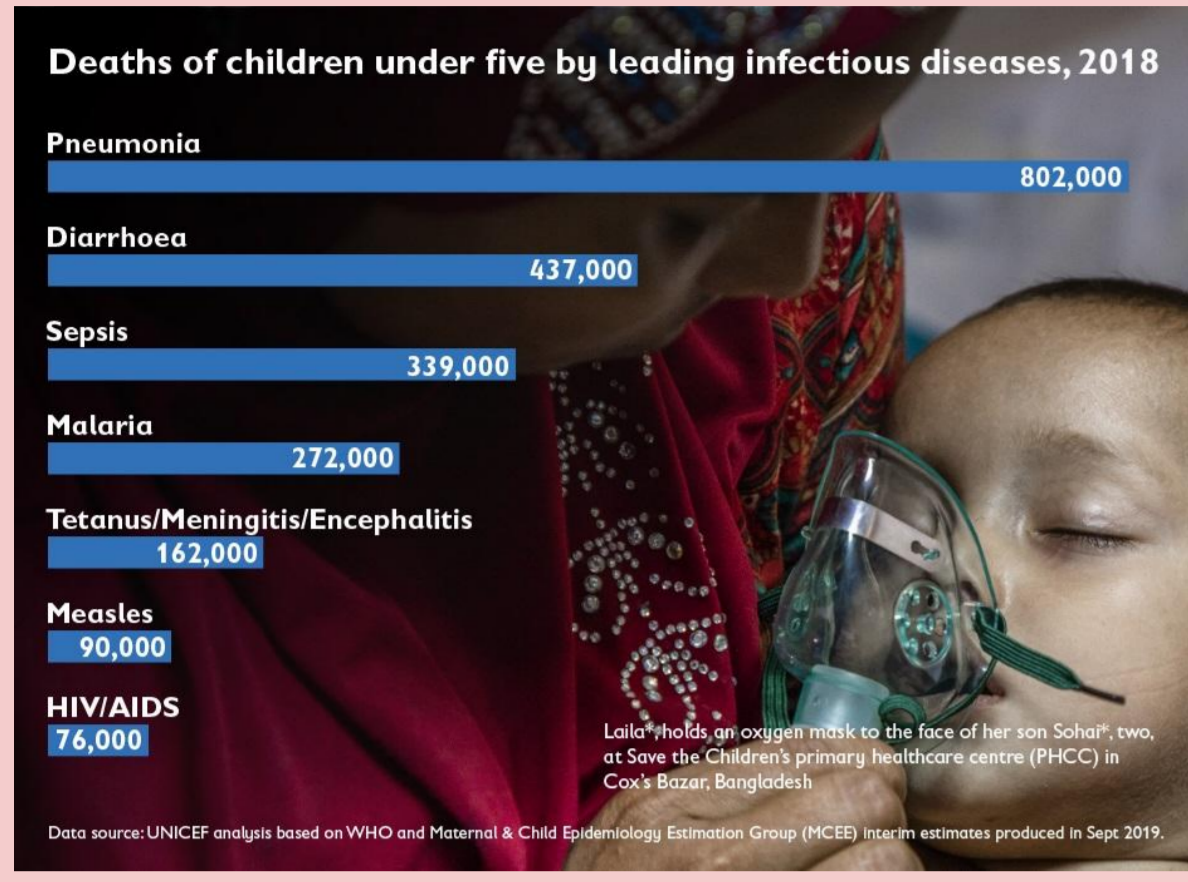


# New Pneumonia Prevention in Developing Countries

## ~A Future for All Children with a Vaccine Patch~

Gunma Chuo Secondary School SGHN019

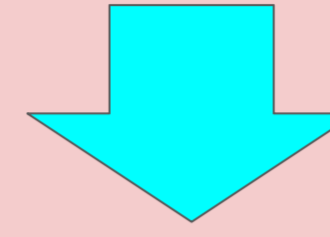
### Introduction



Deaths of children under five by leading infectious diseases, 2018  
[https://www.savechildren.or.jp/scjms/sc\\_activity.php?d=3088](https://www.savechildren.or.jp/scjms/sc_activity.php?d=3088)

Pneumonia is the leading cause of the death of children under the age of five.

↔ The vaccine against it has not become widely available.



What measures should be taken to disseminate the pneumonia vaccine in developing countries?

### Problems

① Heat Sensitive

→ Vaccines need to be stored at low temperatures, which makes transportation and storage costly.

② The Shortage of Doctors

→ The injection requires medical technicians to administer the vaccine in spite of the shortage of doctors.

③ The Small Number of Medical Facilities

→ The access to medical care is difficult

### Solution

The microneedle patch

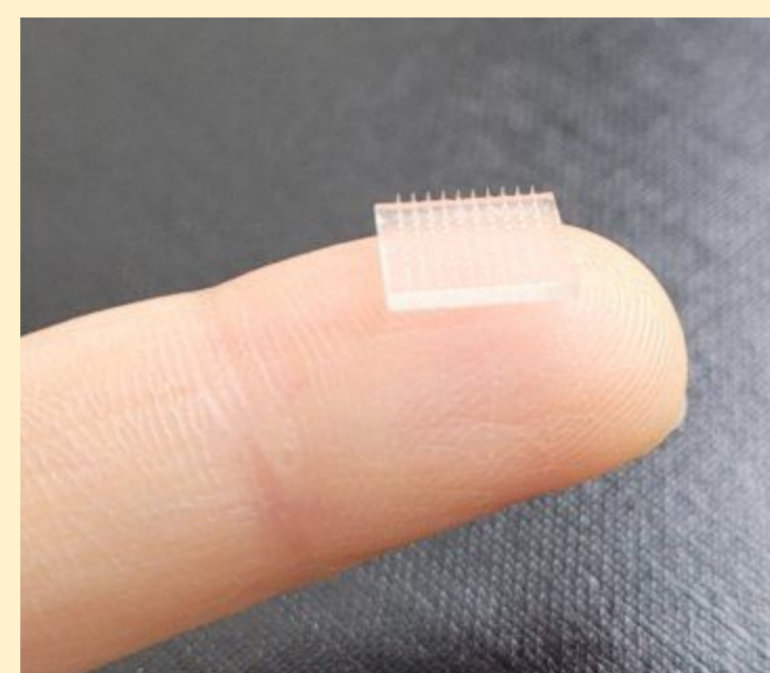
● Low Price

● Simple to Use

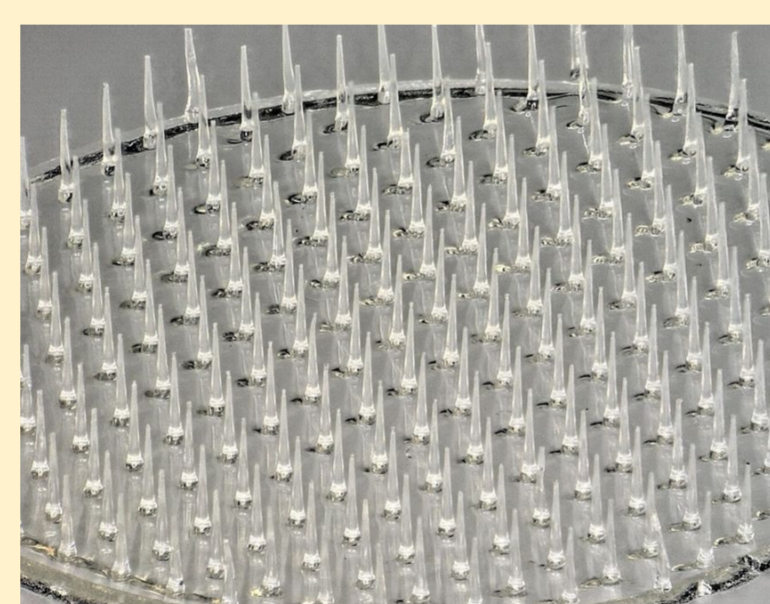
→ No need for medical technicians or medical facilities

● Recent advances in vaccine applications

ex) Japanese encephalitis



Vaccine patch(The microneedle patch) Chuo Nippo  
<https://s.japanese-joins.com/JArticle/283278?sectcode=A00&servcode=A00>



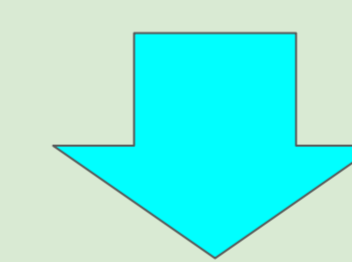
Biodissolving Microneedle Technology  
GOOD DESIGN AWARD  
<https://www.g-mark.org/award/describe/42634>

### Possibility

1 type of Streptococcus pneumoniae → 2μg-3μg

13 to 14 kinds of pneumococcus

→ 20μg-30μg < Limit dose



Micro needle patch of pneumococcal vaccine is probably possible

### Suggestion

Make Pediatric Pneumococcal Vaccine into Microneedle Patches

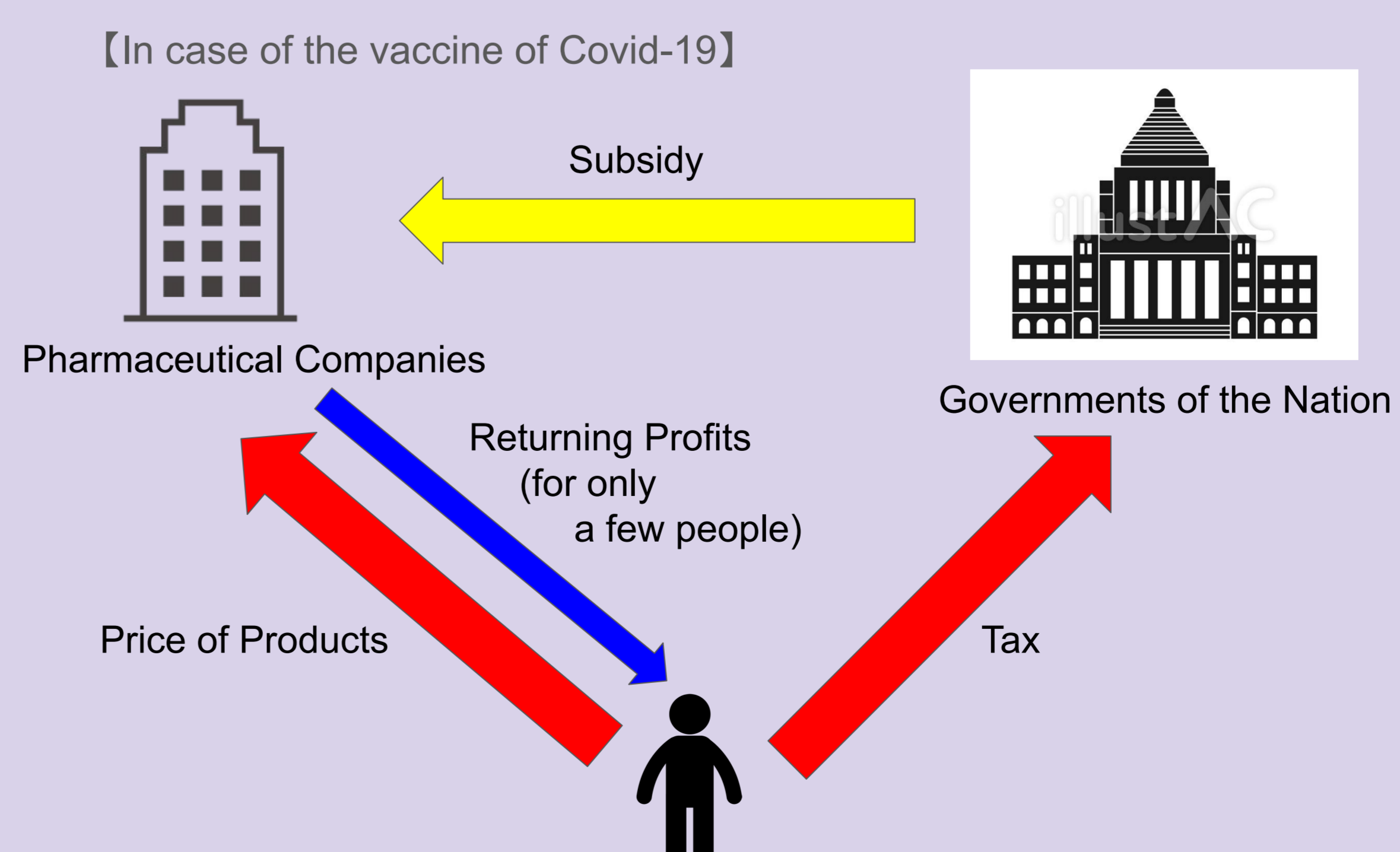
### Future Issues

Pharmaceutical Companies

→ Enterprise

→ Want to make a lot of profit

→ Make the price really high



How to Balance the profits and people's access to vaccines?