

[MUSIC PLAYING]

**ANNA MIA  
EKSTROM:**

So now when you know what the situation looks like on a larger scale, how to describe the health of population using health indicators, you might ask yourself, well, what determines our health? Why does life expectancy differ so much from country to country, or even from one group to another in the same country?

Well, there's no easy answer to these questions, obviously. There are many factors that play a part in determining the well-being of the population, or even of an individual. In global health, we call these factors determinants of health. Determinants of health interact with each other, and influence our health status in numerous ways, in turn influencing our well-being, morbidity, and mortality, and life expectancy.

As you already know, the first and most important health determinant is income. But how does income determine health? Well, let's use a girl called Anna as our example. She could live anywhere, Brazil, Indonesia, Zambia, Lebanon, Latvia, wherever. Let's take a look at what determines her health. Anna is 15 years old and nearsighted. She also suffers from asthma. There are many things that could affect her health.

First of all, in global health we look at the level of income. So how much money does Anna have? Well, Anna is fortunate. Both of her parents are alive. But are they both working? Does Anna also need to work in order to supplement the family income? Can Anna's parents, for example, afford the asthma drugs and glasses she needs out of pocket? Or, will the government pay for Anna's glasses and asthma drugs? At a societal level, the financial capacity and commitment of the government in Anna's country-- their commitment to invest and prioritize also the poor when planning health policy-- will determine whether and to what extent Anna and other people can access or attain some of the basic determinants of health. Let's take a look at what those may be.

Education is one of the factors that will have a big impact on Anna's health. Does she go to school? Can she read and write? Did her parents go to school? And how does she do in school if her eyesight is bad and she can't afford glasses? Education is necessary to understand what may be harmful to our health and how we can protect ourselves and our children. Look at this Gapminder graph Can you see what happens here? When young

women like Anna know how to read and write, the likelihood that their future children will survive increases substantially. Because parents who can read and write are more likely to understand why they need to have their children immunized. And, if people critically can interpret information about why to avoid, for example, smoking, and how to prevent unwanted pregnancies, it empowers them to choose healthier lifestyles, and control their own lives.

So, we've looked at Anna's level of income, and her level of education. But what about her diet? Did she get all the necessary proteins, the vitamins as a child growing up? Healthy diets are closely related to higher education and income. The United Nations estimates that about 800 million out of the 7 billion people in the world, or 11% of the world's population, are suffering from chronic undernourishment.

If Anna had been undernourished as a child, her immune system might have been weaker, making her more susceptible to infections. Her brain development could also have been impaired. At the same time, the number of people who eat too much has risen. And 2.1 billion, or almost 30% of the world's population, is currently classified as obese. If Anna had been obese instead, she would have been at higher risk of suffering from diabetes, hypertension, cancer, or even infertility. You will learn more about this in the video on nutrition and growth.

What about Anna's access to clean water. Does her family have running water at home, or do they need to go to a well to fetch it? Having access to clean water will have a huge impact on Anna's health. When Anna was small, she did not have access to clean water and often suffered from diarrhea. But her parents did give her oral rehydration therapy, and Anna survived. This intervention keeps millions of children alive. Anna is also lucky because she has access to a latrine. This means she and her family can avoid defecating getting outdoors, and therefore prevent fecal-oral transmission of bacteria and parasites. So by building toilets, and improving access to safe drinking water, we can save millions of lives. You will hear more about this in the lecture WASH, water, sanitation, and hygiene.

Anna lives in a poor area in a big city. Traffic is heavy, and there's no school bus. So she has to walk to school every day. Unfortunately, the pollution from the cars and trucks makes her asthma worse. We have more and more come to understand how we as humans interact and influence our environment. And more recently, also how we can affect the climate to exacerbate climate change. The full extent of climate change may be hard to foresee, but we are already experience more dramatic weather, for example. The projected sea level rise, coastal erosion, and more hurricanes could flood the residence of many millions of people

living in low lying areas. This in turn, could lead to massive migration in some of the most populated countries, for example, in Asia.

Droughts and heavier rains may influence harvests and cause food shortages, making food more expensive for Anna and her family. As Anna grows up and moves away from home, she will have to make important choices. Hopefully, she'll eat healthy food, avoid smoking, and drinking too much alcohol. But will she continue to exercise regularly? And will she be able to choose a good partner? All these choices will greatly affect her health in future. Some of these choices will become habits, and we all know that habits are difficult to change. But, behavioral change interventions have become very important for public health promotion worldwide.

Smoking, for example, is one of the strongest man-made determinants of illness and premature death, and a very strong habit that is hard to change. Excessive alcohol drinking does not only cause liver damage, but also increases other risk behavior such as traffic accidents, unwanted sex, and violence. Excessive alcohol drinking is an important risk determinant for men, in particular. Physical activity has a strong relationship with education. And the opportunity to exercise is sometimes a luxury for those with time and money. If children are more physically active, we can reduce the future burden of obesity, diabetes, cardiovascular disease, cancer, depression, and even dementia. This would improve health worldwide and save millions of lives.

If Anna's asthma all of the sudden gets worse, or she becomes very sick, access to health services would be very important for her to regain her health. Even if there is a health clinic nearby, will there be any trained staff to help her? And will they have the tools they need to give her a correct diagnosis? And even so, if she is diagnosed correctly, will there be any antibiotics available in case she's diagnosed with pneumonia?

Such access and quality of care is unevenly distributed in the world. And you will hear more about this in the video on health systems, later. Access to services also depends on education. On average, girls in the world go to school for seven years, while boys do eight years in school, on average. Anna was fortunate, and she managed to finish school. She wasn't taken out of school early due to poverty or pregnancy. But for many girls, this isn't the case.

Although 9 out of 10 girls in the world get to go to school nowadays, girls and women continue to have lower access to education, they have lower incomes, lower decision making power, and also face the risk of pregnancy related illness, and injuries that are preventable. Women

are also much higher risk of domestic violence than their male counterparts. On the other hand, boys and men are at much higher risk of other types of violence. Masculinity norms put young men at higher risk of smoking, alcohol drinking, drug use, and traffic related injury. Once men are sick, they also tend to seek health services later. So, applying a gender perspective when we design health services and when we interpret health data, is key for designing appropriate and effective preventive interventions in the future.

Anna is fortunate to belong to an ethnic majority. Ethnicity, religion, and gender norms greatly influence people's opportunities and ability to make choices about their work, education, and relationships. Anna's neighborhood is not only poor and crowded, it's also violent and not safe after dark. That means young women like Anna are at higher risk of, for example, sexual assault at night. Unprotected, as well as unwanted sex, is another major cause of ill health and psychological harm. It can lead to unwanted pregnancies, unsafe abortions, sexually transmitted infections, including HIV, and in the worst case scenario, maternal death. Ensuring that all people receive information about their sexual health and rights in school-- so-called universal sexual education-- should be a key priority regardless of culture and religion.

You have just learned about some of the factors that determine health. In different countries and contexts, some determinants are extremely important, while in others they might be less relevant. For example, excessive alcohol drinking in countries where alcohol drinking is forbidden, is less of a problem, obviously, or obesity in areas where people are still undernourished. However, the world and our behaviors are changing faster than ever before. Migration, travel, and the internet makes us all truly interdependent. This should be seen as a window of opportunity to speed up development, avoid repeating old mistakes, and to learn from history and each other.