The top 3 healthy countries (survey dependent)...

- Spain, Portugal, Switzerland (Money UK Index, 2021)
- Spain, Italy, Iceland (Bloomberg Global Health Index, 2023)
- Iceland, Japan, Switzerland (2021 Global Health Security Index)
- Singapore, Japan, South Korea (Statista 2023)



Survey

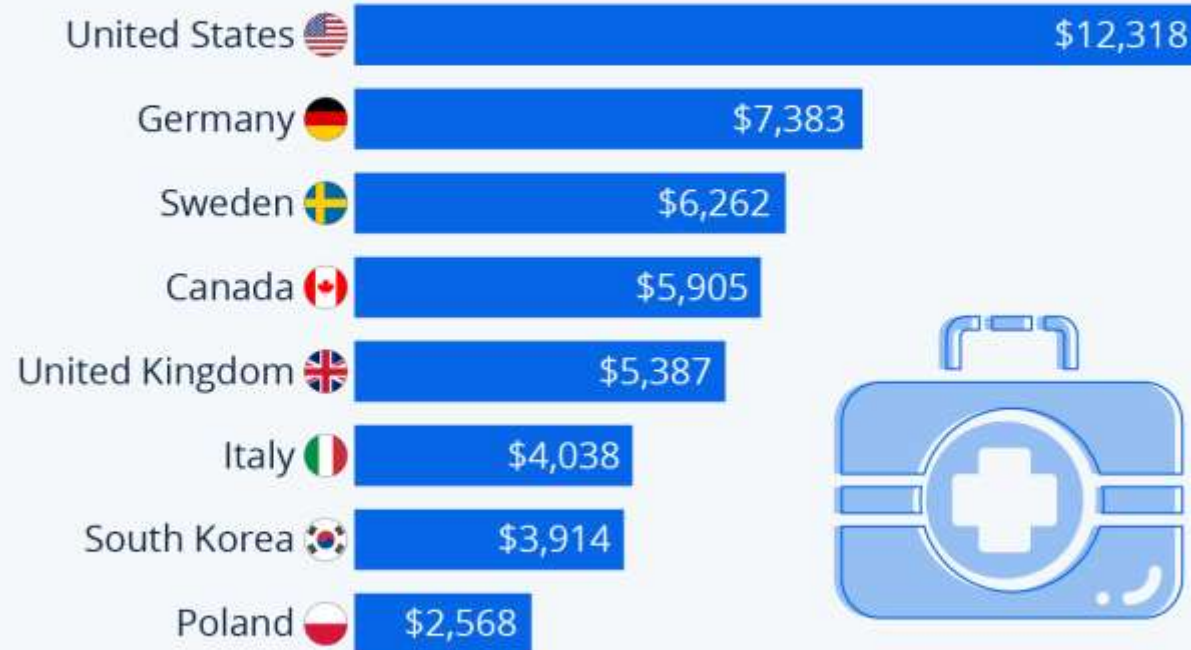
Question 2



- What country spends the most per capita on healthcare?
- Name the top three countries.

The U.S. Has the Most Expensive Healthcare in the World

Per-capita health expenditure in selected countries in 2021



Includes government and private/compulsory and voluntary spending

Source: OECD

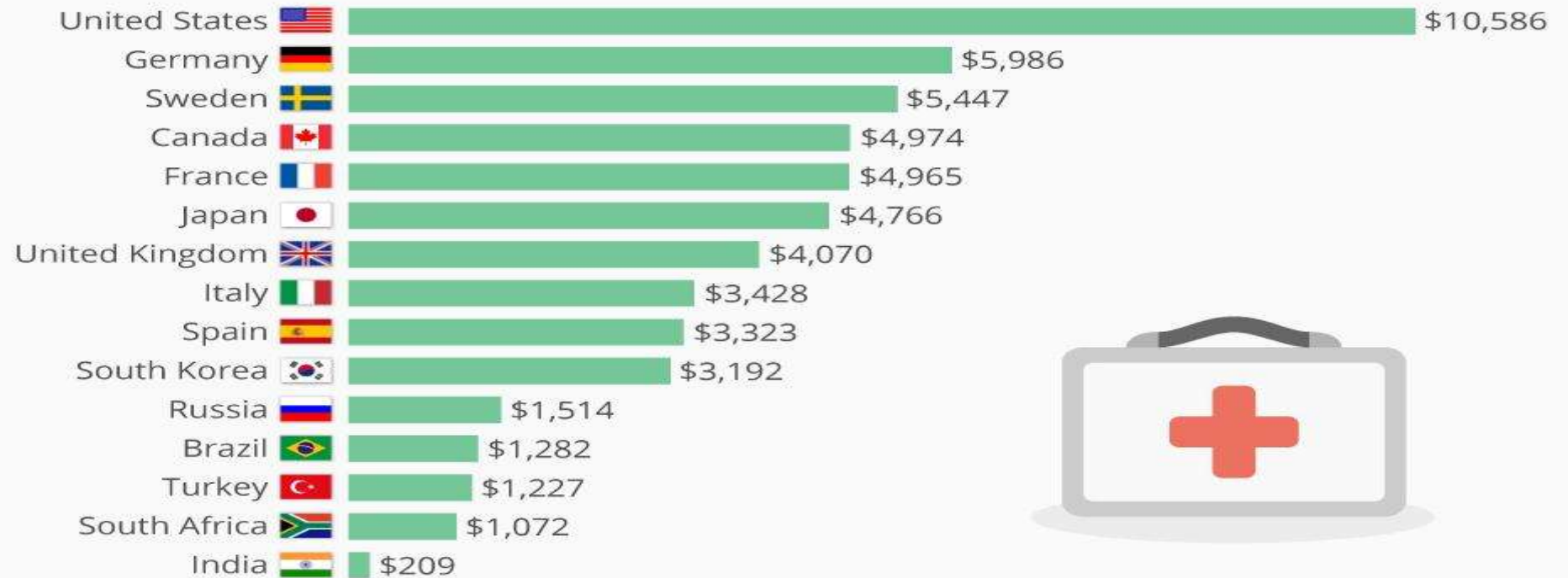


statista

Spending the most
per capita

The U.S. Has The Most Expensive Healthcare System

Per capita health expenditure in selected countries in 2018



Not sure, why Switzerland was not mentioned in this chart, but Switzerland spends \$8009 per person (and is in 2nd place).

<https://www.healthsystemtracker.org/chart-collection/health-spending-u-s-compare-countries/#item-average-wealthy-countries-spend-half-much-per-person-health-u-s-spends>

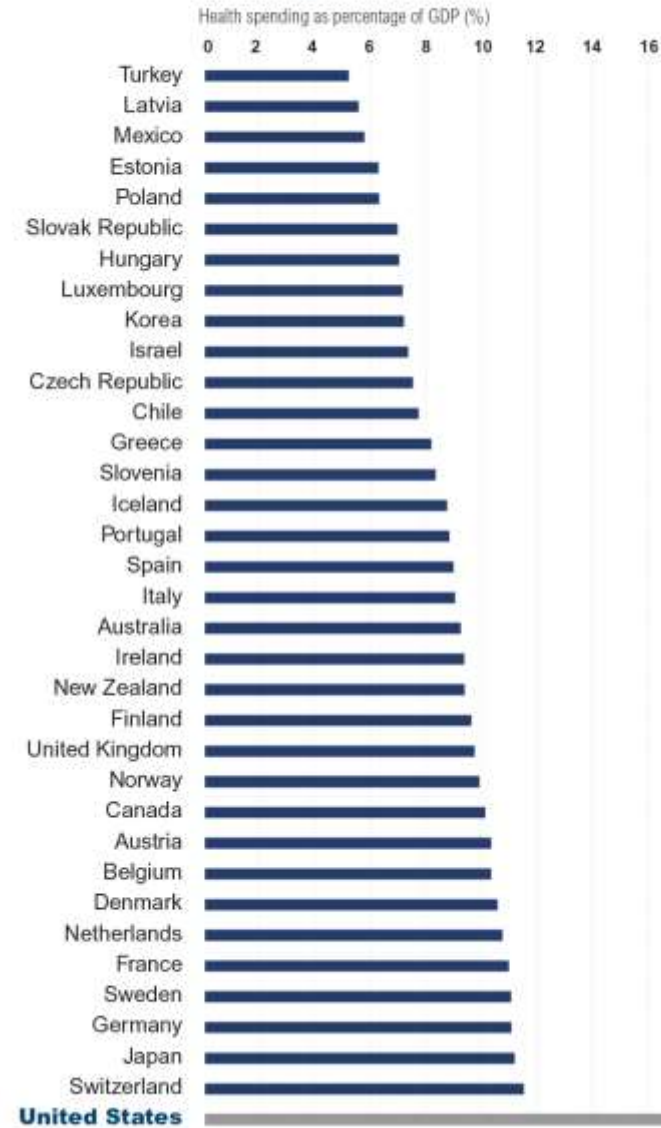
Survey Question 3

- What country spends the most on health care as a percentage of Gross Domestic Product (GDP)?

Healthcare as a percent of GDP

- **2022** Top 3 countries spending on health as a portion of GDP:
 - **United States** (17.3%), followed by **Germany** (12.7%) and **France** (12.1%) according to the database OECD Health Statistics 2023.
- https://en.m.wikipedia.org/wiki/File:Health_spending_by_country._Percent_of_GDP_%28Gross_domestic_product%29.png
- <https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS>

FIGURE 15
Health Expenditures Among OECD Countries, 2015



All other OECD countries with health expenditures more than 10% of GDP have a lower infant mortality rate and a higher life expectancy than the United States.

2015 Data:
Impact of Covid

Data Source: Organisation for Economic Co-operation and Development, OECD.stat. 2015 estimates. http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_STAT#
Accessed: November 10, 2016.

Drivers of health care expenditures worldwide

- Aging population and living longer
- Increasing living standards result in more use
- Price increases, inflation, supply chain shortages
- New medical technology
- Lifestyle – addictions, obesity
- High cost prescription drugs



Survey Question 4

- What country has the longest life expectancy?



Longest life expectancy by country 2023 (years)

• Monaco	Men: 84	Women: 89
• Hong Kong	Men: 83	Women: 88.6
• Macau	Men: 82.8	Women: 88.1
• Japan	Men: 81.9	Women: 87.9
• Spain	Men: 81	Women: 86
• United States	Men: 77.4	Women: 82.3

Nigeria had
the lowest
life
expectancy
at 54 years

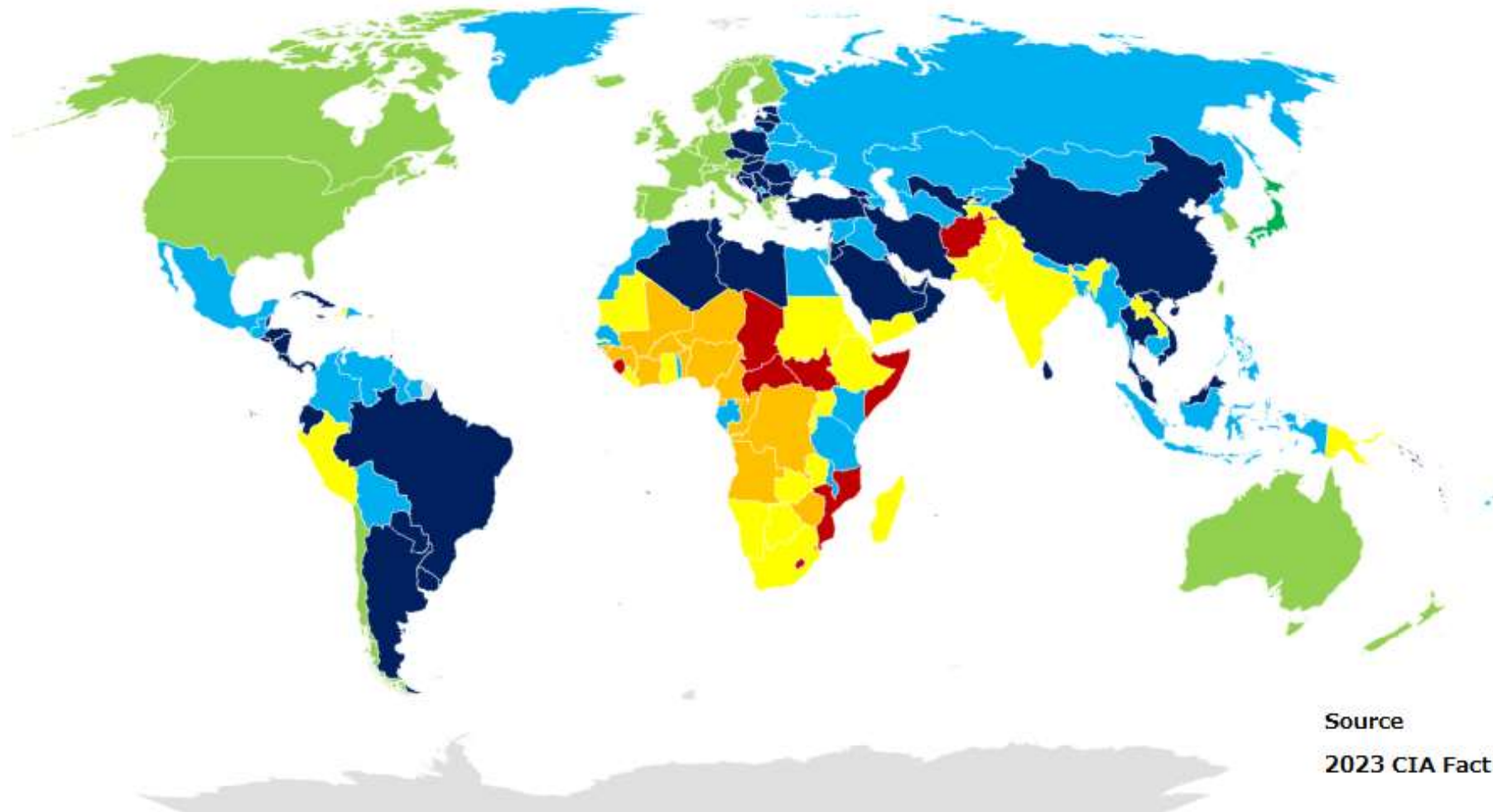
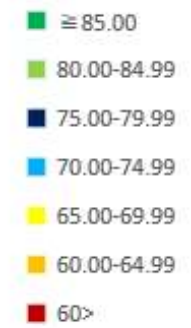
- <https://worldpopulationreview.com/country-rankings/life-expectancy-by-country>

Longest life expectancy (men and women)

Life expectancy at birth by country, 2020

COUNTRY/REGION	AVERAGE LIFE EXPECTANCY AT BIRTH
Japan	85
Australia	83
United Kingdom	81
European Union	80
United States	77

Life expectancy at birth in World (Both sexes)

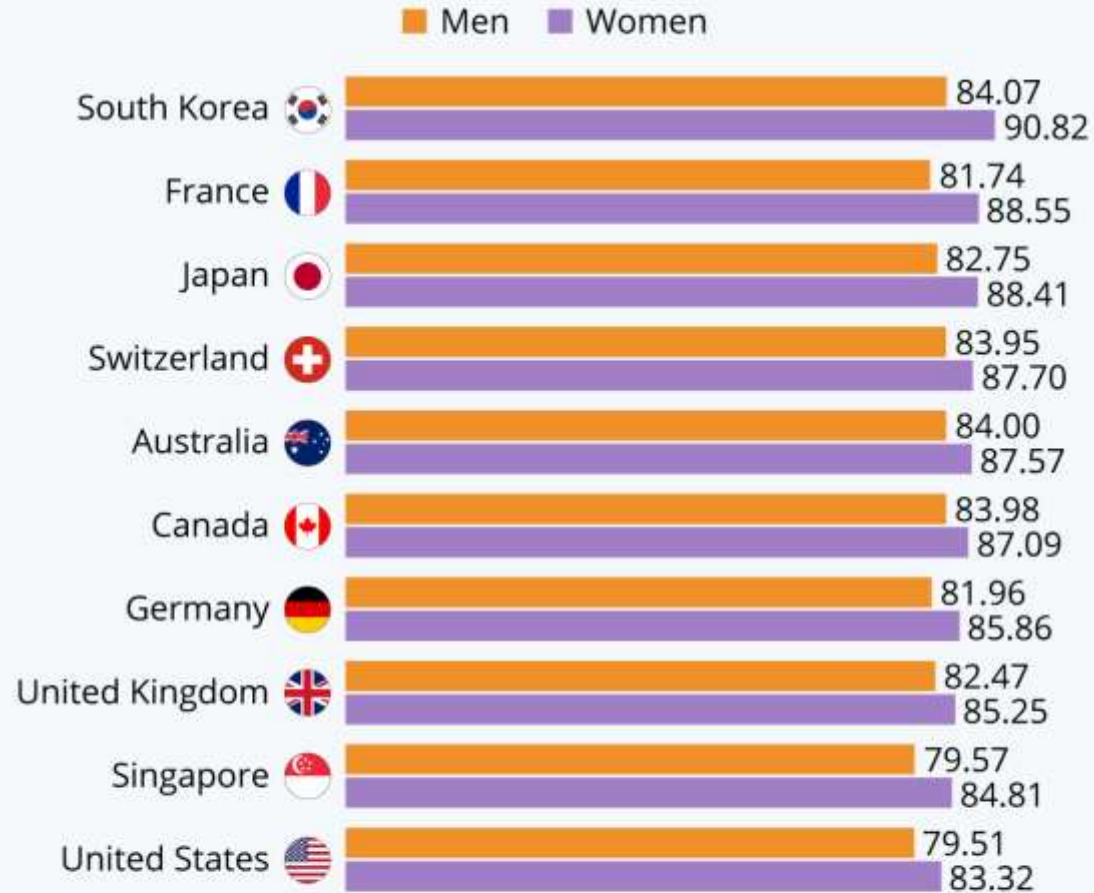


Source

2023 CIA Fact Book

U.S. Will Trail Other Rich Nations In Life Expectancy By 2030

Average life expectancy at birth in selected rich nations by 2030 (in years)



Source: Imperial College London/World Health Organization

Survey Question 5

- Which country has the lowest and which country the highest infant mortality (2023)?

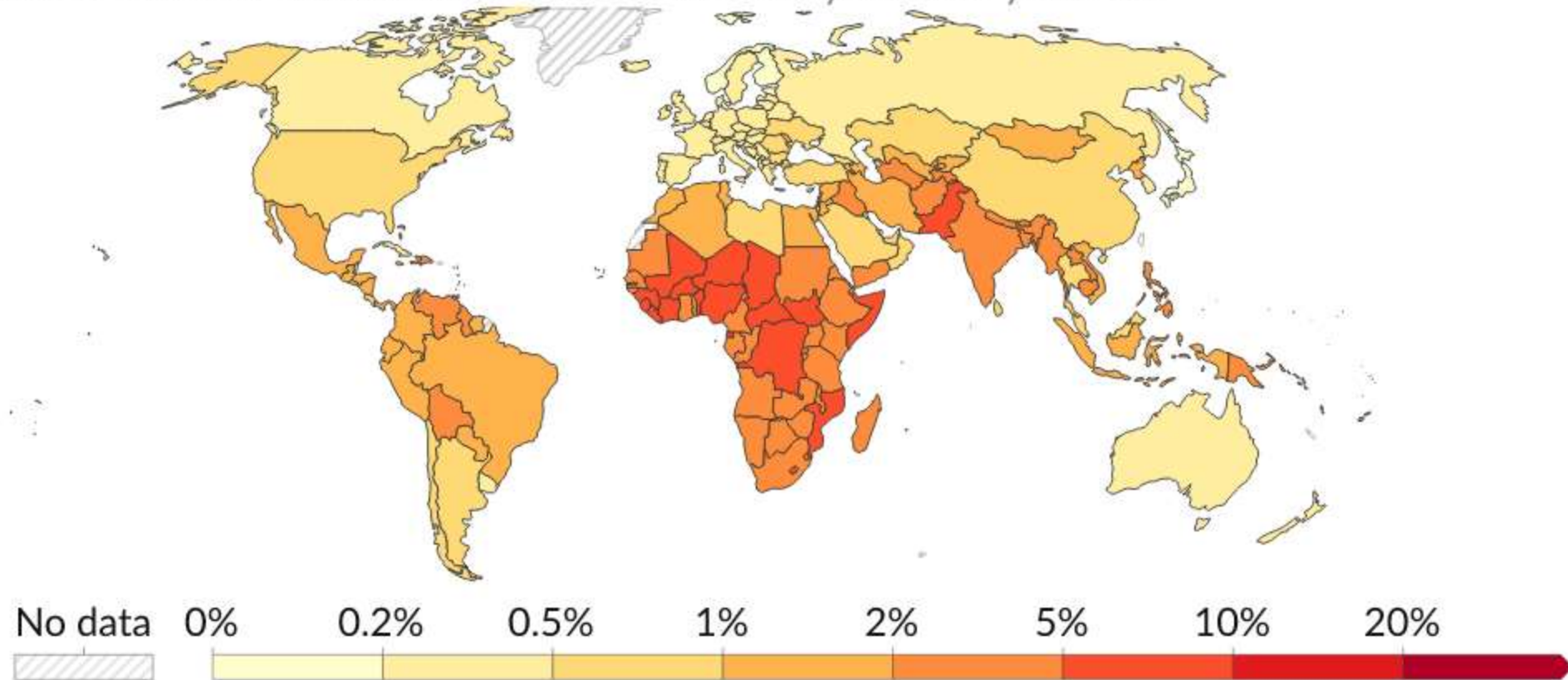


Which country has the lowest and which country the highest infant mortality (number of deaths per live births) (2023)?

- Lowest (best): Iceland (1.5/1000), San Marino (1.6), Estonia (1.7), Japan (1.8)
- Highest (worst): Afghanistan (103/1000), Somalia (85), Central African Republic (81)
- Spain: 2.0/1000
- United States: 5.6/1000
- <https://www.cia.gov/the-world-factbook/field/infant-mortality-rate/country-comparison/>

Infant mortality rate, 2021

The estimated share of newborns who die before they are one year old.



Data source: UN Inter-agency Group for Child Mortality Estimation (2023)

OurWorldInData.org/child-mortality | CC BY

Survey Question 6

- Which country has the most efficient health care system?
 - In other words, where are people the healthiest at the least cost?

Which country
has the most
efficient
healthcare
system
(survey dependent)?

- Hong Kong and Singapore
- Watch: Best Healthcare Systems in the World
- <https://www.youtube.com/watch?v=Uml1jxQDuFk> (8 minutes)
- What surprised you?
- Other surveys: Norway, the Netherlands, and Australia. (Commonwealth Fund)

Efficiency Score

- Less than 20
- 20 - 40
- 40 - 60
- 60 - 80
- More than 80
- N/A

Huffington Post

Global Health Worksheets...

- Complete country comparative analysis
 - (DigitalHealthCountryComparison2024)
- Comparisons, interesting facts, surprises?



• Review articles – Discussion questions

Report on wealthy nations

<https://www.commonwealthfund.org/publications/issue-briefs/2023/jan/us-health-care-global-perspective-2022>

Report on developing nations

WHO Report on developing nations

<https://www.who.int/news-room/spotlight/global-health-achievements-2023>

Review Commonwealth Country Report

<https://www.commonwealthfund.org/international-health-policy-center/system-profiles>

- Why is the U.S. an outlier when it comes to healthcare spending?
- Should the U.S. offer universal health coverage? Why or why not?
- Should health be measured differently in developing nations?
- What are some of the accomplishments of developing nations in terms of population health?

Global Health – Video and Discussion

America vs the world. (56 min)

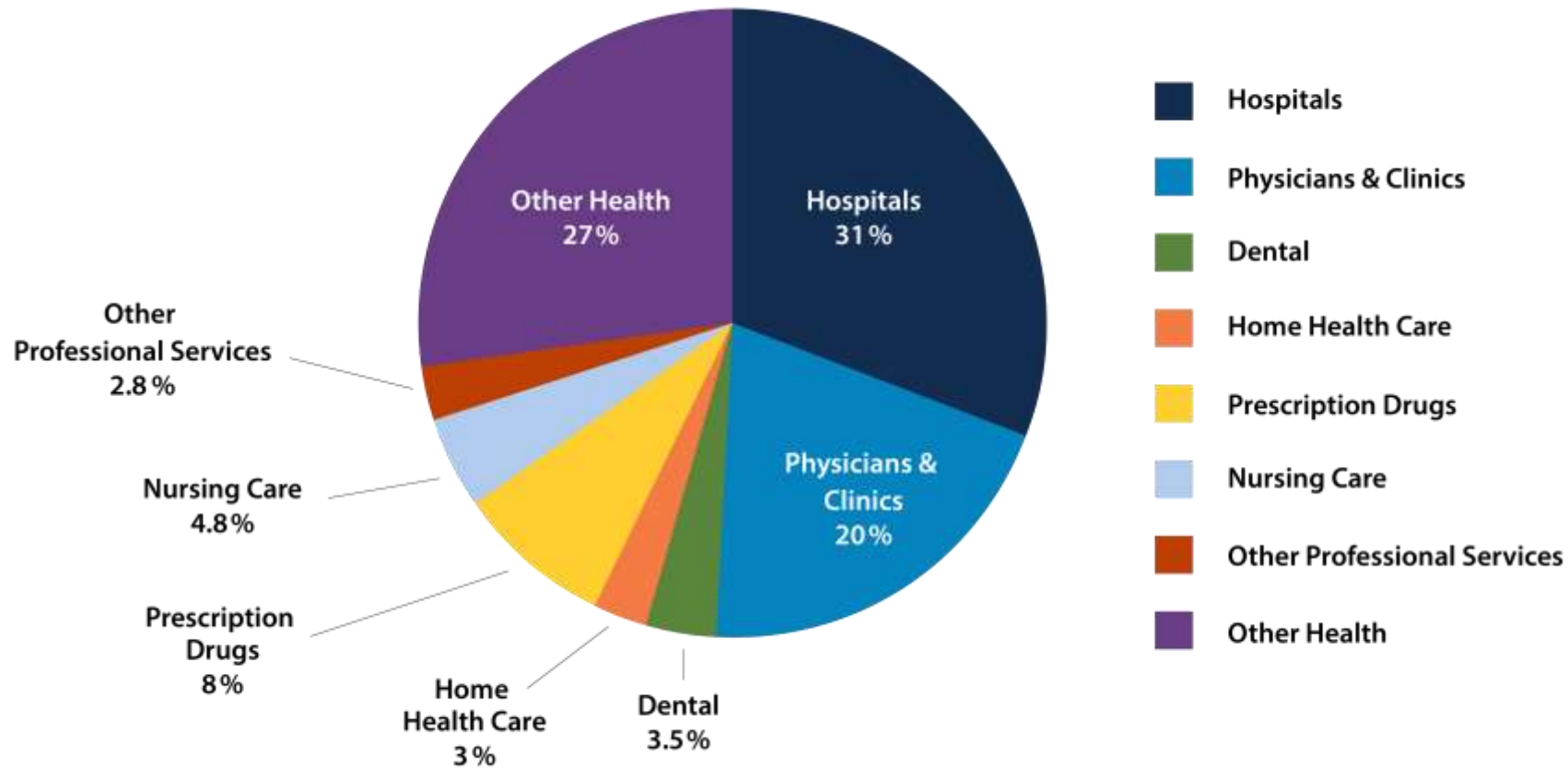
https://www.youtube.com/watch?v=2tx_48iYkXo

[Health care: America vs. the World](#)

- What works well in some health systems around the world?
- How do countries balance the hopes and needs of patients, the capacity of doctors and clinics/hospitals and the costs of treatment?
- Why and how are some countries willing to make changes in their health systems?
- Should the rich pay for the poor when it comes to health care?
- What are various ways that countries pay for their healthcare systems?

Health expenditures in the U.S., 2020

<https://www.nlm.nih.gov/oet/ed/stats/01-400.html>





- Why is health care so expensive in the United States?
- Why does the U.S. pay more for health care than the rest of the world?

Why is healthcare so expensive in the United States?

- **While you watch this video, think about how costs can be reduced.**
- Why U.S. healthcare spending is getting more expensive?
 - (CNN, 2022, 11 minutes)
- https://www.google.com/search?sca_esv=39a203f7e53a9de7&sca_upv=1&rlz=1C1JZAP_enUS848US849&sxsrf=ACQVn0_mc4fVsJOZ2vMF7CKOGUQU3U9BEw:1714449600401&q=why+is+healthcare+so+expensive+in+the+U.S.+2023&tbm=vid&source=Inms&prmd=nivsbmtz&sa=X&ved=2ahUKEwja7Kq7humFAxWftokEHQ0PBMoQ0pQJegQIDRAB&biw=1280&bih=585&dpr=3#fpstate=ive&vld=cid:e75b2814,vid:QRihG16iSug,st:0
- [why is healthcare so expensive in the U.S. 2023 - Google Search](#)
- Review graphs about rising costs in the U.S.
- <https://www.pgpf.org/blog/2024/01/why-are-americans-paying-more-for-healthcare>

Why is it so difficult to fix healthcare systems?



It is complicated!

Why is it so difficult to fix healthcare systems?

- No perfect solution, financing, economics, regulations, politics, public resistance, courage of leaders, life/death issues, risk aversion, privacy and in the U.S. the threat of lawsuits.
- What are the negative consequences of so much of the GDP being allocated to health care?
 - The more GDP spent on health care, the less money a country has for education, innovation, infrastructure, transportation, defense and so on.

Health care definitions

- **Universal health care** - a system that provides quality medical services to all citizens. The federal government offers it to everyone regardless of their ability to pay usually funded by general income taxes or payroll taxes.
 - For example, Australia, Canada, Finland, France, Germany, Hungary, Iceland, Ireland, Israel, the Netherlands, New Zealand, Norway, Portugal, the Slovak Republic, Slovenia, Sweden, Switzerland, and the United Kingdom
 - Socialized medicine - a term used in the United States to describe and discuss systems of universal health care: medical and hospital care for all by means of government regulation of health care and subsidies derived from taxation. For example, Canada
- **Single payer** - a type of universal healthcare financed by taxes that covers the costs of essential healthcare for all residents, with costs covered by a single public system.
 - For example, UK services are government-owned and service providers are government employees
- **Multi payer** - multiple entities (e.g., insurance companies) to collect and pay for those services.
 - For example, Switzerland and Germany
- **Private (for-profit) versus public (government sponsored) health**
- **“Medicare for all”** – term in the U.S. meaning universal health coverage for all, like that granted to seniors currently

Global Health Worksheets

- Complete ideal health system thoughts

- (DigHealthWorldsBestSystemDQ)
- Use this to complete your homework essay



- Summary/Things to Know:

- Differences/similarities in health systems among countries
- Health care system definitions
- How the health ecosystem impacts the delivery of digital technologies

Next session: Ecosystem of Digital Health

Homework:

Write a 2 page essay on the health system you admire most and why (no research, simply a reflection).

Topic: The best health system in the world.

Homework: Listen to video at the World Economic Forum web site

(8 minutes)

[World Health Day: 8 trends shaping global healthcare | World Economic Forum](#)