Youth Perceptions of **Childhood Pneumonia**

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You must not tolerate so very well,
The injustice which does not affect yourself.

These lines, though written by Arnulf Øverland [1] in a different context, carry a meaning that resonates with the current global pneumonia situation. Today, more than 800,000 children under the age of 5 die every year from pneumonia, yet very few are aware of the fact that pneumonia is the world's leading infectious killer of children. Furthermore, the efforts to combat the disease are insufficient, both at the national and international level. We, the youth, want to make our voice heard, for we will inherent the failures or successes of the current generation in power. Based on a survey taken by more than 300 youths, with an average age of 22, we will present what the youth thinks about pneumonia. We will also discuss long-term economic and environmental considerations which are particularly important to us.

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The survey

The survey had two parts, the first sought to find out what the youth knows about pneumonia and its prevalence globally. After the respondents had been presented with the basic facts about the disease and its prevalence, the second part asked the respondents how they perceive the global situation and which policies they think are appropriate.

The results indicated that the youth in general do know what pneumonia is: 72% answered that they knew what pneumonia was and an even greater number recognized it as a lung infection. Asked what factor increase the chances of developing pneumonia, 59% selected the correct answer, namely air pollution, while 33% did not know, and the remaining 8% chose incorrect answers. We thus found that the youth has a general idea

75% of our respondents *thought that Meningitis, HIV/AIDS or Malaria* **were responsible for more children's deaths** *per year than pneumonia*

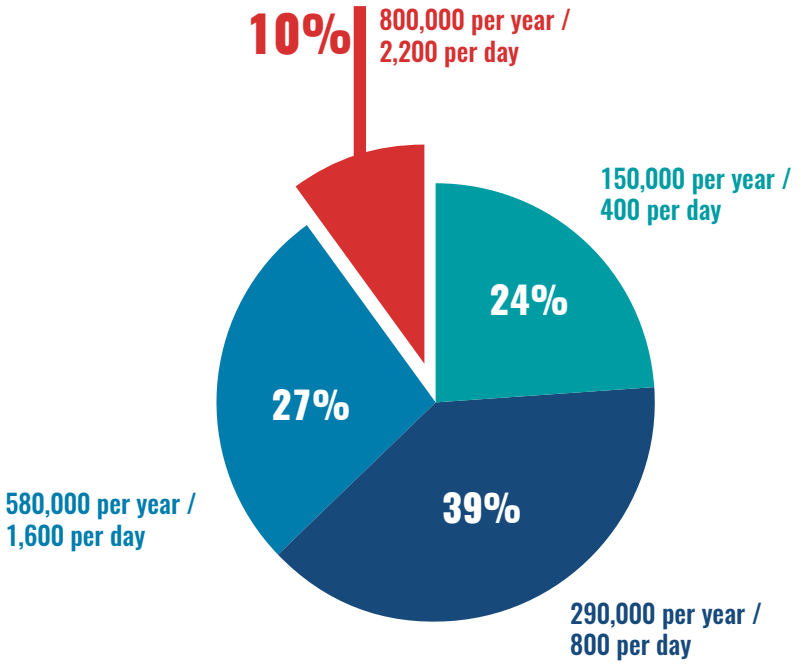
as to what pneumonia is. However, the youth knew much less about the extent of its spread and death toll.

Asked how many children under the age of 5 die every year and day from pneumonia, 90% selected incorrect answers. Only 10% knew or guessed the correct answer, that more than 800,000 die per year and more than 2,200 die per day.

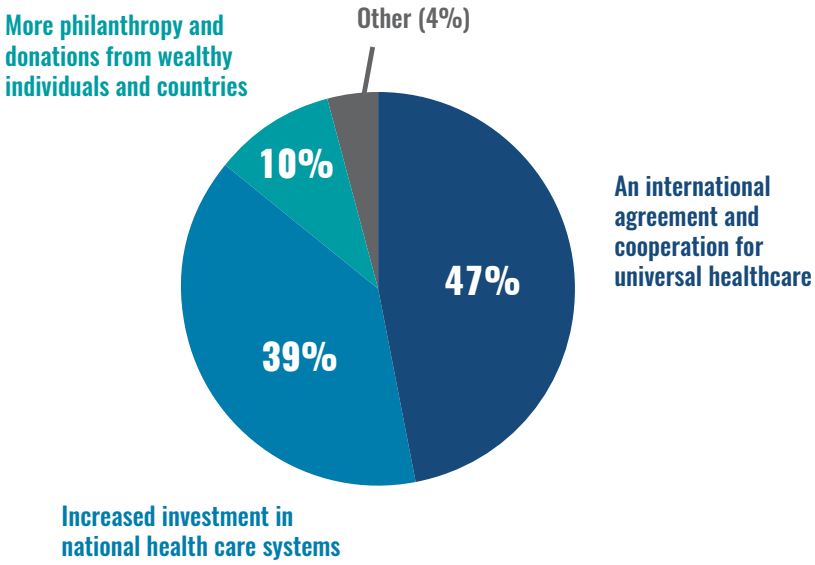
The lack of awareness about the global pneumonia situation was also starkly revealed by the fact that 75% of our respondents thought that Meningitis, HIV/AIDS or Malaria were responsible for more children's deaths per year than pneumonia. A whole 43% answered Malaria, while pneumonia is in fact responsible for more deaths among children than HIV/AIDS, measles, and malaria combined. The first part of the survey therefore indicated that the youth lacks awareness about pneumonia's prevalence and death toll and that there is a need to raise awareness globally.

In the second part, about the youth's perceptions of pneumonia, we found that 58% would characterize the current pneumonia situation as a humanitarian disaster, and 32% as a global crisis. It therefore calls for urgent action. Furthermore, most of our respondents thought that one of the main reasons for pneumonia remaining an unsolved problem is the lack of awareness. We therefore strongly support the forum and its effort to garner attention to the humanitarian disaster that is the current global pneumonia situation.

The Global Forum on Childhood Pneumonia 2020 is particularly apt to discuss childhood pneumonia as it brings together the most important actors: international organizations, government representatives, civil society and the private sector. Despite the important role played by civil society and the occasional contributions by the private sector, the youth thinks that



Only 10% *knew or guessed the correct answer, that* **more than 800,000 die per year and more than 2,200 die per day**



47% supported *an international agreement for* **universal healthcare** *and* **39% supported increased investment** *in national health care systems.*

national governments and international organizations have the most responsibility to solve the global pneumonia problem. We therefore support improving national health care systems, and see the main role of international organizations, civil society and the private sector as one complementing the national health systems.

This is not to say that the current pneumonia crisis can be solved by nations alone, for we strongly believe, and 91% of those taking the survey affirmed, that the global community as a whole has a responsibility to help cure and prevent diseases that may only, or disproportionately, affect certain countries. Furthermore, when asked what actions they thought would help us overcome diseases like pneumonia in the long run, 47% supported an international agreement and cooperation for universal healthcare. 39% supported increased investment in national health care systems, while only 10% chose more philanthropy and donations from wealthy individuals and countries as the main way forward.

None of these paths are mutually exclusive, to the contrary, they are mutually reinforcing. International cooperation towards achieving universal healthcare will help national governments provide for their populations, and increased investment in national health care systems will further the goal of universal healthcare. Donations and support from wealthy individuals and countries can help both processes. Only a comprehensive and cooperative strategy can achieve the Sustainable Development Goal (SDG) of ending preventable child deaths by 2030.

When given the chance to write themselves what they thought were important actions to be taken, many emphasized that high-burden countries cannot sustain the cost of effective healthcare systems, making the goal of universal healthcare a concern for the global community. Furthermore, the lack of awareness internationally was a principal concern for several respondents. As measures against this, many proposed international awareness campaigns, and some even argued that these campaigns should ultimately push for the right to free vaccinations. International accords for immunization programs in high-burden countries were also a recurring theme. Overall, the youth pushed for vaccines to be affordable and treatments to be readily available.

As short-term measures the establishment of healthcare stations and information points were proposed. These stations would serve to raise awareness and facilitate information to the population on the symptoms and dangers of pneumonia, as well as provide medical treatment to children and medical education to local doctors. To facilitate access, they should be established in areas where medical attention is not within reach for much of the population. Some of the youth also noted a need for the rebalancing of international economic relationships, which perpetuate inequalities and hinder the ability of high-burden countries to sustain their own health care systems.

We now turn to some economic and environmental considerations that are especially important to us, as they are not only important to solve the pneumonia crisis, but also have implications for related global problems.

The survey was answered by 366 people from 44 different countries.

Economic Considerations

Building on an important report by Médecins Sans Frontières, titled "The Right Shot"[2], we want to emphasize three aspects of the economic challenges to distributing vaccines to all children: prices, transparency and patents, all of which are interrelated.

Prices

We strongly support Gavi efforts and successes in lowering the vaccine prices for pneumonia and other diseases for the poorest countries of the world. However, as MSF report states,

[The] cost to fully immunise a child has nevertheless skyrocketed. Even at the lowest global prices, the introduction of the newest vaccines against pneumococcal and diarrhoeal diseases (pneumococcal conjugate and rotavirus vaccines, respectively), and against cervical cancer (human papillomavirus vaccine) has increased the cost of the full vaccines package 68-fold from 2001 to 2014, calling into question the sustainability of immunisation programmes after countries lose donor support.[3]

The increase in prices has also been very unequal, with countries paying different prices for the same vaccines. Gavi only supports countries whose gross national income (GNI) is less than a certain threshold (less than or equal to 1,580 USD), and once countries transition, Gavi support and preferencial prices are phased out over the course of five years. However, once the support period is over, the prices don't rise correspondingly to countries' increased GNI per capita, prices may increase manifold, depending on the deal the countries get with vaccine manufacturing corporations. As the report points out,

Of particularly serious concern is the impact of this drastic increase on most middle-income countries (MICs), which are benefitting neither from lower prices negotiated by organisations such as Gavi, nor from international donor support. Many children living in MICs are not benefitting from new, life-saving vaccines as a result of irrational and unaffordable pricing policies; some of these countries even have lower immunisation coverage rates than Gavi-eligible countries.[4]

Major pharmaceutical corporations argue that their tiered pricing policies, by which they give different prices to different countries based on certain criteria, improve access and affordability. However, there is little evidence of this, and MSF found that their prices tend rather to be fixed on the basis of what buyers are willing/able to pay, as opposed to the varying costs of production. The graph below shows that the prices offered

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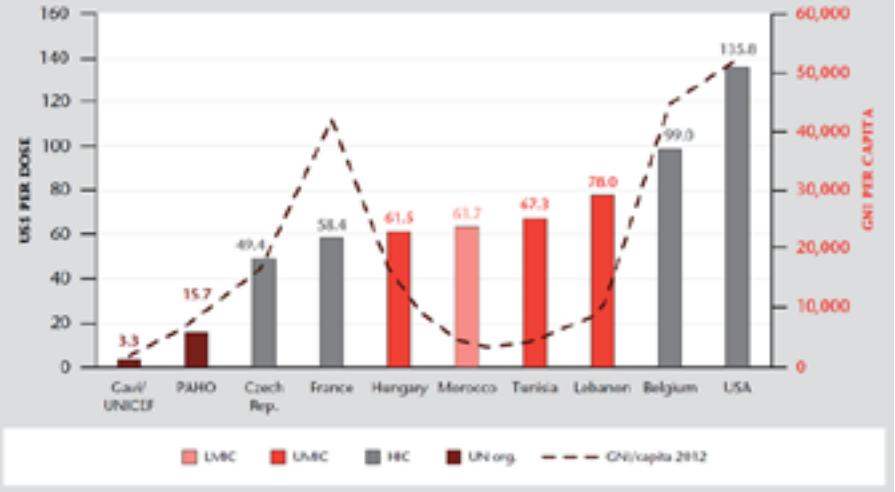
by Pfizer, who along with GSK receives the bulk of Gavi funds, does not correspond to the buying countries' purchasing power.

One of the main reasons for the price disparities is that most pharmaceutical companies insist on keeping prices and production costs virtually secret. This brings us to the issue of transparency.

Price secrecy is ubiquitous *in the vaccines market, putting countries and other purchasers* **at a distinct disadvantage when negotiating** *with companies.*

Médecins sans frontières

Graph 5: Pfizer's Pneumococcal Conjugate Vaccine (PCV13) price per dose for countries by GNI per capita, 2014

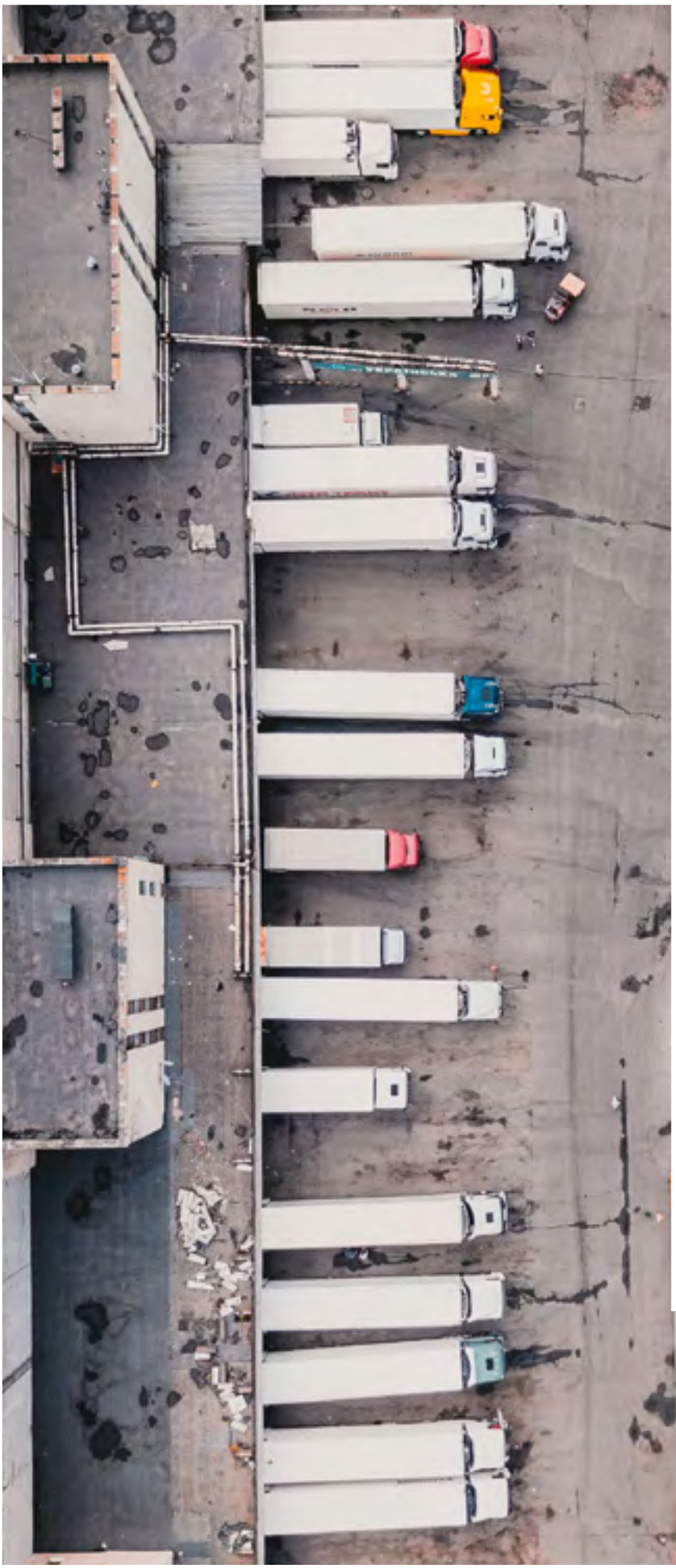


Transparency

In order to protect their profits, leading pharmaceutical companies such as GSK, Merck and Pfizer offer very little information about their prices. In that way they can adjust vaccines prices to different countries, and buying countries and organization are left in the dark as to what other countries have paid and what is a reasonable price. As MSF's report puts it:

An overarching challenge that MSF faces in analysing the vaccine market is the lack of data on prices and the notoriously opaque nature of the market; this lack of transparency also inhibits efforts to improve affordability. Price secrecy is ubiquitous in the vaccines market, putting countries and other purchasers at a distinct disadvantage when negotiating with companies.[5]

Indeed, many pharmaceutical companies "require vaccine purchasers to sign price confidentiality clauses that forbid disclosure of pricing information".[6] Some pharmaceutical companies even claim that their pricing strategies are necessary to keep them in the market, but given their substantial profits and the lack of price information, it is not a claim that can be taken at face value.[7] When lives are at stake, corporations' right to profits ought not to trump children's right to essential vaccines.



Patents

Another factor which contributes to the high vaccine prices is the lack of competition in the international vaccine market. Prices tend to decrease substantially the more manufacturers there are in the market. For example, UNICEF was able to purchase the pentavalent vaccine for Gavi-eligible low-income countries at a much lower price in 2012 than in 2001, as a result of an increase of suppliers.[8] However, there is little competition in the production of new and expensive vaccines such as the PCV, HPV and rotavirus vaccines. As the MSF report states, the vaccines mentioned above "have only two WHO-prequalified manufacturers, creating de facto duopolies for the manufacturing, distribution and pricing of these vaccines".[9]

One of the causes of the lack competition is the international patent regime, which favours early comers and is too generous towards leading pharmaceutical companies. As another MSF report on vaccine affordability states, "there are many different aspects of vaccines that are being patented, in many cases undeservingly so per national laws".[10] Patents are being put on everything from starting materials, such as chemical reagents, host cells etc., to the ways in which vaccines are administered, for example dose regimens and target age groups. Below is a short list of the different types of patents, showing the many ways in which corporations try to establish monopolies through patenting:

- **Starting materials**, this includes various "chemical reagents, host cells, vectors, and DNA and/or RNA sequences of various types". This is especially problematic, given that granting patents for certain DNA and/or RNA sequences allows corporations directly or indirectly to patent "products of nature". It not only makes it extremely hard for emerging manufacturers to compete, but it may also set a dangerous precedent for other attempts to patent products of nature.

- **Vaccine composition patents,** these patents attempt to cover the combination of the important components of the vaccine and additional materials, such as adjuvants, buffers and preservatives.[11]

- **Vaccine process technologies**, these patents "grant monopolies on the way a vaccine is manufactured".[12]

- **"Methods of use" patents**, these grant exclusive rights on the way a product is used. This may include "patents on various vial presentations, dose regimens, populations or age groups covered, other elements related to the presentation and packaging of the vaccine itself, or the use of the vaccine in people".[13] (our emphasis)

The last group of patents are also particularly problematic as they can make it difficult for health ministries and clinicians to treat their patients and immunize children effectively, without fear from infringing on patent rights.

A patent is, by almost any definition, the exclusive right to make, use or sell an invention during a given period. By granting patents on everything from DNA and/or RNA sequences to dose regimens and populations or age groups covered, the word "invention" has been creatively interpreted to benefit certain pharmaceutical corporations. Certain patents, therefore, "pose a threat to affordable vaccines by impeding, and possibly outright blocking price-lowering follow-on competition".[14]

In order to overcome all these economic challenges, we advocate increased transparency of both production costs and pricing strategies. We believe that improving the affordability of the pneumonia vaccine is crucial for governments and organizations to provide the necessary care to children, irrespective of their economic background. As we believe competition is essential to reduce vaccine prices, we also advocate much more restraint on the part of governments and relevant authorities in granting patents.

Improving the **affordability of the pneumonia vaccine is crucial** *for governments and organizations* **to provide the necessary care to children**, *irrespective of their economic background.*

Environmental Considerations

An important but overlooked threat to ensuring sustainable global health is the impact of climate change. Climate change particularly affects the spread of respiratory infections, worsening the incidences of childhood pneumonia globally. It increases the temperature variations, which can lead to heat stress, leading to higher pathogen infectivity.[15] For example, studies in Australia have shown an association between sharp temperature drops and incidence increase of childhood pneumonia. Further research has shown that in tropical and subtropical areas of Asia and Africa there are higher pneumonia mortality rates during the rainy seasons, demonstrating environmental effects on pneumonia's spread patterns.[16]

Alterations in the weather can lead to indoor crowding, lower relative humidity, seasonal variation in the human immune system, and more importantly, seasonal respiratory pathogens. All these contribute to pneumonia's seasonality and predicts its increased prevalence with climate change, especially among older adults and children, who are more vulnerable to daily temperature variations.[17]

By influencing dispersion of disease vectors, air pollution, weather-dependent nutrition industries, and climate-sensitive pathogens, climate change significantly hinders efforts to end childhood pneumonia. Therefore, policies aimed at eliminating childhood pneumonia also need to include a long-term perspective which takes climate change into consideration. Policies aimed at combating climate change which may now seem expensive, will in the long run prove cost-effective through preventing or mitigating the negative impact of climate change. As a WHO paper put it, "harnessing climate change actions for health benefits can play a transformative role in the climate debate – strengthening public and policymaker will for action".[18]

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Pollution

Nine out of ten people breathe air containing high levels of pollutants, and around 300 million children currently live in areas where the air is toxic, exceeding international limits by at least 6 times.[19] In 2018, WHO reported that "97% of cities in low- and middle- income countries with more than 100,000 inhabitants did not meet WHO air quality guidelines".[20] Furthermore, according to the latest report of the World Health Organization, air pollution kills an estimated seven million people worldwide every year, posing a major threat to global health.

The effects of air pollution on children's health are more severe than on adults. Children's lungs are in the process of growth and development and are therefore more vulnerable to contract pneumonia. Their immune systems are weaker, making them highly susceptible to viruses, bacteria, and other infections, which increases the risk of respiratory infections while reducing their ability to combat them. Both outdoor and indoor pollution are directly linked with pneumonia and other respiratory diseases and is one of the main ways in which the environment increases the burden of disease for children under five years.[21] Furthermore, research has also found that children are often more exposed to pollution, especially when they are walking to school and on the playground.[22]

It is children living in low- and middle-income countries which are the most at risk. As WHO has found, 91% of premature deaths from outdoor air pollution occur in low- and middle-income countries.[23] Furthermore, household air pollution, which is mainly a problem in poorer areas, "almost doubles the risk for childhood pneumonia and is responsible for 45% of all pneumonia deaths in children less than 5 years old".[24] Children in these areas are exposed to pollution in many ways, such as through the burning of plastics, rubber and electronics, but also as a result living in spaces with poor ventilation and air filtration. The lack of access to appropriate health services and treatment in these areas exacerbate the risk of death due to pneumonia and other respiratory infections.

However, despite the impact of local practices, WHO points out that "most sources of outdoor air pollution are well beyond the control of individuals," such as industrial and agricultural pollution, requiring coordinated action on all levels of government.[25] Any policy intended to fight childhood pneumonia needs to take into account the effects of air pollution in increasing the chances of contracting pneumonia. Now more than ever, it is crucial that governments strive to limit their pollution levels and adhere to the commitments made in the Paris Climate Agreement. Climate-conscious urban planning, improving waste management, designing energy-efficient housing, and greater investment in green energies would help in reducing both indoor and outdoor air pollution.

It is also important that information about the dangers of air pollution reaches out to those affected, whether in rural or urban areas. Governments have a responsibility to inform their citizens of the health risks associated with air pollution and to enforce regulations that protect their health.

Conclusion

We have faith in the global forum and hope that it will result in the necessary commitments to end childhood deaths from pneumonia. It is not beyond reach, but something which can be achieved if priorities are arranged so that children's health take precedence. Through this document, the youth has attempted to make its voice heard and show our commitment to helping achieve the gaol of ending childhood pneumonia. Recalling the poem written by Arnulf Øverland, "You Mustn't Sleep," we finish with the following lines:

I shout with the last breath of my voice:

You have no right to forget by choice!

Endontes

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