

**MEDIA  
PLANET**

# VALUE OF VACCINES

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## 02

**“The pandemic has taught us the importance of prevention and preparedness.”**

Anuradha Gupta  
Deputy CEO, Gavi the Vaccine Alliance

## 06

**“Public Health officials have been sounding the alarm that adults also need to stay up to date on recommended and catch up vaccinations.”**

Laetitia Bigger  
Director, Vaccines Policy, IFPMA

## Online

**“Scientists are using this property of viruses for good – by making them infect and kill cancer cells.”**

Professor Kevin Harrington  
Professor of Biological Cancer Therapies  
at The Institute of Cancer Research, London

IN THIS  
ISSUE

08



# Immunisation programmes are vital during the pandemic

Encouraging news that COVID-19 vaccines in development may offer protection against the coronavirus brings fresh hope that the end of the crisis may be within reach. It couldn't come sooner.

"England has some of the best flu uptake rates in Europe."

Vanessa Saliba, Head of Flu, Public Health England



"There is no time to lose when developing vaccines for a world in desperate need."

European Vaccine Initiative

10



"Ensuring equitable access to COVID-19 vaccines is essential to overcome this global health crisis."

Dr. Muhammad Ali Pate, Global Director for Health, Nutrition and Population, World Bank

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WRITTEN BY  
**Anuradha Gupta**  
Deputy CEO, Gavi, the  
Vaccine Alliance

**T**he virus has already infected 50 million people and claimed more than 1.2 million lives. However, the secondary effects of the pandemic are more debilitating, with one million more children now likely to die in the next six months because of the indirect impact of the pandemic.

Overall, the impact of COVID-19 on people's lives and livelihoods, and on the global economy, has been nothing short of devastating. While this global crisis has been a wake-up call to the critical role that vaccines play in protecting people's health, it is also highlighting how fragile our global immunisation gains actually are.

#### The disruption of immunisation services

It took just six months for this pandemic to knock immunisation coverage in the world's poorest countries down to levels not seen since the 1990s, unravelling a quarter of a century of progress.

Immunisation services were severely disrupted, putting tens of millions of children at risk from a whole range of infectious diseases such as polio and measles. Outreach services came to a halt, disproportionately impacting marginalised communities. This has exacerbated the risk of countries having to battle multiple disease outbreaks amid a raging COVID-19 and witnessing a spike in child deaths.

So, as we navigate this crisis, one of our top priorities must be to keep routine immunisation services going. The consequences of suspending vaccination sessions to prevent the spread of COVID-19 are far too disastrous. For every COVID-19 death



**For every COVID-19 death this might prevent, more than 84 children would be at risk of dying from a vaccine-preventable disease.**

this might prevent, more than 84 children would be at risk of dying from a vaccine-preventable disease.

#### Helping to future-proof health systems

Gavi is working closely with countries to prevent such a catastrophe, by providing vital funding and technical support to help bolster health systems weakened by the pandemic. We have an opportunity to build back better and create a new model of resilient, integrated and equitable primary health care delivery.

Health systems of the future must deliver vaccination, the backbone of primary health care, and a range of other vital services. Most importantly, no one should be left behind.

One thing that the pandemic has taught us is the importance of preparedness and prevention. Vaccines prevent diseases, protect people from medical impoverishment and stop outbreaks from escalating into pandemics. Immunisation programmes are themselves vulnerable. So, to protect people, we must also protect them. This would need enhanced political will, financing, human resources and community participation.



Read more at  
[healthawareness.co.uk](http://healthawareness.co.uk)

## The opportunity of smart vaccine delivery

COVID-19 vaccines are a major scientific breakthrough. Likewise, worldwide vaccine delivery systems can be created in a way that improves health outcomes for future generations.

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WRITTEN BY  
**Nithya A. Ramanathan**  
Ph.D.  
CEO & Co-Founder,  
Nexleaf Analytics

**A** worldwide vaccine campaign for the entire population – people of all ages, not just children – has never been undertaken before. Vaccine distribution presents tremendous logistical hurdles and success will require big expenditures beyond the vaccine cost itself. We also know this pandemic will not be the last.

Given this hard truth, investments in infrastructure, including fridges and transport equipment, power support, and data systems, should be made wisely. Most low- and middle-income countries already have government operated health systems that deliver vaccines to children under five, so it makes sense to build upon this existing infrastructure, rather than reinventing the wheel.

#### Helping to strengthen health systems

Strengthening these systems has the potential to improve countries' capacity to distribute vaccines and other critical temperature-sensitive products such as blood, insulin, and oxytocin. More importantly, by integrating smart sensor technology, we have the opportunity to create an "integrated public health backbone," capable of helping the world

respond to future, inevitable public health crises and then distributing the innovations that are subsequently created.

We as a company design, scale, and sustain global data systems to support life-saving equipment deployments across the African and Asian continents. My team, along with others, have been laying the groundwork for this international public health backbone for over a decade. Our ColdTrace sensor system now monitors and protects the vaccine supply for one in 10 babies born on earth every year. Countries can leverage such data to strengthen their existing health systems with targeted investments in reliable electricity, human resources, and equipment designed to last beyond COVID-19 vaccine distribution.

The coronavirus pandemic has already caused immeasurable suffering. Now, as we prepare to distribute vaccines and turn the corner, we have a chance to enter a new chapter on health care delivery capacity for billions of people. To seize that opportunity, we must invest in more responsive health systems capacity on the ground, and an intelligent supply chain that is built to last.



*The reality is that disease knows no boundaries and is a global problem that requires global collaboration, global solutions and global leadership.*

# A new era for vaccine development?

Breakthrough in the development of a COVID-19 vaccine could help reinvigorate our fight against infectious disease.



INTERVIEW WITH  
**Kelly George, PhD, RAC**  
Consultant II, Avalere



INTERVIEW WITH  
**Gillian Woollett, MA, DPhil,**  
Principal Research Scientist

Written by:  
**Kate Sharma**

Paid for by **Avalere**



Public perceptions of vaccinations typically go hand in hand with ‘old’ diseases, such as polio, diphtheria and tetanus. According to Gillian Woollett, MA, DPhil, Principal Research Scientist at healthcare consultant Avalere Health, all that could be about to shift.

“COVID-19 has created new interest in research and development in vaccines,” says Woollett, “I think it’s safe to say that the whole vaccine space may have been changed by COVID-19,” she says.

“The collaboration of the global scientific community to mitigate COVID-19 has been tremendous and this shows what can be achieved when barriers are minimized,” notes Kelly George, PhD, RAC, Consultant at Avalere.

## **New approaches and investment bring innovation**

The impact of this shift in approach is evident by the speed with which the recently announced successful vaccines have been developed. Moreover, dozens of others are in the pipeline, with data on their efficacy expected soon.

A vaccine for COVID-19 will act as another tool in preventing cases in addition to social distancing, public health measures, improved testing, new antibody treatments and developments in care.

“There are many ways to think about the problem. Mitigating infections and reducing transmission can save lives too,” says Woollett. “That’s what has happened with HIV. We still don’t have an HIV vaccine, but we’ve managed to reduce the viral load in individuals using drugs and reduced

new infections.”

“Those types of challenges force everyone all along the chain to start rethinking and brainstorming,” confirms Woollett. “But it can be done.”

As the science takes centre stage in this crisis and the pandemic turns endemic, Woollett and George are hopeful that the lessons learned throughout 2020 and into 2021 will usher in a new era where early investment in research and development will see further life-saving breakthroughs.

## **An arsenal of multiple efficacious vaccines emerges**

Many of the new, emerging vaccines that we are now seeing are the result of a revamp of technologies that had yet to see centre stage attention until the pandemic.

The first two vaccines showing initial success introduce an mRNA strand – a molecule that tells cells what to build – which is coded to express a specific antigen. After immunisation, the priming by the vaccine helps the immune systems of those who have received the vaccine recognise that same molecule on the virus much more quickly.

These newer technology platform vaccines based in mRNA come with both advantages and disadvantages. They have an easier scale up of manufacturing. Yet, they might also require more complex distribution conditions such as ultra-low temperatures.

Meanwhile the vaccines based on more established technology, which are progressing rapidly too, may present more of a challenge to scale

up manufacturing. But they can likely be shipped in moderate conditions and may be more viable for global distribution.

Nonetheless, an arsenal of multiple efficacious vaccines - each with unique characteristics - is emerging to provide public health the advantage of choice.

## **Recognising vaccines’ commercial viability**

Drs. Woollett and George remain optimistic about the vaccines that are currently in development for COVID-19 as well as those down the line for future diseases. Yet, the age-old problem of commercial viability threatens to be the pin that bursts the balloon.

Vaccines often treat diseases that are contagious in a manner that does not respect political boundaries. Yet our commercial system (with exceptions) for incentivising development and marketing resides within and is often limited by these political and financial jurisdictions.

So many emerging diseases remain diseases of the poor – at a distance from those with the power and the money to effect change. The reality is that disease knows no boundaries and is a global problem that requires global collaboration, global solutions and global leadership. If technology, innovation and collaboration can allow humanity to address a wholly new virus in the impressive manner we have witnessed this past year, it may also be possible to better deploy these same weapons to overcome future obstacles worldwide and even tackle older and traditionally challenging vaccines, such as those against TB, HIV and malaria.

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# Collaboration, not COVID-19, is the watchword of 2020

No one company or country will be able to solve the COVID-19 crisis– it will take the collective will and collaboration of the whole life sciences sector.

SPREAD INTERVIEW WITH



**Daria Donati**  
Head of Business Development and Strategic Partnerships, Cytiva

Spread written by:  
**Amanda Barrell**

**F**rom the beginning of the COVID-19 crisis, the entire health and life sciences ecosystem has been working together to combat the pandemic.

From accelerating vaccine development, to securing the supply of essential medications; collaboration has been the theme of the year, says Daria Donati, Head of Business Development and Strategic Partnerships at Cytiva.

“Fifteen months ago, the Director General of the World Health Organization, Dr Tedros Adhanom Ghebreyesus, said no one would be able to develop and manufacture the vaccines and medicines we need alone – they would not be able to find capacity,” says Donati.

“From the very start, there has been an intense effort to build partnerships that include customers, providers, governments, international organisations and NGOs, all with the aim of gathering around the table to solve common problems.”

Faced with the overwhelming need for a vaccine, pharma and biopharma companies are exploring every avenue and candidate in their arsenal – and they are doing so at speed.

This has presented a number of challenges. Organisations need to find ways to reduce development timelines, and those that have pivoted to vaccines from another area of medicine are working in unfamiliar territory.

#### **Manufacturing capacity**

Finding an effective vaccine is only half the battle. While it is well documented that around 150 COVID-19 vaccines are currently in development, the need to secure enough manufacturing capacity is less well publicised.

It is a global issue attracting global attention, says Donati, who has been a member of multiple government task forces set up to map world-wide manufacturing capacity since March.

“In reality, there is no one single company or organisation that will be able to take on this task, so we all need to work together,” explains Donati.

“We need people who can provide the equipment and key raw materials, and people who have the manufacturing capacity.”

One specific task force had to ensure efforts to increase vaccine manufacturing capacity did not decrease the production of other, equally essential, pharmaceutical products.

“We were able to collaborate directly with international organisations to find out where the capacity was, then help the government to build partnerships.”

“We acted as facilitators, making sure the right people could talk to each other and creating a safe network for manufacturing,” Donati explains, adding that it was a very complex landscape.

#### **Security of supply**

And it’s not just vaccines. Surges in demand for a whole host of medications used to treat COVID-19 combined with virus-related shutdowns in China, which produces a large proportion of the world’s active pharmaceutical ingredients, have highlighted the fragility of the pharmaceutical supply chain.

“Security of supply has been an important initiative to us for a long time, and suddenly it is more essential than ever,” says Donati.



***From accelerating vaccine development, to securing the supply of essential medications; collaboration has been the theme of the year.***

#### **Sharing the knowledge**

Sharing knowledge has become key, says Donati. “Pharma and biopharma companies have been able to provide specific knowledge to support molecular engineering, early phase development, process development and manufacturing.”

“Rather than being suppliers, these companies are working like in-house collaborators to help their customers speed up their processes, without compromising safety.”

“For example, Cytiva’s diagnostic team has been really engaged in helping the companies they provide with components and tests to tweak their workflows, so they suit common testing.”

#### **Forward view**

Asked if the collaborative model was here to stay, Donati says she couldn’t be sure. “One thing I would say though, is that the healthcare sector as a whole has always been sensitive to the need for partnership.”

“What this crisis has demonstrated is that organisations that have different interests, but similar goals can work together for the greater good,” she concludes.



**Cytiva** is a global life sciences leader dedicated to advancing and accelerating therapeutics. Cytiva is a trusted partner to customers that undertake life-saving activities ranging from biological research to developing innovative vaccines, biologic drugs, and novel cell and gene therapies. Cytiva brings speed, efficiency and capacity to research and manufacturing workflows, enabling the development, manufacture and delivery of transformative medicines to patients.

**Q&A**

# How to join the race for a **COVID-19 vaccine**

COVID-19 has transformed the vaccine development pathway, slashing timelines from years to months. So how have companies compressed their activities without compromising safety?

**T**he race for a COVID-19 vaccine has transformed the drug development pathway in a way that would have been unimaginable just a few short months ago.

Development pathways were significantly reduced, but how has such success been achieved in such a short time frame? And how have drug developers adapted their operations to join the fight? The compression of time meant everyone had to be on board including raw material suppliers, regulatory agencies, shippers.

Daria Donati, Head of Business Development and Strategic Partnerships at the global life sciences company, Cytiva, talks us through it.

**How are vaccines normally developed?**

Usually, the first thing you do when developing a vaccine is study the behaviour of the disease, to identify which part of the pathogen would be to key target in the infectious agent.

You would then think about the best technology to support the development of a vaccine and how to start making enough investigational product for clinical trials.

Clinical development and process development tend to run in parallel. Normally, the life cycle of vaccine development takes time.

While the safety trials, Phase one, two, and three trials are ongoing, developers are working concurrently to improve manufacturing processes.

It means that by the time the product is approved to launch, manufacturing scientists know the most robust, effective way to make their product, and have specified and tested the infrastructure needed to start manufacturing at scale.

It means that so far, the companies with the most amount of experience and who have already built flexibility into manufacturing to produce multiple therapeutics were at a distinct advantage. Companies poised to transplant manufacturing around the globe due to standardised manufacturing approaches are also better positioned to support COVID-19.

COVID-19 has challenged the industry to be more responsive and develop a cohesive and rapid crisis management approach. Governments are charged to fund local manufacturing needs to ensure a timely response to the healthcare needs in their regions.

**How can companies build the knowledge and flexibility they need to compete?**

For companies pivoting to vaccine or therapeutic development, our advice is to quickly establish what capabilities you have in-house, identify the gaps, then look to collaborate to compensate gaps, this could be to get access to innovative tools or establish a partnership facilitating access to exclusive materials.

Find organisations that can provide the expertise you need to achieve your goal and ensure that your investments embed as much flexibility into the processes as possible. This could involve production of clinical batches at a CDMO with subsequent transfer to your existing or new facility. For this purpose, it is key to carefully evaluate the risks and benefits of outsourcing versus manufacturing in-house as well as assessing flexible manufacturing platform options.

Spread paid for by **Cytiva**



**Safety and quality are at the forefront and these processes must be bulletproof.**

**How is COVID-19 changing this established pattern?**

There isn't time to invent or develop a new technology. The compressed COVID-19 timeline requires new efficiencies in clinical trials. The recruitment process for trials was enhanced with thousands volunteering and quickly ensuring a diverse pool of candidates.

The challenge is building an effective process that compresses the whole development and manufacturing pathway, including scaling up production, without compromising safety. Safety and quality are at the forefront and these processes must be bulletproof.

**How are companies responding to this challenge?**

Rather than investigating new technologies, companies are looking at how they can utilise existing vaccine modalities they are already familiar with such as viral vectors nanoparticles, RNA, or recombinant proteins.



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British Society for  
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## Keeping the focus on **vaccination**

How can we communicate the benefits of vaccination and encourage increased uptake?

**V**accines are one of our most effective public health interventions. From a dramatic decline in deaths from diseases like polio and diphtheria, to the complete eradication of smallpox, safe and effective vaccines are instrumental to global public health.

### Benefits of vaccination

The benefits that vaccines confer are not just confined to health, but also unrivalled economic benefits.

COVID-19 has laid bare the effect that disease can inflict on our economy in an acute way.

However, the chronic effects of disease and the consequent death and disability have similar harmful economic impacts.

The United States' Center for Disease Control and Prevention (CDC) has shown that vaccination saves society trillions of dollars due to increased lifetime earnings, better educational outcomes, greater female labour participation and reduced days lost to sickness or caring responsibilities.

### Keeping uptake rates high

The beginning of the COVID-19 pandemic saw public health messages about GP surgeries still being open for vaccinations, lost amongst the many other communications that we had to take on board.

Uptake is thought to have dropped off before returning to normal in the summer.

For childhood vaccinations this is particularly worrying as this is on top of a decline in uptake over the last few years. The UK recently lost its World Health Organization 'measles free' status.

As we continue to support our world-leading immunologists in the quest to find vaccines against COVID-19, the impact it has had on our health, economy and way of living highlights the damage that a disease can do when we are not vaccinated.

It therefore remains crucial to ensure that we all get immunised for the diseases where we are fortunate to have a vaccine.

Our healthcare workforce is ready and waiting to protect us all from these preventable diseases.

Our sincere hope is that we can all benefit from the protection of a new COVID-19 vaccine in due course.



# How vaccinations help protect all ages of the population



WRITTEN BY  
**Laetitia Bigger**  
Director, Vaccines  
Policy, IFPMA

The COVID-19 pandemic has reminded us how vulnerable the world is in the face of deadly pathogens.

**V**accines have been an essential tool offering protection from diseases like diphtheria, tetanus, pneumonia, and polio, diseases that once harmed or killed thousands of children every year.

Thanks to these essential tools, over the past decades, millions of children have been given the chance to survive and thrive into adulthood. While often forgotten, adults can also benefit from vaccines. The benefits of a life-course approach to immunisation have been heavily documented and endorsed in a new vision of immunisation globally.

But COVID-19 is having a detrimental impact on the delivery of essential immunisation services, threatening to reverse hard-won progress to reach people of all ages with a wide range of vaccines.

The WHO and UNICEF warn that 2020 could be the first time in 28 years that the world sees a reduction in the annual childhood immunisation coverage rate. Gavi estimates that at least 13.5 million persons will miss out on vaccinations due to postponement of campaigns and interruptions in routine vaccinations in the short-term, and millions more will miss out in the longer-term.

Public health officials have also been sounding the alarm that adults also need to stay up-to-date on recommended and catch-up vaccinations for infectious diseases. As we approach winter, we need to ensure we do not overwhelm healthcare systems, already dealing with COVID-19, with vaccine preventable diseases, such as influenza.

The unique circumstances brought about by the current situation call attention to the importance of investing in vaccination coverage across the life-course to improve population health, promote health system sustainability, and strengthen pandemic preparedness and responsiveness.



*Providing a more convenient access point to immunisation, closer to home, has been found to both reduce inequalities in access to healthcare and to help counter vaccine hesitancy.*

Now is the time for stakeholders in the healthcare system to come together and put in place the necessary building blocks to recover from the negative impacts of the pandemic.

### Building vaccines delivery platforms

One the key aspects will be strengthening public health systems for future mass vaccination with COVID-19 vaccines. This will be implemented by expanding vaccination delivery channels to include pharmacies, community delivery points and other non-clinical settings such as schools and residential homes.

Providing a more convenient access point to immunisation, closer to home, has been found to both reduce inequalities in access to healthcare and to help counter vaccine hesitancy.

Encouraging catch-up campaigns for all interrupted vaccine schedules not just the childhood ones will be as critical to prevent an overall great number of deaths in older adults and to contribute to longer, healthier lives.

Stakeholders need to collaborate across the board to ensure that COVID-19 and routine vaccines are delivered and administered in a timely and safe manner.

Getting serious about life-course vaccination in countries around the world will help make that a reality.



WRITTEN BY  
**Dr Doug Brown**  
Chief Executive, British  
Society for Immunology



# Vaccinations are essential for healthy ageing

Older adults are more at risk of potentially dangerous diseases such as influenza and pneumonia, but with the right vaccines and information, we can avoid these preventable illnesses.

INTERVIEW WITH



**Philip Cruz**  
Vaccines Medical Director, GSK UK

Written by:  
**Amanda Barrell**

**A**s we get older, our immune systems become less able to fight off infection, making vaccines an essential healthy ageing strategy.

But in the midst of the COVID-19 pandemic, many people are concerned about the risk of visiting healthcare settings such as GP surgeries, and have avoided their injections or have had challenges in arranging appointments.

Philip Cruz, Vaccines Medical Director at GlaxoSmithKline (GSK) in the UK, said: “With the current pandemic and the upcoming flu season, preventative health is more important than ever. Vaccines can afford protection against preventable and potentially dangerous diseases, like influenza and pneumonia.

“The seriousness of these conditions can range. If you think about flu, it might just be mild symptoms, such as a headache and a cough. However, there are some cases which are more serious and could even warrant hospitalisation.”

**Vaccines are great but vaccination is better**  
The UK currently runs vaccination programmes on the NHS for older adults, including protection against flu, pneumonia and shingles. However, offering the right jab in itself isn’t enough to protect the population – uptake is vitally important.

“Vaccines are great, but vaccination is better,” said Cruz, “if a vaccine is just sitting on a shelf, it can’t offer any protection.”

“If people get themselves vaccinated, their immune system will build antibodies so that they are ready to combat infection if they are exposed to a virus or bacteria.”

There is a perception, he went on, that immunisation is “only for children,” but this could not be further than the truth. Certain vaccines are recommended for teenagers, pregnant women, health workers, people with underlying health conditions and older people, making protection from preventable disease a life-long affair.

Cruz explained: “There is a lot that



goes into deciding which group should have which vaccine. This is brought about by the epidemiology – which age or risk groups we see the highest number of cases in – and other factors.”

Older people are at a higher risk of developing serious forms of several preventable conditions, including flu, pneumonia, and shingles.

“There is such a thing as an age-related decline in immunity. As we grow older our immune systems are no longer in tip top shape. Vaccination is a supplementation of that protection,” he said.

What’s more, older people are more likely to be living with more medical conditions than their younger counterparts.

“If someone has what we call comorbidities – more than one disorder – including heart, kidney, liver or lung disease, they are more susceptible to getting these preventable diseases. It gives them even more reason to be vaccinated.”

**Attending appointments is essential**

Cruz says no one should be afraid of getting the vaccinations they need to stay healthy this winter.

“The NHS is equipped to administer the programmes. It might mean going to your GP or your pharmacy, but safety measures designed to reduce the risk of contracting COVID-19, are in place,” he added.

“Now is not the time to miss scheduled appointments and to get a vaccine-preventable illness, not least because of the burden it will put on the healthcare system during the pandemic.”

**Tackling misinformation**

Trusted information is the key to overcoming misinformation, believes Cruz, who encouraged older people to speak to their healthcare professional. “We need to keep channels of information open. GPs, pharmacists, midwives and nurses, as well as the NHS Choices website, are all valid sources of information.”

“Ultimately, vaccination is a key part of healthy ageing, and everyone needs trusted information to be able to effectively protect their health,” he concluded.

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November 2020.



**GSK** has recently launched its campaign ‘Vaccinate for Life’ which features a vaccination guide, helping users to keep track of their protection. For more information visit: [vaccinateforlife.com](http://vaccinateforlife.com)

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Some things we outgrow, vaccination isn’t one of them.  
For more information, visit [vaccinateforlife.com](http://vaccinateforlife.com)

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## Helping to address vaccine hesitancy

As we plot a course through the COVID-19 pandemic, vaccines have come to the top of the political agenda. However, there has been a variable decline in uptake of routine immunisation – a trend that desperately needs to be understood.

**I**n England, coverage declined in nine out of 12 routine vaccinations to below 95%, the World Health Organization (WHO) recommended level required to achieve community protection, and measles cases are increasing every year. Scotland, Wales and Northern Ireland have also seen slight decreases in recent years but vaccine uptake tends to be several percentage points higher and no measles outbreaks have been seen in Scotland or Northern Ireland in recent years.

As Chair of the All Party Parliamentary Group on Vaccination, I work with MP's and peers on a cross-party basis to build parliamentary awareness of the importance of vaccines and their contribution to good health.

While there is often a focus on those who vehemently oppose vaccination, they are in a tiny minority. The wish for detailed information about any drug treatment is normal and vaccine hesitancy is understandable, particularly in response to some of the disinformation shared online.

Transparency is very important to maintain trust and parents or patients should be given clear information and have their questions answered as thoroughly as possible by their health practitioner. These reassurances will make parents aware that vaccines are safe and are one of the most effective ways of protecting our children against life threatening or life-changing diseases.

There is also a degree of complacency, in wealthy countries like the UK, about the risk from childhood illnesses like measles or polio, as severe outbreaks are now fortunately rare. However, measles killed over 200,000 people last year – mostly children – so we must guard against complacency.

Finally, there are issues of access. In the UK, with high quality immunisation programmes, there is no comparison to the difficulties of an isolated or war-torn region, but it can still be challenging for a parent of several young children. Vaccine provision should be made as simple and accessible as possible.

To find out more about the report on Vaccine Confidence that the APPG is launching in the spring, and for more information about the group, please go to: [appg-vfa.org.uk](http://appg-vfa.org.uk)



WRITTEN BY  
**Dr Philippa Whitford MP**  
Chair of the APPG,  
Vaccinations for All and  
MP for Central Ayrshire

# Not 'just' the flu – the importance of flu vaccination

It is dangerous to dismiss influenza as just the flu. It can be extremely serious and can lead to hospitalisation, permanent disability or even death.



WRITTEN BY  
**Dr Vanessa Saliba**  
Head of Flu, Public Health  
England (PHE)

**F**lu kills 11,000 people in England in an average year and hospitalises thousands more. This year has been anything but typical and this winter, we expect flu and COVID-19 to circulate at the same time.

Public Health England research suggests that people co-infected with flu and COVID-19 are at greater risk of severe illness and more than twice as likely to die than those with COVID-19 alone.

To help protect the nation from this double threat, an additional five million people are being offered a free flu vaccine this year. In total, 30 million people are eligible – the highest number ever.

The flu vaccination programme aims to protect the most vulnerable. This is achieved directly through individual immunisation and indirectly by interrupting transmission in the community.

Eligible groups include those aged 65 years and over, pregnant women, people with certain long-term health conditions, two- and three-year-olds and primary school children. This year, household contacts of those on the NHS shielded patient list, children in year 7 and 50- to 64-year-olds are also eligible.

Frontline health and social care workers should also have the vaccine to protect themselves – as they are at higher risk of catching the flu – and the people they care for.

Vaccination also reduces hospitalisations due to flu, easing pressure on the NHS and social care during their busiest season and when they will also be dealing with cases of COVID-19.

This year's unprecedented vaccine drive is being delivered in the middle of a global pandemic,



**Vaccination also reduces hospitalisations due to flu, easing pressure on the NHS and social care during their busiest season and when they will also be dealing with cases of COVID-19.**

which presents operational challenges. The NHS has responded by expanding and adapting services to make them COVID-19 secure, such as organising drive-through clinics and putting in place safety measures like social distancing.

England has some of the best flu vaccine uptake rates in Europe and provisional data suggests uptake will be the highest ever this season.

The impact of flu varies considerably from year to year and it is not possible to predict what will happen in the coming season.

However, the vaccine is the best defence we have, and it is more important now than ever. We urge anyone who is eligible to take up the offer to help protect themselves, their families and the NHS – it will help save lives.



Public Health England has launched its campaign for this year with the message: **"It's not 'just' the flu"**.



# How the supermarket pharmacy can help you stay healthy

Cold winters are never easy to deal with, but with the fear of a more overwhelmed NHS due to COVID-19, there is a solution for shoppers who are hoping for a quick and easy flu jab this year.

Paid for by **Asda**



INTERVIEW WITH



WRITTEN BY  
**Faisal Tuddy**  
Superintendent  
Pharmacist, Asda

Written by:  
**Gina Clarke**

**F**rom infants, Brits have grown up with a well-rehearsed immunisation schedule. But it might be surprising to realise that despite having a range of qualifying health conditions, free flu jabs on the NHS are not always taken up.

With the flu vaccine continually changing each year, (led by direction from the World Health Organization who predict the most dangerous strains), it is important that not just the vulnerable get their dose, but also a good proportion of 'healthy' people too. This leads to herd-immunity, which in turn helps to protect our most vulnerable who might not be able to have the vaccination themselves.

**Expanding access to vaccinations**

Offering vaccines through in-store supermarket pharmacies has given NHS patients wider access and choice to the vaccination outside of normal GP hours, as well as providing the affordable dose to private patients which can also help with herd immunity.

through to their local NHS practice.”

Pharmacies work hand-in-hand with the NHS, and any qualifying member of the public can choose to get their vaccination through a supermarket pharmacy, instead of making an appointment with the GP. Mr. Tuddy adds, “Often our patients believe they don’t qualify, perhaps they feel fit and healthy and are in work, so they don’t even check. However common conditions such as asthma qualify, many patients simply aren’t aware. We can help them double check.”



**Offering vaccines through in-store supermarket pharmacies has given NHS patients wider access and choice to the vaccination outside of normal GP hours.**

**Other vaccines are available**

Private patients are also welcome and not just for flu vaccinations. Other offerings include a meningitis vaccination and a pneumococcal vaccination, the latter which wards against pneumonia. These are available all year round and there is no need to book; simply ask in store for further details.

The more seasonal flu jab is available in-store from mid-September but customers can still benefit from the jab right the way into February. Most can be accessed straight away or with a short wait, although there might be a short observation period required once all the documentation is complete and the vaccination has been administered.

**Providing support and reassurance**

During the pandemic, pharmacies have been a first port of call for many worried families unable to speak to their GP or other medical practitioners. Mr. Tuddy believes staff have done an amazing job. He says, “Our pharmacists simply haven’t stopped and we’ve kept our doors open during lockdown. The demand for flu this year has been much more than in previous years, and we know that’s down to the public trying not to overwhelm the NHS with a double-whammy of coronavirus and flu. We are very much part of the NHS and are happy to help any of our shoppers with their concerns.”



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**With the flu vaccine continually changing each year, (led by direction from the World Health Organization who predict the most dangerous strains), it is important that not just the vulnerable get their dose, but also a good proportion of 'healthy' people too.**

This year, with the global pandemic among us, there has been a huge uptake in the number of both NHS and private patients using pharmacy vaccination services including within supermarkets.

Faisal Tuddy, Superintendent Pharmacist at Asda explains, “With over 254 stores nationwide, we find that it is the convenience of our pharmacies sets us apart. Our doors open when the supermarket opens, many of our pharmacies open from 7am in the morning until 11pm in the evening. Any customer can pop in for a flu vaccination – with no appointment necessary. The convenience of getting a flu jab alongside your weekly shop is hugely important for our customers, who are facing longer waiting times to get

## Boosting health systems to deliver COVID-19 vaccines

As scientists race to produce COVID-19 vaccines, the World Bank is helping developing countries boost their health systems to ensure broad access to immunisation.

**V**accines are critical to combat the virus that is currently causing human and economic devastation around the world.

To contain the COVID-19 pandemic, it is also important to ensure that all countries, including the poorest, have fast, fair and equitable access to safe and effective vaccines and medical treatments, when available.

### Strengthening health systems

Obtaining vaccines is only the first step. Health systems in developing countries need to be equipped to deliver immunisations and safe treatments to households and individuals. We are providing \$12 billion along with technical expertise to help countries purchase vaccines and strengthen their health infrastructure and frontline workforce in advance of COVID-19 vaccines.

### Different needs in different countries

Needs vary in each country: from training vaccinators, managing cold chain storage, planning logistics for vaccine delivery, enhancing laboratory capacity to, devising effective public information campaigns on COVID-19 prevention and immunisation. All of which are all crucial tools to combat the pandemic.

### The importance of primary health services

Boosting the resilience of primary health care systems is central to the World Bank's work in developing countries. Strong health systems are key not only to distribute COVID-19 vaccines, but also to ensure other health services, especially maternal and child services, can continue during a pandemic. Our early estimates suggest child mortality could increase up to 45% because of health-service shortfalls and reduced access to food.

Ensuring equitable access to COVID-19 vaccines is essential to overcome this global health crisis, save lives and rebuild livelihoods around the world. It is also important that governments engage with communities to ensure citizens have the information they need about COVID-19.

We will do everything we can do to help developing countries bolster their health systems to be able to deliver safe and effective vaccines when they become available.



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# Collaboration – the key to efficient vaccine development

Global partnerships are essential for accelerated development of urgently needed vaccines.

**T**he COVID-19 pandemic has sorely reminded us that there is no time to lose when developing vaccines for a world in desperate need.

Given the complexity and interdisciplinarity of vaccine development, international research collaboration has proven key for overcoming the scientific, financial and social challenges it involves.

### Product development partnerships – a global approach to worldwide problems

The fast-track development of vaccines for COVID-19 and Ebola has illustrated the importance of global collaboration for swift development of vaccines.

Even before these outbreaks, international partnerships have been the preferred model for developing new or improved health tools.

This is especially true for diseases disproportionately affecting low-and middle-income countries and whose solutions lack commercial incentives.

Product development partnerships (PDPs) are non-profit organisations that started emerging in the 1990s. International, cross-sectorial partnerships are their basis, involving public research institutions, private sector, governments, and civil society - including partners from affected countries.

PDPs facilitate vital projects, such as one of the current projects by the European Vaccine Initiative (EVI) which undertakes the clinical testing of a vaccine candidate for a stigmatising skin disease called post kala azar dermal leishmaniasis (PKDL).



**The fast-track development of vaccines for COVID-19 and Ebola has illustrated the importance of global collaboration for swift development of vaccines.**

Coordinated by EVI, partners from United Kingdom, Sudan, Uganda, Kenya and Ethiopia are teaming up to evaluate the safety and efficacy of this vaccine for preventing PKDL.

### Feeding two or more birds with one seed

Research into individual vaccines, albeit essential, is only part of the puzzle. Other initiatives are needed that can have a more wide-spread and transformative impact on vaccine development.

One of them is TRANSVAC, an initiative that aims to establish a sustainable, disease-overarching vaccine infrastructure and that is supported by more than 20 leading research organisations from across Europe.

Such an infrastructure will allow to pool and leverage existing resources, technologies and other tools, creating synergies that truly convert it into an accelerator of vaccine development.

In times when some may choose to build barriers; building alliances, sharing ideas and resources across disciplines, borders and cultures not only fosters better innovation and faster progress, but also a more resilient society.



The European Vaccine Initiative (EVI) is a PDP that has supported the development of ~40 different vaccine candidates from discovery to early/mid-stage clinical development for different diseases/pathogens, including malaria, leishmaniasis, diarrhoeal diseases, and emerging pathogens.





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## Ensuring safety through quality control of viral vaccines

With the world preparing to begin mass COVID-19 vaccination programs, how do scientists ensure vaccines remain safe?



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**V**accine safety is the primary concern of all regulatory agencies. To ensure only safe and sterile products reach patients, they impose stringent limits on the amounts of microbial contaminants and impurities that can be present during manufacturing.

### Safety first

Scientists develop and implement a detailed quality control (QC) testing strategy at the earliest stage of a vaccine's development – when the first material for use in human clinical trials is produced – to ensure these limits are met. The QC testing strategy is developed for the vaccine.

Vaccines are often weakened or inactivated whole viral vaccines, or viral vectors (e.g. defective adenoviruses) made in cell cultures expressing the immunogenic protein (e.g. a purified spike protein of COVID-19 coronavirus). They may also be a purified immunogenic protein made in cell bioreactors.

More recently, newer vaccines have emerged in the form of mRNA molecules encoding the immunogen once inside the patient's cells (for example, the Pfizer and Moderna COVID-19 vaccines).

### Testing at every stage

Appropriate testing methods are used to check starting materials (cell banks, viral seed banks and media), intermediates (bulk harvests), and sterile batches of the purified vaccine

clinical product. It is also critical to authenticate the vaccine's identity to avoid patients being injected with the wrong product. This is done using nucleic acid based DNA sequence technology.

The vaccine is also screened for purity at every stage of the manufacturing process to ensure it is free from contaminants, such as unwanted bacteria or fungi, using standard sterility assays, and contaminating viruses.

### Using a broad spectrum approach

Due to their diverse nature and growth requirements, contaminating viruses are much more difficult to detect than bacteria and fungi. High magnification transmission electron microscopy studies, cell infectivity, and molecular biology methods like PCR and DNA sequencing are used to detect unknown viruses at each production stage.

It is also important to demonstrate that at the purification stage, any residual materials, such as cellular DNA and proteins or other ingredients, have been removed to acceptable limits. Residual impurities are detected and quantified using techniques like PCR and ELISA. Without consistency in vaccine purity, regulators will question clinical trial data.

### Vaccine production

Once the vaccine is approved for general use in humans, the QC testing strategy is employed for every batch to ensure safety standards are maintained.

Paid for by **Nordic Research Network**



## The value of other vaccinations against COVID-19

During the coronavirus pandemic, people have experienced a unique sense of helplessness in the absence of a quick fix. At the same time, vaccines have been developed at warp speed and the wait has felt like an eternity.

**N**o wonder there has been renewed interest in the indirect benefits of vaccinations. The indirect effects have been known for decades, thanks to the pioneering observations of Peter Aaby in Guinea-Bissau, where BCG and measles vaccines reduced mortality and morbidity beyond their target diseases. That was in Africa, and the findings did not become mainstream until now, when COVID-19 poses a real threat for lives in developed countries.

### The importance of repurposed vaccines

BCG and MMR are now called “repurposed” vaccines as it is believed that they may reduce the severity of COVID-19 disease. It is an enigma why children and adolescents mostly experience only mild or no symptoms at all with COVID-19. A simplified explanation is that live vaccines like BCG and MMR stimulate and “train” innate immunity. In Europe and America, the two doses of MMR given to children may play a key role.

### Understanding efficacy of rotavirus vaccines

My lifetime work is with rotavirus vaccine. In the 1980's and 1990's others were often wondering why rotavirus vaccines worked better in Finland than elsewhere. BCG vaccination was still being administered in Finland but not in most European countries or the US. It is now plausible that BCG vaccine enhances the efficacy of rotavirus vaccine, through innate immunity.

The list of beneficial vaccines for COVID-19 may grow. A surprising piece of news is (unpublished) data from the Dutch University Hospital in Radboud, where it was reported that the incidence of COVID-19 in hospital workers was lower if they had received inactivated seasonal influenza vaccination.

The implications of this growing evidence may be reduced to a maxim: vaccinations through life are important for all.

Timo Vesikari, MD, PhD worked with University of Tampere to establish a vaccine research center and vaccine trial network. The University no longer exists but he continues to work on vaccine studies through Nordic Research Network Oy.



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WE WILL  
**NEVER  
STOP**  
INNOVATING FOR A  
HEALTHIER WORLD

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## What can we do for you?

There is much to be done in healthcare, and when it comes to COVID-19, we are leveraging our innovations in ways that can make a real difference.

Right now, our world-leading scientists and engineers are working with partners around the globe to achieve the goal of delivering a safe and effective vaccine - and provide access to future therapies.

We ask ourselves every day, what can we do for you? And as we all work together to take on this global pandemic, we will NEVER STOP innovating for a healthier world.

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