THE ROLE OF ARTIFICIAL INTELLIGENCE WITHIN PHARMACOVIGILANCE AND MEDICAL INFORMATION

You cannot listen to, or read, the news nowadays without there being some mention of artificial intelligence (AI). And some of it is uncomfortable reading. In researching this article I read that one think-tank is predicting Armageddon, with researchers prophesying the famous ‘skynet’ scenario from “The Terminator” movies with self-aware, intelligent robots capable of destroying mankind. It certainly has some people forecasting dystopia. However, I prefer to look at the utopian view of this and relish the advancements that AI will bring, especially within the world of healthcare.

Last time I checked, there are nearly 3.5 billion internet users worldwide with over 3 billion downloads of mobile health apps. As many as 66% were looking for information on diseases, while 56% of users were searching for information on treatment. It therefore seems fairly obvious that most life sciences companies are aware, intelligent robots capable of destroying mankind. However, I prefer to look at the utopian view of this and relish the advancements that AI will bring, especially within the world of healthcare.

AI Is Here Today

From banking and insurance to manufacturing, AI is already common across a variety of industries. Today, AI is used in banking to secure customer identities, mimic bank employees, deepen digital interactions, and engage customers across channels. AI is also being used in fraud prevention and detection and for anti-money laundering. In manufacturing, we are all aware that many jobs have been replaced by the use of robots. It is my belief that AI will soon be mainstream in life sciences, and more specifically, in both pharmacovigilance (PV) and medical information (MI).

In short, AI is everywhere.

AI in Pharmacovigilance

In pharmacovigilance, many of our customers (including major regulatory agencies) are currently evaluating AI to reduce the burden of case processing, enabling them to improve compliance while reducing case processing costs. There are some extraordinary examples of AI being developed within PV, such as auto-narrative generation; narrative analysis (including case extraction and creation); QC assessment; causality assessment; and ‘touchless’ case processing, where non-serious cases are received, verified, coded, processed and submitted without any human intervention. In all of these examples, AI is being used to significantly reduce case processing costs and/or improve compliance. And if reliance on AI is too much of a stretch, Intelligent Augmentation (where human intelligence is supported through technology) can be used to verify many manual PV activities.

But while there are many vendors, technologies and AI tools available, ultimately the effectiveness of AI can only be realised by combining the technology with deep pharmacovigilance expertise and historical data.

AI in Medical Information

As you will all be aware, there is a close synergy between pharmacovigilance and medical information that mandates collaboration between the two departments. As such, some of the cases where AI is used will be shared between the supporting PV and MI systems.

MI also has its own processes where AI can be effectively applied, reducing the cost of handling medical information requests. Today, the delivery of MI content is a manually intensive process that requires advanced searching of frequently asked questions (FAQs), response documents and often historical enquiries. All drug manufacturers have prepared their standard responses and FAQs to enable MI staff to provide accurate, consistent and timely scientific medical information. A few have gone further and have deconstructed their standard response documents creating a collection of ‘components’ or statements in such a way that they are both reusable and easily adaptable across different content. In future, AI could be used to help with the selection and preparation of response packages by applying advanced algorithms to find, select and compile responses.

As we increasingly turn to different communication channels, many companies have started to investigate the use of online chat to communicate with HCPs and consumers. This is something we probably all use today as we talk to our utility providers, airlines or other suppliers. But do you truly know if you are actually speaking with a human or an automated chat bot/robot?

Chat bots, which are computer programs that mimic human conversation using AI, are commonly used in applications such as ecommerce customer service, call centres and internet gaming.

Chat bots are already being trialled in healthcare today. You may have seen the NHS initiative to provide chat bots instead of calling the NHS 111 number. This amazing trial will allow people to enter their symptoms and receive an automated response by consulting a large database of symptoms and illnesses.

In our modern world, where we expect instant answers, chat bots can be used in a number of scenarios. Many companies have outsourced their after-hours support to service providers who are able to provide a limited medical information service using basic FAQs and standard response documents. This is a costly exercise and subject to human error as resources are updated and replaced. Such a service could be provided online, with call centres replaced by chat bots driven by AI. Imagine combining the approved content maintained within the MI system with sophisticated chat bots. Using advanced algorithms, the system will understand the request of an HCP or consumer, deconstruct it, instantly search all of the existing approved content and historical data that is available, and then provide the answer instantly. I am sure this will become an ‘Alexa’ skill in the very near future.

The Future

Artificial intelligence is soon to be common place in all industries, and will become an integral part of our lives. There are a myriad of potential uses of AI for MI and PV, and if you don’t have an AI strategy, you will be left behind. AI will allow us to automate many repetitive tasks and free resources to focus on more complex enquiries or other value-added functions. It is inevitable that some jobs will be lost, but many jobs will be shifted to deliver higher value output.

References