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CURRENT OPINION

Developing Medical Affairs Leaders Who Create the Future

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Abstract
Medical affairs has evolved over recent years from a support, to a partner, to a strategic leadership function. In the future, there will be significant changes in healthcare and pharmaceutical industries, and many of these will be due to technological advances and digitalisation. Medical affairs will be largely influenced by these developments in terms of partnerships with key stakeholders, embracing innovation and patient-centric healthcare, and demonstrating value for novel treatment options. In order to secure future success within their roles, medical affairs professionals will have to demonstrate specific capabilities founded on communications and behavioural change, business leadership acumen, knowledge acquisition and self-development, and the ability to generate real-world evidence from insights and expertise within data science and analytics. It will be our responsibility as medical affairs leaders to create this foundation for the leaders of tomorrow.

Key Points

The medical affairs function in the pharmaceutical industry is evolving and modifying as a result of several drivers of change.

This may include areas such as evidence generation, interaction with stakeholders and channels of communication.

This will influence the healthcare and pharmaceutical industry to a greater extent in the future.

Specific capabilities require focus among medical affairs professionals to prepare them for the future.

There is a need to develop specialised programmes for the medical leaders of tomorrow.

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1 Historical Context of Medical Affairs

Medical affairs has developed as an integral part of the pharmaceutical industry over the last 50 years, evolving from a support function to a reliable strategic partner. The evolution of medical affairs can be divided into two distinct phases [1, 2].

1.1 Phase I: Scientific Support to the Commercial Department

Historically, this role involved the provision of scientific and medical information to healthcare providers and medical governing bodies by reviewing and approving promotional messages and materials in line with guidelines and regulations. Other pivotal responsibilities included within this phase were the development and delivery of training for sales representatives to enhance their understanding of products and therapy areas, conducting Phase IV clinical trials and supporting investigator-initiated trials.

1.2 Phase II: A Reliable Partner to the Organisation

The increasing complexities of drug development, discovery of new targets, emergence of personalised medicines, regulatory changes regarding the relationship between industry and physicians, and shifting expectations of different stakeholders have all contributed to the establishment of this phase.

By partnering with medical societies to cascade the latest data, scientific communication with respected medical and scientific experts became an integral part of the responsibilities of this role. The emergence of medical science liaisons opened up opportunities for obtaining crucial medical insights and leveraging these to develop organisational strategies.

Over the last several years, the nature of new products has changed and the science underpinning the products has become more complex. To address this, medical affairs teams started to partner during launch preparation—this included raising awareness of the condition, setting up diagnostic facilities, building healthcare capabilities, and ensuring access to medicines. Additionally, collaborating with market access teams to develop evidence that supported access submissions, both in the pre-launch and post-launch phases, particularly in specialised care, became vital responsibilities. All of these responsibilities are the foundation and continuing basis of medical affairs, which are consistently evolving within the changing environment (Fig. 1).

2 Healthcare, Pharmaceutical Industry and Medical Affairs Environments in the Future

In 1963, Dennis Gabor, a Nobel laureate in physics—most notable for inventing holography—wrote in his book *Inventing the Future*: "The future cannot be predicted, but futures can be invented. It was man's ability to invent which has made human society what it is" [3]. Healthcare evolution is moving hand in hand with technological innovation that is driven by disruptive technologies (Fig. 2).

2.1 Healthcare

Healthcare is finally being designed around people and patients, and the future will bring even more integration. Everything from diagnosis to drugs to devices will be custom designed to seamlessly integrate into a patient's daily life. Digital health technologies, such as wearables, will be at the forefront. Healthcare practice will be digitalised and decentralised; healthcare practitioners will have improved connectivity and miniaturised diagnostic technology to ensure accessibility and convenience for future medical consultations. Medical robots and artificial intelligence (AI) will create more efficient healthcare platforms, powered by the insights of data analytics. Genetic information will be readily available to physicians, facilitating tailored and personalised healthcare decisions for every patient. Technology will address privacy concerns. Healthcare services will be utilised continuously, leading to a subscription-based business model, as one option that focuses on high productivity and asset-light strategies [4]. Healthcare will be integrated and outcomes based.

The impending revolution predicted within the realm of healthcare has taken root in the current era. Richard Watson and the Tech Foresight team at Imperial College London suggested a table of disruptive technologies with a timeline (now, new, and distant future) specific to different industries. This consists of 100 potentially disruptive technologies capable of significant social, economic, or political upheaval. Some of these technologies, such as robotic companions, intention decoding algorithms, or delivery robots, are currently emerging. It is clear that most, if not all of them, irrespective of the industries they represent, will change the healthcare model and delivery. Hence, disruptors

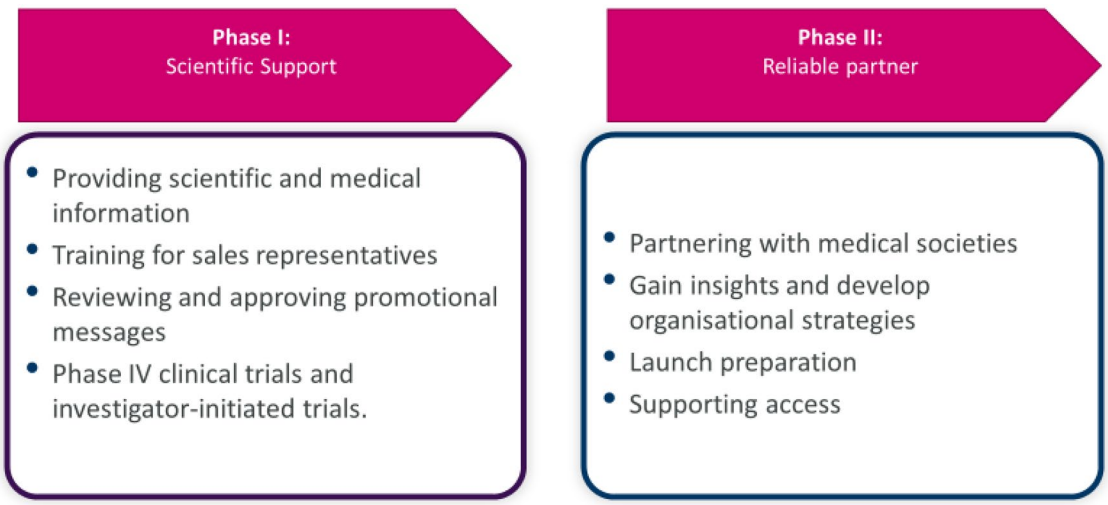

Fig. 1 Evolution of medical affairs function

Fig. 2 Healthcare, pharmaceutical industry and medical affairs environment in the future

should promptly start integrating and executing these technologies [5, 6].

Despite the great strides in technology, human interaction will remain vital within the healthcare environment. This trust between humans will be crucial, especially when patients have to make life-altering decisions. There is no doubt that shared decision-making, where patients play a more central role in deciding on solutions based on all the data presented, will be critical. People will be inclined to engage in interactions with physicians to discuss data and information from various technologies (such as wearables on vital signs, household air quality monitors for allergens, sleep pattern analyses from smart mattresses, and stress level assessments from contact lenses) that have synchronised into a universal healthcare database.

With the rapid evolution of healthcare and technology, some jobs may cease to exist and new jobs, such as data-based medical diagnostics experts, genetics coaches, precision medicine compounding pharmacists, and health finances planners, will evolve in the future, warranting new approaches, capabilities, and training for the next-generation workforce [7, 8]. As a result, jobs within healthcare will require new leadership profiles, skills, and capabilities from medical affairs and the pharmaceutical industry.

2.2 Pharmaceutical Industry

To navigate developing healthcare trends, it is imperative that pharmaceutical industry change their model through partnerships—completing the transition from 'pill' to a 'platform' company—to holistically streamline and improve the patient experience. The model of the future would inherently connect awareness, prevention, early detection and diagnosis, and post-treatment well-being, while at the same time, to shape the future workforce it is important to focus on the following four areas: (1) patient-centricity that shifts its outlook from products to patients; (2) data analytics that effectively leverage omnichannel data to better identify, develop, and market new medicines; (3) social listening competencies that facilitate understanding of human behaviour; and (4) deep learning technologies with applications on range of devices that support understanding and effectively execute programmes on disease management and compliance to treatment [9, 10].

The pharmaceutical industry of the future will continue to develop new ways to diagnose, treat, and cure a wide range of diseases. With the increasing costs required to develop innovative medicines that have a competitive edge compared with their competitors, the ability to tailor treatments to patients, with high precision, will be imperative, not only to physicians but also to payers. Innovation will move at an increasingly high speed, making internalising new capabilities a luxury the industry cannot afford and forcing cross-industry collaboration to become the norm. Creative solutions to support precision medicine with new technologies, e.g. high-tech contact lenses, smart toilets, implantable sensors will need to be developed [9, 10]. Risk and compliance savviness will be a newly required capability as the

willingness to take the right risks will be just as important as avoiding the wrong ones [11].

2.3 Medical Affairs

The future of medical affairs will be largely influenced by the healthcare space; however, the medical affairs function itself still has the potential to modify the pharmaceutical industry and healthcare. It is predicted that the following are three main areas where medical affairs will lead [12–15].

2.3.1 Partnerships with a Broad Range of Internal and External Stakeholders, Incorporating Patient-Centric Healthcare

Medical affairs will partner with physicians, pharmacists, access providers, diagnostics groups, insurance providers, patients and patient advocacy groups, tech companies, and entrepreneurs, as well as the general community, to enhance patient-centric healthcare. Medical affairs professionals would build a network with these partners and create a sustainable ecosystem, where patient centricity and demonstration of the real value of medicines and treatment options are paramount. Medical teams would also develop sophisticated systems and tools to track and assess the impact of healthcare interventions. Additionally, medical affairs would play a role in enhancing the knowledge of patients and advocacy groups, thus helping them to gain a greater visibility and voice in decision making.

2.3.2 Embracing Innovation in Data Generation

Future medical affairs teams, through their thorough understanding of science and data capabilities, as well as their dialogue with stakeholders, will be well positioned to understand the generation of evidence required to support the entire product lifecycle, to optimise patient outcomes. In the era of digitalisation, medical affairs will be able to use data analytics and complex tools for creating big data, incorporating AI techniques, and building cloud-based platforms to enhance data collection, even in community settings and stand-alone clinics. The data collected will further help to improve understanding of healthcare issues, support the right decision making, and shape health policy in the long term. Furthermore, medical affairs will be responsible for taking ownership of evidence planning and generation in the digital age.

2.3.3 Demonstrating Value for Novel Treatment Options

With profound insights on healthcare professionals and patient needs, medical affairs will be one of the key stakeholders driving the organisational strategies to develop and deliver people-centric healthcare solutions. Medical affairs will play a key role in demonstrating clinical and economic value to make medicines an option for patients and will focus on key aspects of value that are more pertinent to a specific stakeholder, e.g. out–of–pocket for patients, reimbursement for payers. Medical teams will ensure a broad strategy to maximise benefits to physicians and patients, and ensure that cost effectiveness and comparative efficacy data are available at the launch of a product. Thus, the rapid evolution of medical affairs is transitioning to an integrated strategic role within the organisation, focused on improving patient experiences and outcomes [16].

3 Drivers of Change

Three main drivers of change may influence medical affairs. The first involves increased expectations from a broader set of stakeholders, including physicians, payers, patients, caregivers, and the community. An increased awareness and empowerment, the nature of new treatment modalities (particularly in specialty care), and the new models of healthcare delivery are central to this change. The second driver is the rapid advancement in technology and the interest of digital giants and start-up companies within the future healthcare ecosystem. An increasing number of stakeholders involved in a strong patient-oriented environment will also drastically change the capabilities required for medical affairs to successfully manoeuvre among a diverse group of both internal and external partners, while providing smart and practical, yet innovative, solutions that satisfy everyone's needs. Medical affairs will not only need to be good in the core functionalities but also savvy in the digital and innovation space, while having the capabilities to manage a wide range of new stakeholders. The third driver of change is the desire to change and meet patient needs in the future.

4 Medical Affairs—Capabilities, Skills, and Experiences Needed for the New Environment

With the emergence of additional stakeholders, the healthcare environment will involve more complexities. Large technology companies such as Google, Amazon, and Apple are entering the healthcare space and offering healthcare solutions directly to patients. Patients will thus gain increased access to their electronic healthcare records and be more empowered to make decisions [17].

In 2020, the COVID-19 pandemic provided an opportunity for the pharmaceutical industry to demonstrate its societal value in the race to bring new treatments and vaccines to patients globally. However, will this recent trend of a more

positive perception expand the horizons of the pharmaceutical industry in terms of new opportunities for collaborating outside of the usual stakeholders? The medical team of the future will need to think about how to broaden its influence across the healthcare community and society as a whole. Some of the key capabilities that need to be developed are provided in Fig. 3.

4.1 Communications and Behavioural Change

Translating evidence into the right scientific narratives meeting the needs of all stakeholders to make the right choice when selecting the most appropriate medication remains a core capability of medical affairs. However, with the changing environment, the right choice would include the whole patient ecosystem, thus impacting the role of medical affairs and therefore the capabilities of its practitioners.

4.2 Business Leadership, Including Novel Leadership in Partnerships

Fostering stronger partnerships across the healthcare ecosystem, especially with government agencies, health authorities, start-ups, and technology companies, is key within the new environment. This means that medical affairs professionals need to have an intrinsic passion to collaborate with partners and need to take the role of the 'conductor of the orchestra': *shape* the project, *execute* in the best possible way, *listen* critically, and *synergise* with stakeholders to interpret concepts accurately. This will require excellent skills in team building, leadership, and application of emotional intelligence to execute and deliver a project seamlessly.

4.3 Knowledge Acquisition and Self-Development

Another critical capability for our future leaders is the ability to role model growth mindset, innovation, openness, and continuous learning. To be able to meet the needs of a constantly evolving healthcare system, medical leaders must be able to take current knowledge and adapt it for future use, both within and outside the medical arena.

4.4 Generating High-Quality Evidence from Real-World Insights (Health Economics, Payer, and Real-World Evidence)

Evidence generation has become an increasingly important part of medical affairs—filling the gaps that appear from early discussions with experts, payers, and patients on new medicines. Many companies are in the process of building this capability, but they need to escalate development due to the rapid evolution in data analytics, big data, and AI.

4.5 Data Science and Analytics Expertise

Robust capabilities in data analytics need to be built to ensure that medical affairs accelerate data generation and further help patients, physicians, and payers to make the right choice for the right medication. The medical leader of the future will need to learn how to work with data scientists who will build and drive medical insights, generate data using advanced digital methodologies, and provide the healthcare community as a whole with impactful medical insights (Fig. 3).

4.6 iStep Up to Leadership

To ensure that the right 'person' is recruited and developed within medical affairs (which encompasses the capabilities, skills and experience discussed within this article), an ecosystem of sustainable development interventions centred around our flagship development programme, iStep Up to Leadership, has been designed. These interventions not only look to develop the capabilities, skills, and experiences of

Fig. 3 The seven key capabilities for driving the future of medical affairs

the medical leadership community, but also to inspire and engage. This programme is specifically developed for medical affairs leaders who are potential candidates for a Medical Director role in the future and the entire programme has been designed to develop the future Medical Directors; hence this is a very specialised programme compared to other leadership programmes internally and possibly externally. Fundamentally, these activities aim to accelerate talent from across the international community so that future global medical leaders are created.

The development activity is planned around the 3E framework: Education, Experience, Exposure. Through collaboration with medical affairs leaders, human resources, local markets, and external organisations, the aim is to drive a culture of lifelong learning by providing knowledge acquisition opportunities and empowering employees to own their development through education and experience with stretch assignments and secondments, as well as exposure to senior leaders.

iStep Up to Leadership, a 1-year intervention, combines individual development with group experience to build sponsorship and networks across the organisation. The experience is bespoke to each individual leader, identifying, at the beginning of the programme through psychometric assessment and experience analysis, the specific capabilities and skills requiring focus for learning. Once the development needs are identified, individuals are assigned a programme mentor to guide them through their learning journey. The mentors are hand-picked from the most experienced international medical leaders; to ensure suitability, the mentors and mentees are matched based on the development needs of the participants, who are then exposed to a series of group and individual learning events. These include technical and leadership modules from external and internal experts, and interactive peer-sharing sessions, during which participants support each other's learning and development by sharing their own experiences, knowledge and best practices in areas including compliance, patient centricity, leading through change, and digital innovation. Finally, to provide a view on the future of medical affairs and its role therein, a partnership with a leading management consultancy has been established to produce the latest innovative medical techniques and industry insights, with the focus firmly on the future of healthcare.

iStep Up to Leadership provides access to knowledge, senior leaders, industry-leading experts, and most critically, each other, forming a community within which everyone can continue to learn and grow. Life-long learning, which not only involved adaptation to the changing environment but also anticipation of future changes in the healthcare ecosystem, allows for the development of best-in-class medical leaders for the future, who will, in turn, inspire the next generation.

5 Conclusions

To conclude, medical affairs has now become a strategic function within the pharmaceutical industry—evolving from a support to a partner to a leadership role. Current and evolving changes within the healthcare and pharmaceutical industries, often influenced by technological advances, affect the function and, possibly, structure of medical affairs. As medical affairs embraces the changing scenario, it needs to build in new technical, as well as leadership, capabilities. It is our responsibility to create that foundation in order for the next generation of medical affairs leaders to develop, thrive, and succeed, and propel medical affairs into the next evolutionary phase. It is obvious that medical affairs that is designed for the twentieth century will be eclipsed by the coming era of patient-centric healthcare.

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