

# PUBLIC HEALTH IMPACT OF VACCINES

*Vaccination is a key public health tool: it is a life-saving intervention that contributes to the sustainability of healthcare systems by reducing the burden of infectious diseases and reducing the use of antibiotics.<sup>1</sup>*



*Vaccination is one of the most successful healthcare interventions of our time.*

## VACCINES SAVE LIVES AND HAVE LED TO THE ERADICATION OR CONTROL OF MANY INFECTIOUS DISEASES

*Immunisation saves an estimated 4 to 5 million lives globally every year.*

*An additional 1.5 million deaths could be avoided by improving global vaccination coverage.<sup>2</sup>*

*Between 2001 and 2020, vaccines averted an estimated 20 million deaths, 500 million cases of illness, and 9 million cases of long-term disability globally.<sup>3</sup>*

### BEFORE AND AFTER THE INTRODUCTION OF VACCINES

*Smallpox caused at least 300 million deaths in the 20th Century.*



**300 million deaths**

Vaccination programmes, intensified as of 1967, led to the complete eradication of smallpox worldwide by 1980.<sup>4</sup>



**0 deaths**

*Before a vaccine was available – and in the absence of a viable treatment – polio was a major cause of mortality, acute paralysis and lifelong disabilities across Europe.<sup>5</sup>*

Vaccination programmes have led to the near elimination of polio, with the **European Region declared “polio-free” in 2002**.<sup>1</sup> Today, the disease remains endemic only in two countries worldwide (Pakistan and Afghanistan).<sup>6</sup>

*Over one in five child deaths are being averted globally thanks to the introduction of the MMR vaccine.<sup>7</sup>*



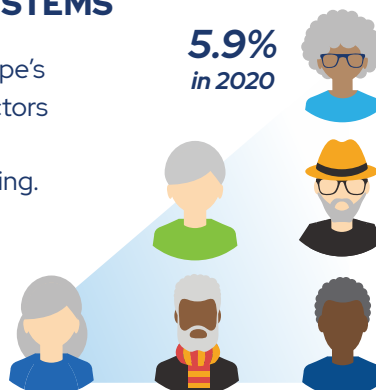
## ONE OF THE BEST FORMS OF PREVENTION



### VACCINES SUPPORT BETTER FUNCTIONING AND MANAGEMENT OF HEALTHCARE SYSTEMS

With a growing proportion of older adults in Europe’s population and with age being one of the risk factors for many severe illnesses and chronic diseases, pressure on healthcare systems is rapidly increasing. Vaccines can help relieve this pressure.

Population aged 80 or above... **14.6% by 2100<sup>9</sup>**



Paediatric vaccination has made a substantial contribution to reducing childhood illness, mortality and long-term disabilities.



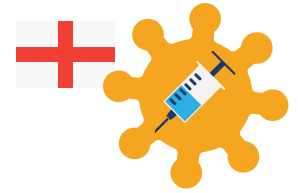
*Today, nine out of 10 children in the WHO European region receive at least a basic set of vaccination during infancy and as a result lead healthier, more productive lives.<sup>8</sup>*

For example, **vaccines can reduce hospitalisations**, benefitting patients and allowing hospitals to free up vital space to treat others:

*In Spain, hospitalisations due to chickenpox decreased by 78% after routine vaccination of 15–18-month-old infants between 2006 and 2010<sup>10</sup>*

*In the case of influenza, vaccination can reduce hospitalisations and deaths by 45% and 38% respectively in older people with diabetes, and is also associated with reduced risk of cardiovascular death<sup>11,12</sup>*

Healthy ageing and life-course vaccination approaches can reduce the burden of vaccine-preventable diseases on individuals and society while improving quality of life<sup>11</sup>



*A study in England found that a single dose of a COVID-19 vaccine was 80% effective at preventing admission to hospital with COVID-19<sup>13</sup>*

## VACCINES PROTECT AGAINST VIRUSES THAT CAN LEAD TO CANCER

Human Papilloma Virus (HPV) is responsible for about 90% of cervical cancer and for some other genital and anal cancers in both men and women.<sup>14</sup>

Hepatitis B affects the lives of 15 million people in Europe alone, and can lead to complications such as liver damage or cancer in 20–30% of cases.<sup>15</sup>

*Vaccination against hepatitis B and HPV could prevent 1.1 million cancer cases every year worldwide.<sup>16</sup>*

## AN ALLY IN THE FIGHT AGAINST MAJOR GLOBAL THREATS

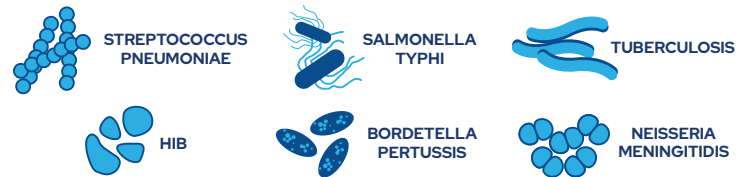
Antimicrobial Resistance (AMR) may already cause 700,000 deaths per year globally, and in a worst-case scenario this number could reach 10 million by 2050.<sup>17</sup>

*This is equivalent to one death every three seconds.*



Evidence shows that vaccines are critical in the fight against AMR. They prevent disease, both bacterial and viral, and reduce demand and misuse of antibiotics, safeguarding their effectiveness.<sup>18</sup> For example, vaccines can:

- Reduce the use of antimicrobials by an estimated 47% with universal pneumococcal vaccine coverage in children.<sup>19</sup>
- Protect against drug resistant forms of disease:<sup>20</sup>



## COMMUNITY SOLIDARITY



## VACCINES SUPPORT BETTER FUNCTIONING AND MANAGEMENT OF HEALTHCARE SYSTEMS

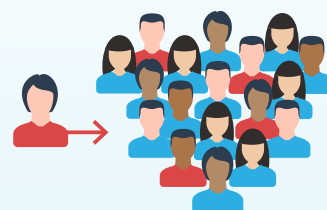
Vaccines can protect the whole community, including those who cannot receive them because of their age, existing medical conditions or other factors.<sup>21</sup> However, this community (or herd) protection can most safely be achieved through high vaccination coverage rates.

*In the case of measles, for example, 95% of individuals in every population needs to be immune to ensure herd protection.<sup>22</sup>*

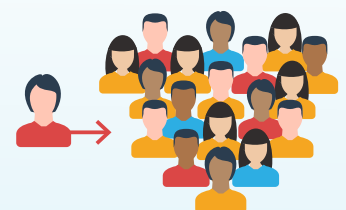
**Community protection** works to control the spread of disease within a population when a specific amount of that population (threshold) becomes immune to the disease through vaccination or infection recovery.

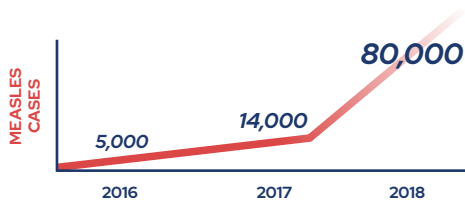
When the immunity threshold is reached, susceptible individuals are protected from infection because ongoing spread of disease is limited.

### No protection



### Community protection





With less than 95% of individuals being immune from measles, cases more than tripled from 2016 (<5,000) to 2017 (14,000)<sup>4</sup> and reached over 80,000 in 2018 in the WHO Europe Region, the highest number in a decade. Tragically, 74 people died in 2018 due to complications of measles.<sup>23</sup> This without taking into account the potential long-term effects of measles, like immune suppression.<sup>24</sup>

There is a constant need to address misinformation and the factors leading to vaccine hesitancy in Europe, which contributes to falling coverage levels making it more difficult to keep highly infectious diseases under control.

## LET'S NOT LOWER OUR GUARD

- ▶ **Vaccination programmes in the EU need increased support and recognition of their value** to sustain overall health gains and maintain sufficient coverage.<sup>17</sup>
- ▶ Global coverage of key vaccines dropped from 86% in 2019 to 83% in 2020.<sup>25</sup>
  - ▶ **To keep infectious disease under control and avoid potential outbreaks, it is critical to improve the uptake and coverage of existing vaccines in the age groups (eg adolescent, adults) that need it the most.**
- ▶ **A life-course approach to vaccination is essential for everyone's safety.** While vaccinating the young is an investment in future generations, vaccinating adults and older adults guarantees protection for everyone and contributes to healthy living and healthy ageing as well as the sustainability of healthcare systems.<sup>22</sup>
- ▶ Addressing vaccine hesitancy in Europe is key, and, as this can also be driven by issues related to affordability, geographical accessibility, or availability of information on immunisation, **access to vaccination must be widened and made easier, particularly for vulnerable and underserved communities.**<sup>4</sup>



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