



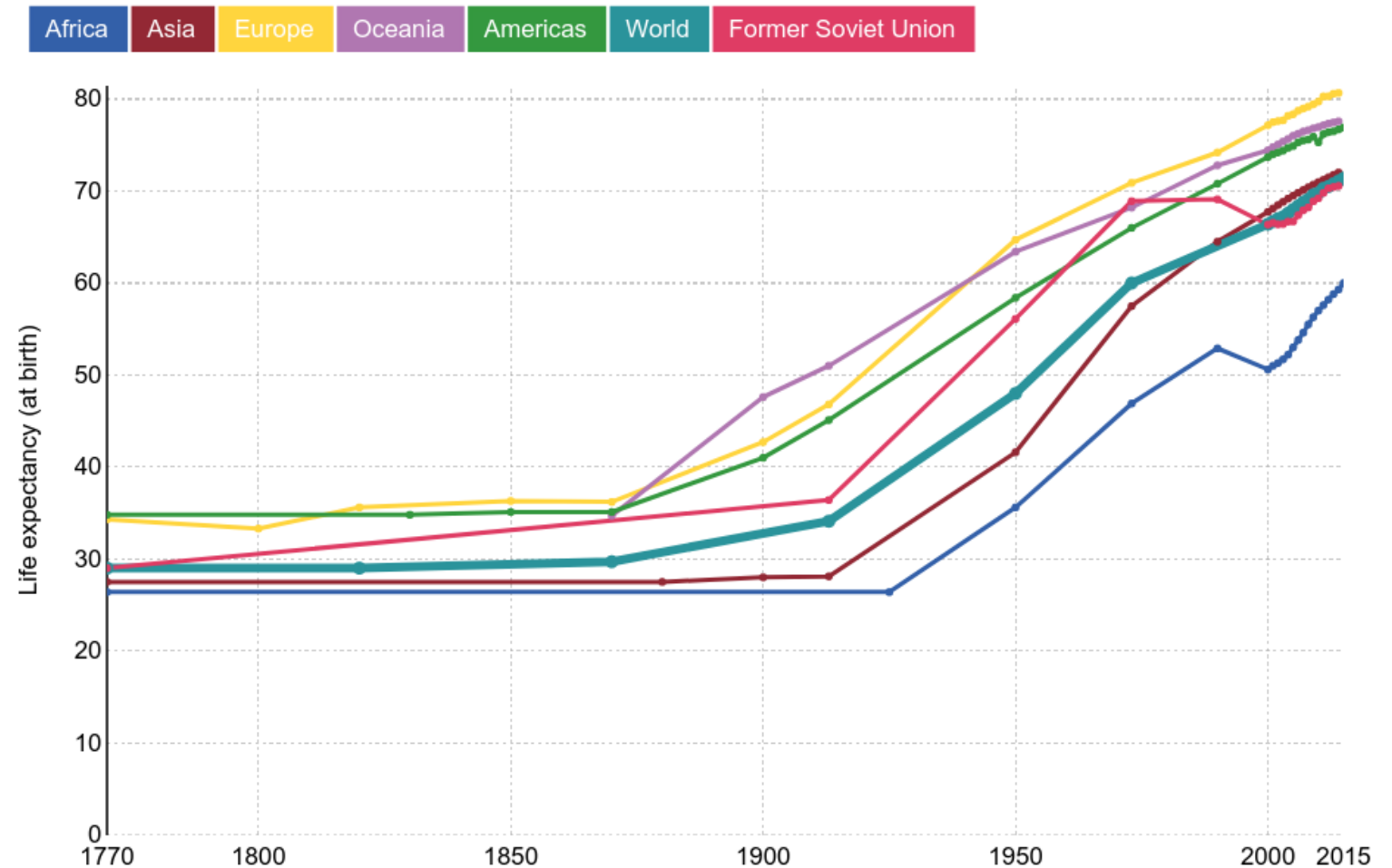
Exercise: ethics in drug discovery

4/21/22

Impact of modern inventions on life expectancy

- From 1900 to 2015, global life expectancy more than doubled

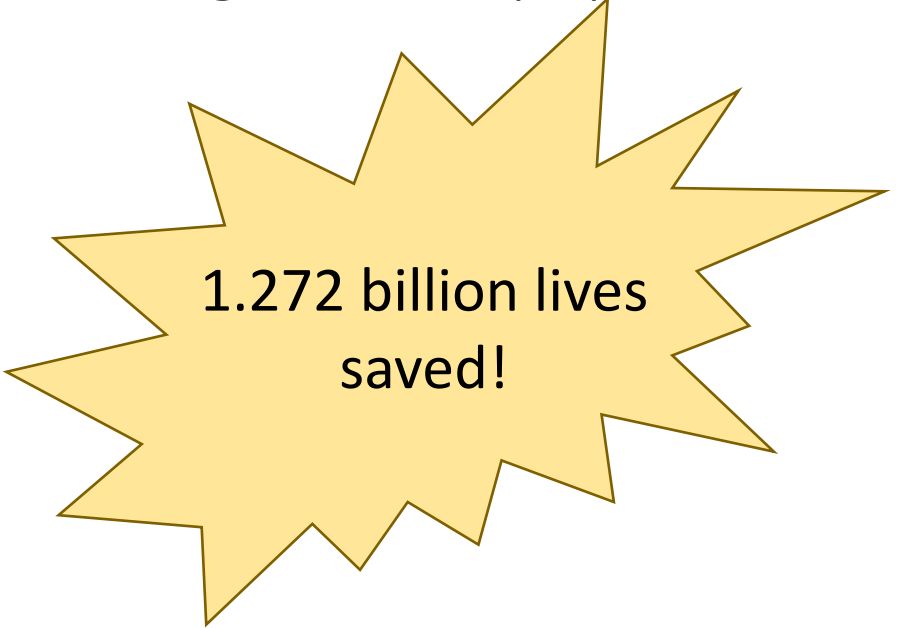
Life expectancy globally and by world regions since 1770



Source: Life expectancy – James Riley for data 1990 and earlier; WHO and World Bank for later data (by Max Roser) OurWorldInData.org/life-expectancy/ • CC BY-SA

What are the important breakthroughs?

- Many of the credited innovations within the drug discovery space
 - Insulin, 15 million lives saved
 - Antibiotics, 200 million lives saved
 - Antimalarial drugs, 50 million lives saved
 - Aspirin therapy, 1 million lives saved
 - Vaccines, 1 billion lives saved
 - Rational drug design, 6 million lives saved
- Other innovations are in areas: energy, sanitation, and agriculture



**1.272 billion lives
saved!**

Are there any downsides to drug discovery?

Work in groups of 4-5 to review materials related to the following topics:

1. What diseases are targeted?
2. How are diseases treated?
3. How are treatments developed?
4. How are treatments shared?
5. How can treatments be harmful?



<https://docs.google.com/document/d/1PicH16ekli95QCpimX0CFTThIwnHBT7CGlypbaG59-ZE/edit?usp=sharing>

Guidelines for a safe discussion



- Listen respectfully and actively
- Avoid judgment and criticism of people, including people outside of the room
- Any thoughtful answer is a good answer
- When sharing thoughts, use any ideas, sources, or evidence to support your opinions
- Take the message out of the classroom, not the messenger
- Respect the opinions and confidentiality of your peers!!

In groups, answer the following questions for your topic:

- Who are the stakeholders? What are the needs / wants of each stakeholder?
- What is success for each stakeholder? Failure?
- What does each stakeholder have to gain / lose from success? Failure?
- What are the possible ethical issues raised by the gains / losses?