Unknown to most people, vaccines were never tested for their effects on overall health before being introduced; everybody was so certain that vaccines only affect the target infection that it did not seem necessary. Dr. Stabell Benn’s population-based studies in one of the world’s poorest countries, Guinea-Bissau, have revealed that this assumption was too simplistic. It has become clear that vaccines do not only protect against the target infection; they also affect the susceptibility to other infections. These effects have been called the “non-specific effects” of vaccines. Immunological studies have now provided a biological mechanism by showing that vaccines modulate the innate immune system. The findings challenge our understanding of vaccines and the immune system. The implications are far-reaching: hundreds of thousands of lives could be saved every year in low-income countries and morbidity and health expenditure could be reduced significantly in high-income countries, by taking non-specific effects of vaccines into account when designing vaccination programs.