

PROJECT
‘BREATH OF LIFE’

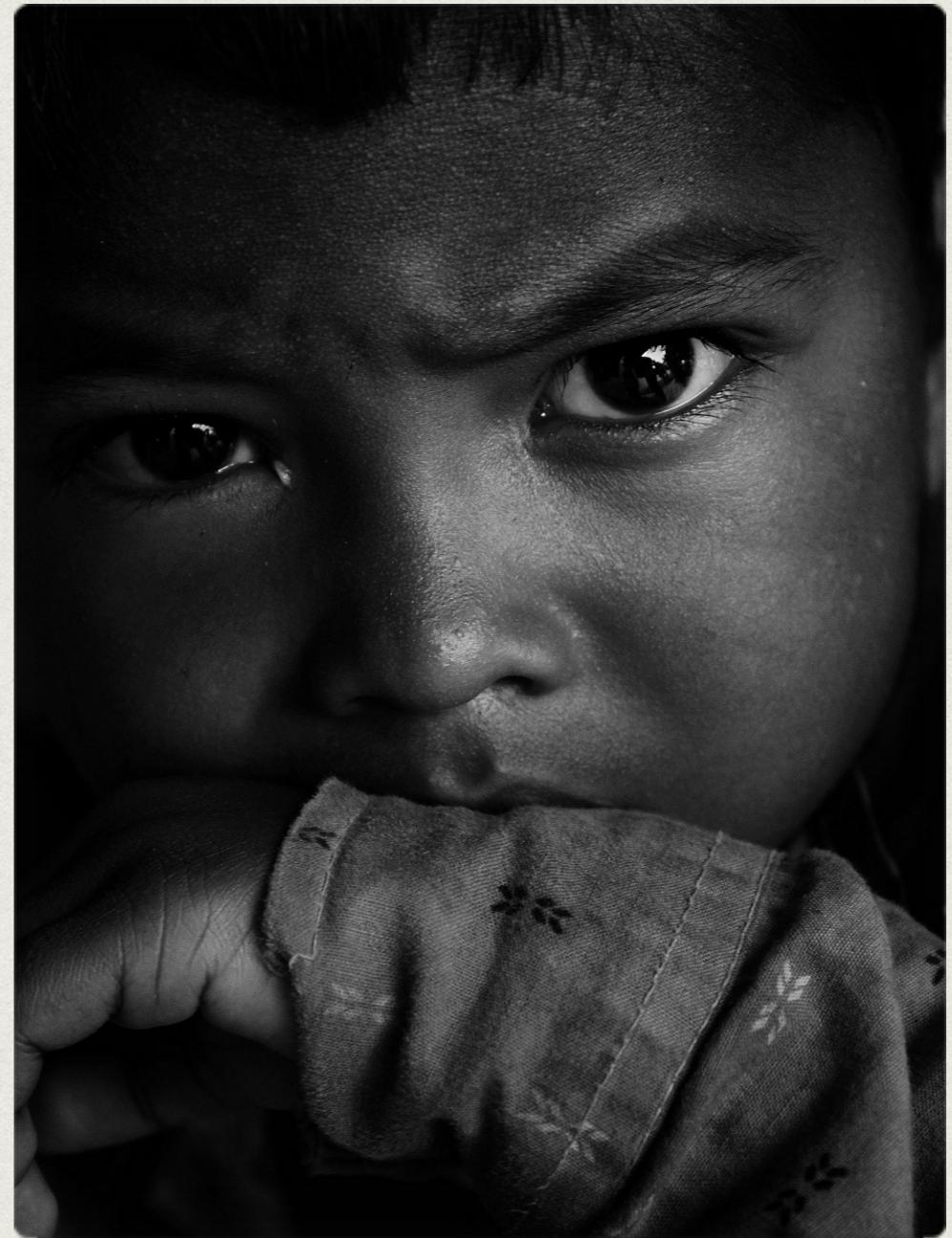


“There can be no keener revelation of a society’s soul than the way in which it treats its children.”

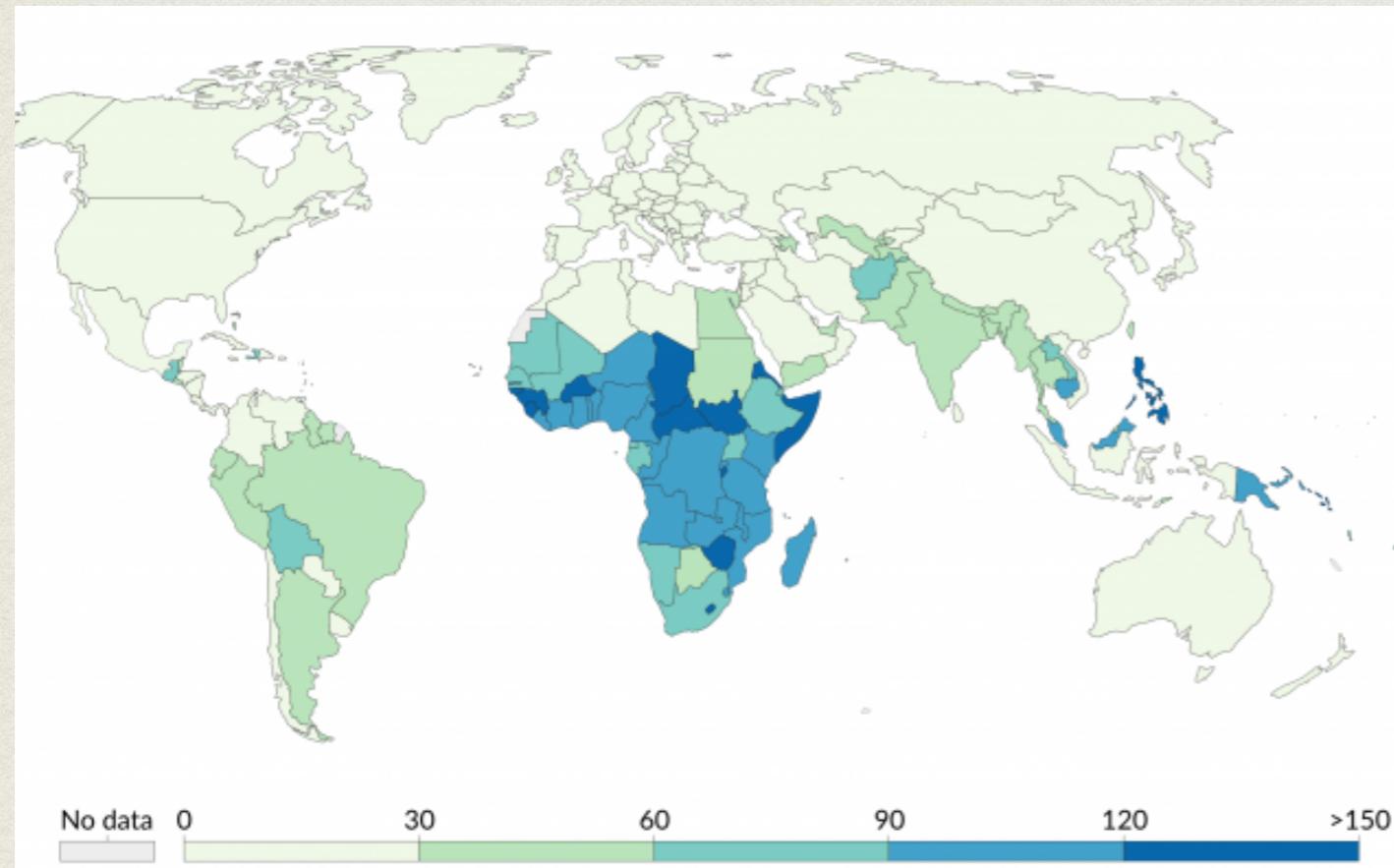
— Nelson Mandela

THE MISSION

- The United Nations Children's Fund (UNICEF) estimates that paediatric pneumonia **kills 3 million children** worldwide each year
 - At project 'Breath of Life' we believe that the life of every child is worth saving
- Our mission:
 1. Reduce the time it takes to accurately identify the signs of pneumonia in children
 2. Develop a system that is more readily accessible to developing countries



THE GLOBAL KILLER



The annual number of deaths from pneumonia per 100,000 people

- In the short time it takes to present these slides **8 children** will have died from pneumonia
- Successful technological advancements have been made in developing countries that can effectively diagnose and treat paediatric pneumonia
- But access to such measures are not readily available in developing nations
- As a result, just 5 developing countries were responsible for over half of the child pneumonia deaths in the world

THE PLAN

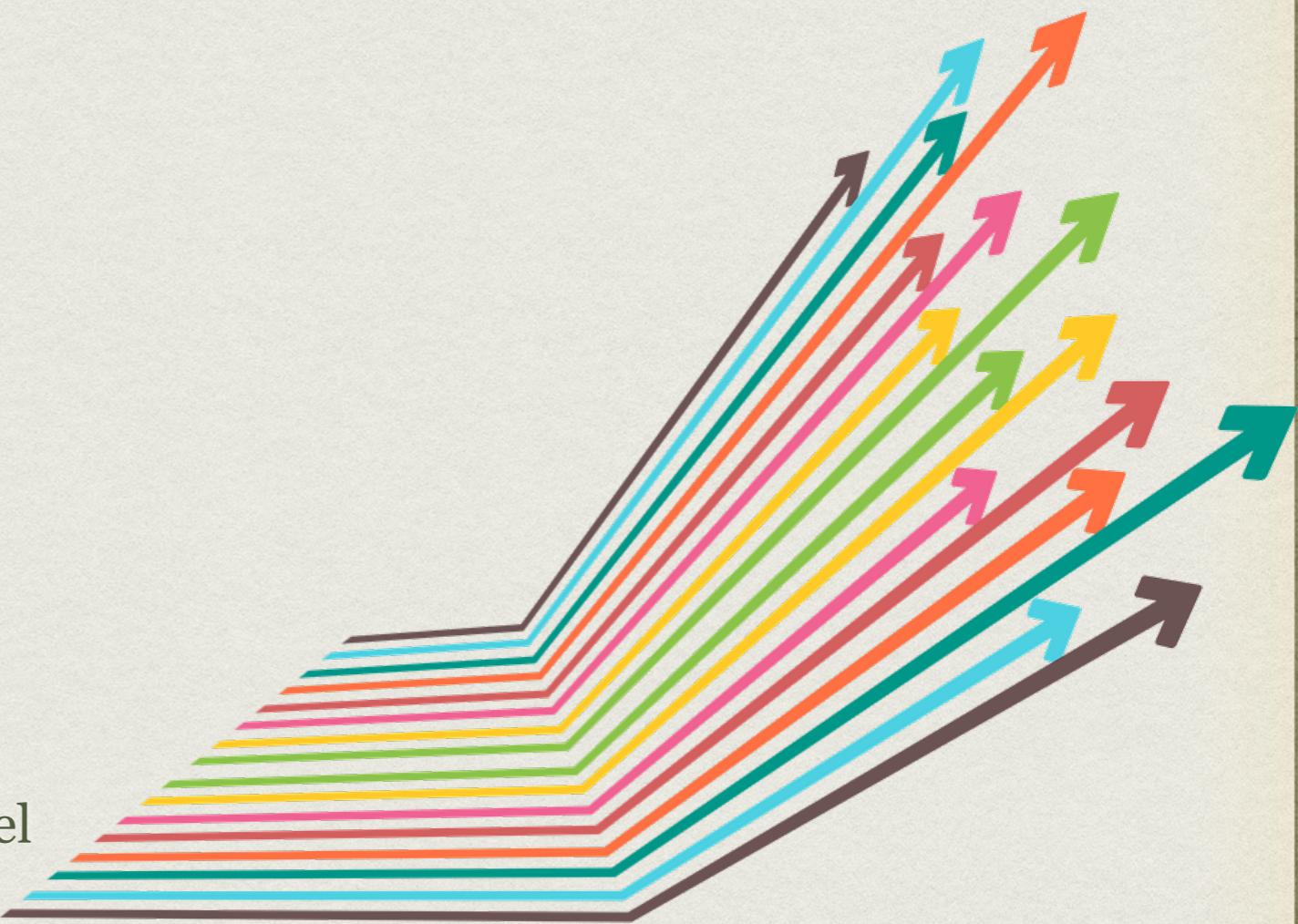
- Pneumonia can be identified via testing in 1 of 4 ways:
 - **Blood tests:** Blood tests are used to confirm an infection and to try to identify the type of organism causing the infection
 - **Chest X-ray:** This helps your doctor diagnose pneumonia and determine the extent and location of the infection
 - **Pulse oximetry:** This measures the oxygen level in your blood. Pneumonia can prevent your lungs from moving enough oxygen into your bloodstream
 - **Sputum test:** A sample of fluid from your lungs (sputum) is taken after a deep cough and analysed to help pinpoint the cause of the infection.

THE PLAN

- Deploy an image classification model world wide:
Starting with the nations most heavily affected
 - Where access to advanced testing methods **are not** available at all, image classification in conjunction with a medical diagnosis could lead to increased sensitivity to signs of the illness
 - Where access to advanced testing methods **are** available, the waiting time for the laboratory analysis of blood and mucus samples can be decreased to the time it takes to produce an X-ray image
 - Lastly, if a similar model is adapted for the use of adults and children alike, the frequency of Doctor's who miss diagnose the illness in the initial screening could be **reduced from 66% to less than 15% per year**

THE MODEL

- Accuracy: 92%
Out of all the predictions our model makes, only 8% of them will be a miss diagnosis
- Sensitivity: 86%
Out of all the cases of children who truly have pneumonia, our model will identify 86% of them
- Precision: 74%
Out of all the positive results our model returns only 26% of them will be false positives



*“Great opportunities to help others seldom
come, but small ones surround us every day.”*

– Sally Koch



*Thank you
for listening*