



CONNECTED HEALTH – AN EFFECTIVE SOLUTION TO IMPROVE PATIENT ADHERENCE

Here, Sai Shankar, Director for Connected Devices Business Development, Aptar Pharma, details the problem of non-adherence, in particular in asthma and COPD, and how its solution, along with myriad other benefits, can be found in digital healthcare and connected devices.

THE PROBLEM: NON-ADHERENCE

The success of any medication is dependent on the individual patient's adherence to the dosing regimen and, in unfortunate reality, 60% of patients fail to take their medication properly. The impact of these compliance issues does not merely begin and end with the patient – it extends throughout the supply chain, from pharmaceutical companies, through hospital services, all the way to the physician.

The Scale of the Problem is Significant

To illustrate, let us examine the prevalent conditions of asthma and COPD. We know that there are 334 million people worldwide who suffer from asthma and 100 million who suffer from COPD.¹ We know that

symptoms in around 50-60% of asthma patients are uncontrolled² and adherence rates to daily controller medications are under 30%.³⁻⁶ It is predicted that another 100 million people will suffer from asthma by 2025,¹ so the need to manage patient adherence better will only accelerate. This is an issue we need to address urgently today.

The Cost of Non-adherence is Equally Enormous

The treatment cost of asthma and COPD is approximately US \$100 billion (£75.6 billion) per year in the US alone. A further £100 billion a year is spent on managing respiratory disease in Europe.⁷⁻⁹ Annually, it is estimated that pharmaceutical companies in the US lose \$188 billion in revenue because of poor adherence, with the overall cost of non-adherence to the healthcare system closer to \$300 billion.

So, the impact is felt at all levels. Non-adherence accounts for approximately 50% of avoidable health costs, with about two-thirds of said avoidable costs attributable to hospitalisation. With an ever-increasing geriatric population, particularly in developing countries, the incidence of non-adherent hospitalisations will increase – as will, inevitably, the cost of healthcare in the future.

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The real cost, however, is to the patient – to their health, wellbeing and quality of life. While there are substantial gains to be made to the healthcare economy by improving patient adherence, we should be mindful that the real motivator must always be in improving patient quality of life, both now and in the future.

THE ANSWER: DIGITAL HEALTH

There are, of course, numerous components that will contribute to improved adherence, from the choice of device to the clarity of the patient information leaflet. Aptar Pharma believes that a demonstrable and significant difference can be made through the provision of digital health solutions (Figure 1). Aptar’s definition of digital health is “the convergence of digital technologies with healthcare to enhance the efficiency of delivery and make medicines more personalised and precise”. The starting point is connected devices.

Improving Patient Outcomes & Reducing Healthcare Costs

So, why does Aptar believe connected devices and digital health are the answer? Current trends will see mobile phone ownership grow to 70% by 2019 (even higher in more developed countries) which means more people will have access to data-driven mobile technology. A digital health approach will help to identify the target patient population with the highest levels of non-adherence. By effectively targeting problem patients and providing them with precise information and prompts to take medication, greater levels of patient engagement and improved dose adherence can be expected, and therefore improved health outcomes. Improved adherence will consequentially reduce hospitalisation events in chronic disease, and a reduction in hospitalisation rates will lead to a decrease in healthcare costs to payers – patient, physician and insurer.

It is also anticipated that connected

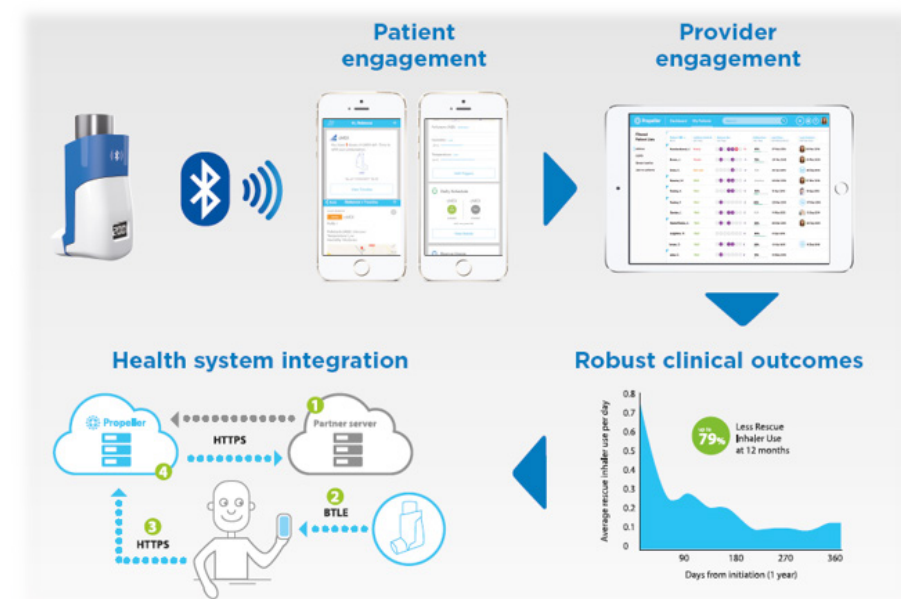


Figure 1: How connected devices can help improve patient outcomes and reduce healthcare costs. (Image courtesy of Propeller Health)

devices will help create a supportive, informed and transparent ecosystem whereby the patient, the physician, the healthcare provider and the pharmaceutical company will have real-time access to information which will immediately improve adherence for the patient. In the short term, it will help physicians assess patients more accurately based on data, rather than patient interpretation. Longer term, it will enable healthcare providers to shape care provisions more appropriately and help pharmaceutical companies deliver more effective products.

Digital Health is Rapidly Changing the Drug Delivery Landscape

Greater levels of collaboration are being seen between drug delivery device manufacturers and digital health solution providers. Aptar Pharma is partnering with cutting-edge software providers, such as Propeller Health (Madison, WI, US) for asthma and COPD and Kali Care (Mountain View, CA, US) for eye care, to deliver truly connected drug delivery solutions. It is also being witnessed that US FDA and EMA regulatory requirements are demanding more of new products, for which digital solutions can aid compliance.

Which Patients Can Benefit Most from Digital Health?

The simple answer, of course, is that everyone can benefit from a digital health solution. That being said, there are some

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groups that are in clear and absolute need.

For example, in the asthma space patients seeking a digital health solution generally have poorly controlled asthma and want to improve their asthma control for themselves. They may also want to learn more about what triggers their asthma, so they can mitigate the onset or respond appropriately.

What Benefits Will People See from a Digital Health Solution?

In simple terms, an improvement in quality of life. For example, people could be more in control of their asthma and have fewer attacks as a result. They could also avoid missing work or school days, and generally not miss out on everyday life.

CONCLUSION

We are living in a world where there appears to be an irreversible increase in asthma and COPD. Predictions suggest

there could be a further 100 million asthma sufferers by 2025 – that's almost a 33% increase expected in just eight years.

There is clear data to show that the overwhelming majority of patients cannot or do not control their asthma effectively, with adherence rates to daily controller medications under 30%. The cost this presents to the entire healthcare community is significant, with the treatment cost of respiratory diseases being \$206 billion in the US and Europe. Ultimately, however, it is the patient who suffers the most, with high levels of hospitalisation and readmission, alongside the increases in their healthcare costs.

As an industry, we can respond to this need today with the provision of connected devices – either as a modification to existing drug delivery devices or as an integrated device. For example, Aptar Pharma has a portfolio of devices that already help mitigate against adherence and compliance issues, with connected inhalers and

ophthalmic devices currently being tested.

There is a clear desire from everyone in the supply chain – from pharma companies and healthcare providers, to physicians and patients – to improve patient health outcomes. By creating a connected ecosystem, real changes can be affected at an individual and global level, whereby patient engagement increases, dose adherence improves and overall health outcomes benefit. Not only would patients manage their medication better, they would also reduce the financial burden on themselves and healthcare providers.

ABOUT THE COMPANY

Aptar Pharma is part of AptarGroup, Inc (NYSE: ATR), a leading global supplier of a broad range of innovative dispensing and sealing solutions for the beauty, personal care, home care, prescription drug, consumer healthcare, injectables, food and beverage markets. AptarGroup is headquartered in Crystal Lake, IL, US, with manufacturing facilities in North America, Europe, Asia and South America.

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Together, we can tackle patient adherence. Let's connect.

Aptar Pharma – delivering connected, intuitive devices to improve patient health outcomes

As the leader in respiratory drug delivery systems, Aptar Pharma is focused on supporting customers and patients to effectively treat respiratory diseases including asthma & COPD.

Today, 60% of patients fail to comply with their medication regimen. At Aptar Pharma, we strongly believe that patient behavior can be changed through connected and intuitive, user-friendly devices. This can significantly increase dose adherence and improve patient health outcomes. That's why we are partnering with digital health solution providers to develop a portfolio of connected devices such as MDIs and DPIs.

To find out more about how we can help you deliver better patient health outcomes via connectivity, call **Chris Baron**, Associate Director, Business Development, at Aptar Pharma on **+33 6 3095 5331** or email **chris.baron@aptar.com**

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