2016 edition

GenSearch
TALENTS & EXCELLENCE

Life Science Talks

Value in Healthcare: Who Holds the Key?

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Life Science Talks

Sébastien Stoitzner,
CEO - GenSearch

For the third consecutive year, I am very proud to share with you this white paper, created from our 2016 Life Science Talks event. Our aim is to deliver a platform for the different stakeholders in healthcare, to be able to continually share their knowledge and insights of the market and its evolution.

Every year we approach this event with the same enthusiasm, equally shared by the potential speakers we approach, and the people we invite.

In 2016 we have, yet again, been able to put together an outstanding and diversified panel of international speakers. They have shared with us and the audience of around 100 international healthcare industry professionals not only their vision, but more concretely, examples of projects that they have put in place to adjust to the changes in their environment.

Our first Life Science talks was entitled "Healthcare, from products to solutions", the following year we focussed on "Health Outcomes". This year, we explored "Value in Healthcare: Who holds the key?" where our focus was on identifying who may be is influencing the transformations needed to define and deliver value in this new age.

"Every year we approach this event with the same enthusiasm, equally shared by the potential speakers we approach, as well as from the people we invite."

For the third consecutive year, Silvia Ondategui-Parra (EY) was our facilitator. Through her broad vision and experience of the industry she managed, yet again, to create a real synergy between the speakers and the audience which I would like to thank her for.

I would also like to thank the speakers: Charles-Etienne de Cidrac - Head of Strategy and Business Development at the AXA Global Line Health; John Grumitt - Vice President, International Diabetes Federation; Isabelle Hébert - Senior Vice President Insurance, MGEN; Yasha Mitrotti - Corporate VP, EMEA and Global Commercial Performance, BioMerieux and Francois Nicolas - VP, Diabetes and Cardio-Vascular Integrated Care, Sanofi, for all their time and energy as well as their contribution to making the Life Science Talks event a success.

The healthcare industry is at a crossroads. As a consequence, we are seeing the emergence of new business models which require new roles and new competencies in all sectors. As a European Executive Search firm, our relationship with local, national and international clients and candidates as well as our attendance at main industry events, provide GenSearch with access to an amazing amount of information and knowledge. This enables us to have both, a macro and micro vision of the market which gives us the ability to recognise and anticipate the industry's evolving needs, provide creative solutions and match the best talents to those needs.

We are already working on the next edition and look forward to seeing you at our 2017 Life Science Talks in Paris.

I hope you will enjoy reading this white paper.

The Speakers

"The healthcare system is changing on a daily basis. This is governing how the majority of Life Science companies are trying to position and partner with these changes. One of the main aspects of this movement, is the changing role of the different stakeholders. Payers are very much at the heart of the key reimbursement decisions that impact fundamental changes in the operational aspect at the provider and healthcare levels. Patients and healthcare advocacy organisations are contributing to the decision making process, not just individually, but also as a group. Physicians, who deliver healthcare to patients, also play their part in this process. They help patients to navigate across more complex healthcare systems in order to be able to obtain the best patient-centred care. This movement is supported by several technologically driven initiatives connecting the various stakeholders in a cost-effective manner. The rules and stakeholders have changed."

Silvia Ondategui-Parra, *facilitator of the event*

Silvia Ondategui-Parra

MD, MPH, MSc, PhD – Partner
Mediterranean Life Sciences & Healthcare Leader, Global Market Access Leader
EY

Charles-Etienne de Cidrac

Head of Strategy and Business Development
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John Grumitt

Vice President
International Diabetes Federation

Isabelle Hébert

Senior Vice President
Insurance
MGEN

Yasha Mitrotti

Corporate VP, EMEA & Global Commercial Performance
bioMérieux

François Nicolas

Vice President, Diabetes & Cardio-Vascular Integrated Care
Sanofi

Executive Summary

GenSearch is a pan European Executive Search and HR services consultancy firm dedicated to the Life Sciences. Its focus covers the Pharmaceutical, Medical Devices and BioTech industries. In the course of its day-to-day activity, the firm has gradually acquired a deep interest and insight into the transformation of the European healthcare systems and their stakeholders.

This white paper was created following the Life Science Talks event "Value in Healthcare: Who holds the key?" in June 2016.

This document is part of a series focusing on the transformation of the healthcare system and a gives a glimpse of the different views from the key stakeholders involved.

The speakers were invited to present their day-to-day challenges, and to give specific examples of how their companies are currently adapting to evolving market needs.

Unlimited budgets are a thing of the past - governments and payers need to save money. Healthcare systems are at risk of bankruptcy as a result of the economic cost of treating chronic disease e.g. diabetes. Payers have obliged providers to reduce costs while delivering value in a rapidly rising demand for treatment for chronic diseases.

Value can no longer come from clinical trial data alone or cost-effective drugs. The way forward is through healthcare solutions which generate outcomes that add value, while keeping treatment costs affordable. Stakeholders' roles are no longer the same; the pharmaceutical industry must transform from being a drug provider to an outcome generator. Insurers must put patients at the centre of their services and MedTech suppliers must do more than just sell products.

This shift in thinking is already triggering an emergence of integrated healthcare solutions e.g. healthcare networks and disease management systems. These solutions focus on reversing the rise/minimising the burden of chronic disease by preventing patients conditions from worsening or even patients getting ill in the first place. If successful, healthcare costs will be reduced.

Providers of clinical diagnostic solutions have a major part to play in this new ecosystem. To deliver value, their products (e.g blood glucose monitors) must demonstrate benefit not only to the patients and their families, but also to payers.

To compete in this new competitive landscape, stakeholders must design new business models to deliver value. They are faced with new challenges in delivering cost efficient solutions and drugs. These changes create new roles and require new talents. Therefore, for the industry to succeed it is vital that they identify and recruit top talent, both from within and outside their industry.

Transformation in healthcare will not take place without both the patients and the healthcare industry's commitment. Patients need the right education to make lifestyle changes and to learn how to live and manage their condition. They must be involved at every level of decision-making. Patients need programmes to ensure they adhere to their treatment. Employers too, must be engaged in improving the health and wellbeing of their workforce.

To answer the question "Who holds the key?" the general consensus seems to be that not one single stakeholder holds the key to value in healthcare. None is able to deliver a complete solution spanning from data capture to intervention. This highlights the fact that stakeholders need to collaborate to optimise the system and value. This way, everyone holds the key and the result is that patients get the healthcare they deserve at an affordable price.

1. Value in Healthcare: The Patients Perspective

1.1 Introduction

Today, patients and carers are taking more and more responsibility for their health and are progressively demanding more patient centric services. They are increasingly demanding to be given the tools to manage their own health.

Global healthcare systems are confronted with major challenges when tackling chronic disease. Amongst the long-term conditions doctors treat, diabetes places one of the greatest burdens on health services. The number of patients with the disease is rapidly increasing.

1.2 Case Study - International Diabetes Federation

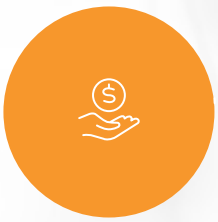
Around one in twelve adults has diabetes. More than 90% have been diagnosed with Type 2 diabetes - a lifelong condition that causes a person's blood sugar level to become too high. Many more adults don't even realise they have this condition, increasing by fifty percent their chances of suffering heart disease.

A BIG ISSUE

1 in 12
adults have diabetes

1 in 3
people with diabetes do not know they have it

50%
more likely to have heart disease

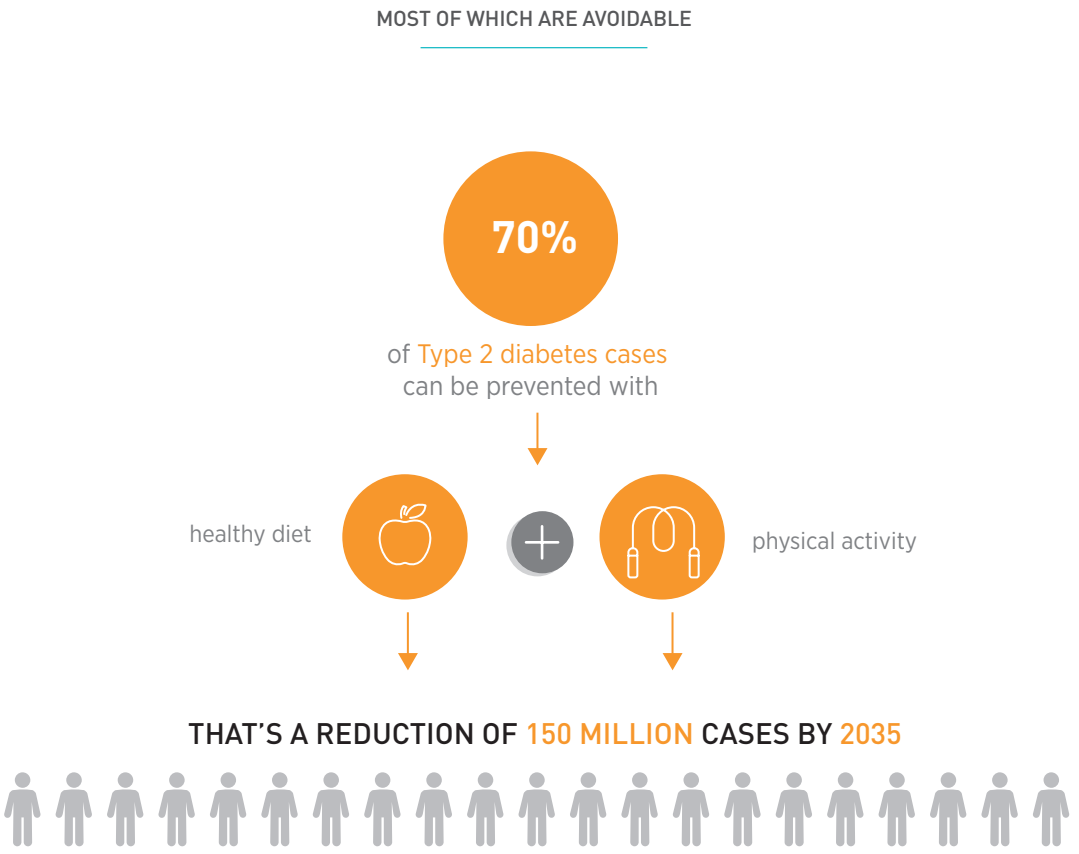


10%
of health spend

SOURCE: INTERNATIONAL DIABETES FEDERATION

The latest International Diabetes Federation (IDF) Atlas[1] predicts there will be over a billion people globally with diabetes or impaired glucose tolerance in the next 20 years. Treating diabetes already accounts for ten per cent of the health spend worldwide. A figure which is likely to rise massively unless immediate action is taken.

This upwards trend could be reversed though, with the right approach, for example, with a healthy diet and physical activity. According to John Grumitt, IDF's Vice President, as many as 150 million cases could be prevented by 2035 through educating people about healthy lifestyles.



SOURCE: INTERNATIONAL DIABETES FEDERATION

1.3 The need for action on chronic disease

> *"This is not a game. This is going to bust the health economy if we don't do something. The vast majority of the cases of Type 2 diabetes are avoidable and 80% of the cost is spent on treating avoidable complications that come with the condition. Yet we appear to preserve the status quo where we treat the symptom, with limited success, and ignore the cause"*
> *John Grumitt, Vice President of the International Diabetes Federation*

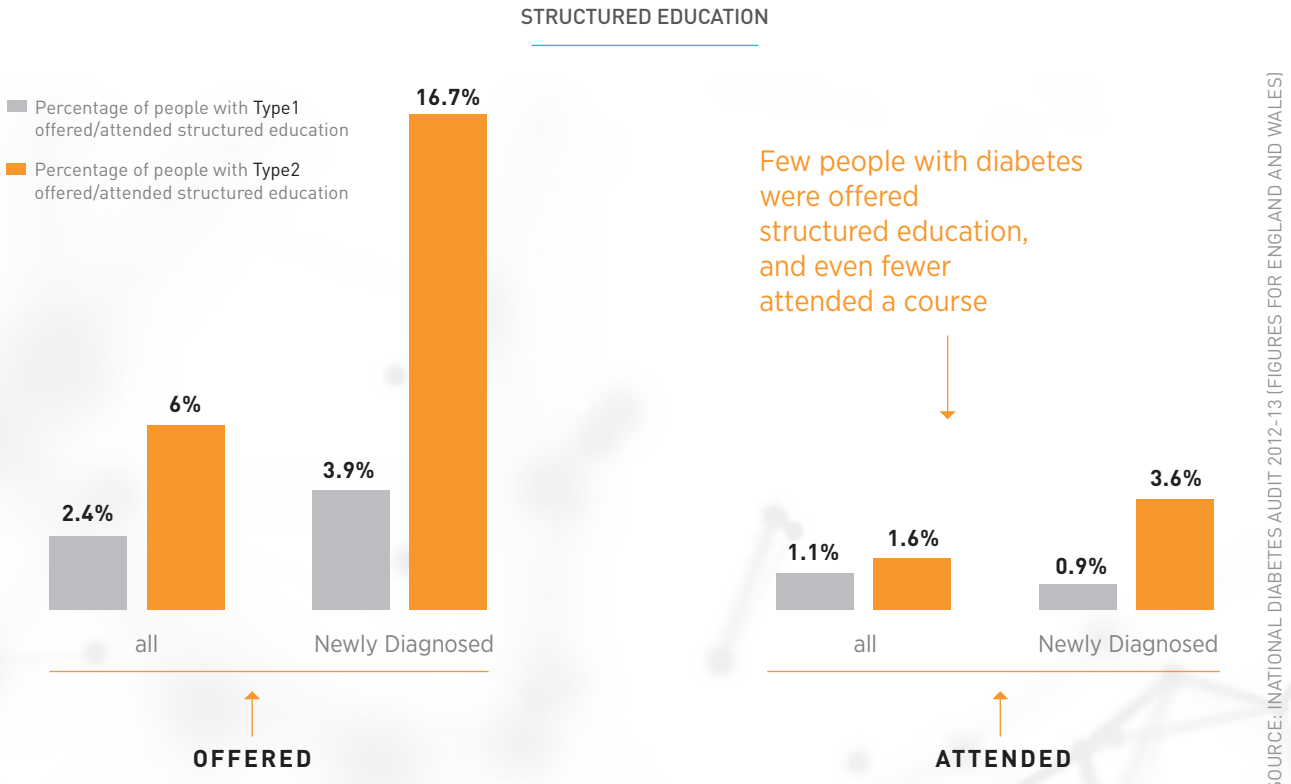
Healthcare professionals and the healthcare industry have the power to change lives through providing sufficient support to patients, in addition to initial treatment plans. The right support could influence the 50% of people not currently adhering to their treatment. It could also successfully address the imbalance in health spend as well as reduce current demand on health services.

1 IDF DIABETES ATLAS, Seventh Edition 2015 - http://www.diabetesatlas.org

This extra support is not yet widely available. At most, people with diabetes spend five hours per year with healthcare professionals; for the other 8,755 hours of the year, they must manage their diabetes alone[2].

> *"Education generally, at the moment, is archaic. In most places, it (education) means that someone takes time off work and goes and sits in a hospital or a village hall somewhere and gets told what to do."*
> ***John Grumitt,*** *Vice President, IDF*

In addition, education programmes geared towards enabling diabetes patients to manage their condition are poorly attended. Less than 3% of people with diabetes in England and Wales attended such programmes in 2012-13, according to the National Diabetes Audit[3].



Those who do attend an education session are told what to do and are then expected to be experts at managing their own condition. This is not enough to change their behaviour. Instead, the way forward is through structured/efficient education and sharing information with patients, then supporting them to make decisions and improve their lifestyle.

Educating people online via the internet, creates greater access to information and learning than classroom based programmes. The advantage is that patients learn in their own time and decide how many hours they spend learning. Importantly, just making information available is not enough. We need to change behaviours to implement what we learn and this requires supported self-management.

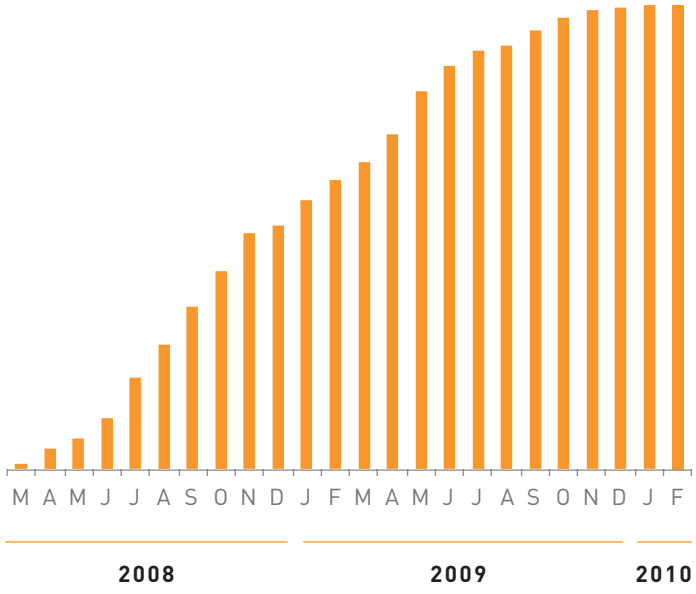
2 Diabetes: the hidden pandemic and its impact on the Middle East and Northern Africa, 2010 – Mena Diabetes Forum, Dubai, https://www.novonordisk.com/content/dam/Denmark/HQ/aboutus/documents/MENA_Diabetes_briefing_book_EN.pdf
3 Diabetes Prevalence, Diabetes.co.uk, http://www.diabetes.co.uk/diabetes-prevalence.html

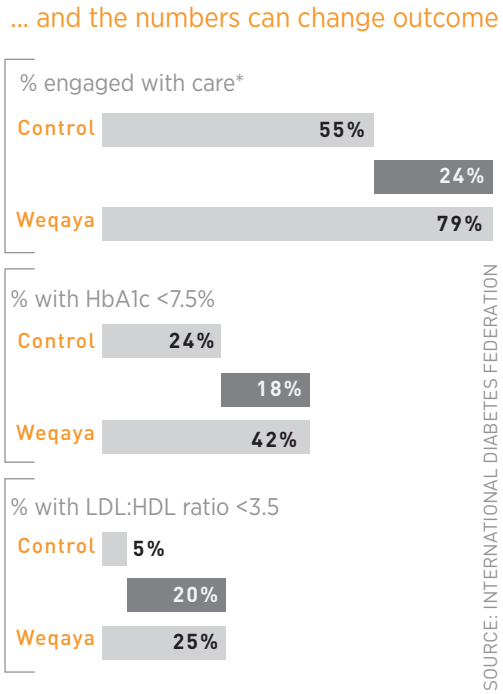
However, there has been considerable resistance to change from providers who are largely focused on offering classroom based courses, rather than creating information and learning delivered in a way that is easy to access and relevant to patients.

1.4 The importance of information sharing

Giving patients with a chronic condition information about their progress (or lack of) can dramatically improve health outcomes. Nevertheless, there is a huge difference between data and information. Data is pointless unless it can be understood by patients. The healthcare industry has failed to focus on what patients want. For example, only one research study has ever asked patients what they need from their insulin pump service[4].

IMPACT OF SHARING DATA





The Benefits of Sharing Data - Abu Dhabi

In Abu Dhabi, on average 23% of the population who are 20 years old are at risk from developing diabetes. The Health Authority Abu Dhabi (HAAD) has introduced a prevention programme called Weqaya (Arabic for "prevention"). This programme incorporates screening the health status of individuals, and provides a comprehensive follow-up for those affected by or at risk of developing Cardiovascular Disease (CVD) and diabetes. It includes a general health related questionnaire. Patient engagement has increased by 24% by giving people information about their condition. The HbA1c (3 month average glucose level) improved by 18% between 2008 and 2010.

4 United Healthcare Restricts Insulin Pump Choice: The Diabetes Community Responds! Written by Mike Hoskins, - 5 may 2016 - http://www.healthline.com/diabetesmine/unitedhealthcare-insulin-pumps

5 Weqaya, Abu Dhabi Health Authority, 2011 - http://www.who.int/tobacco/mhealth/weqaya.pdf

1.5 Patient Power: creating a voice for change

> *"If you think of any consumer organisation that designed anything at all without involving the users in that decision making, and you'd say they were mad."*
> *John Grumitt*

The power of patient groups cannot be underestimated. The healthcare industry is starting to examine both what patients want and how they themselves can improve outcomes.

Below are a few examples of worldwide patient initiatives:

- **England -** a group of people located in a region which had the third worst diabetes outcomes in the country. In 18 months, it had improved to become the fourth best. Critical to this turnaround was the creation of a stakeholder network which included patients as well as consultants, doctors, nurses and educators. The network ensured that patients were involved in every decision made. Unfortunately, this the exception rather than the norm.
- **US -** one insurer chose to restrict the availability of a product to patients to just one manufacturer as they had negotiated a good deal. However, patient organisations got together and forced them to abandon the project.
- **New Zealand -** a patient group persuaded the fast food company, McDonalds, to include salads in their menus.
- **Australia -** Patients have drawn up guidelines to improve the quality of diabetes support in care homes. The McKellar guidelines have been adopted internationally as a global standard.[6]
- **The Netherlands -** Insurers (The Netherlands is an insurance-based healthcare market) introduced a cheaper new needle for diabetes patients, but it broke easily. The patient organisation gave feedback to the insurers who stopped using the needle.

Steno Diabetes Centre Copenhagen (SDCC) in Partnership with Providers

As of the end of 2016, the Steno Diabetes Centre in Copenhagen will expand to providing services for patients. Previously they focused on Diabetes research and training for professionals. In 2020 SDCC will be able to treat 11-13.000 people with diabetes which is nearly twice as many patients compared to today. It will provide 24-hour cover throughout Denmark's capital region (Hovedstaden) by working closely with hospitals and emergency departments. Steno will be the largest diabetes centre in Europe and is the result of engagement with the local patient organisations at every level. The service will be part of a public healthcare scheme which offers individual choice of service provider and location to patients.[7]

6 The McKellar Guidelines for Managing Older People with Diabetes in Residential and Other Care Setting, 2014- http://swarh.com.au/assets/A/4588/6d80a3491c08e1b41e5a8b4a6f5cf211/The%20McKellar%20Guidelines%20for%20Managing%20Older%20People%20with%20Diabetes%20in%20Residential%20and%20Other%20Care%20Settings_v3_e.pdf

7 Steno becomes part of a new major diabetes centre for the entire Capital Region by Marie Vedel Kessing, 20 May 2016 https://steno.dk/en/om-steno/Nyheder/UK/Steno-becomes-part-of-a-new-major-diabetes-center-for-the-entire-Capital-Region

1.6 Innovation: emerging countries leading the way

Developing economies are free from the constraints prevalent in more established markets and must find innovative and cost effective ways to deliver healthcare for a rapidly expanding population and increasing healthcare needs.

Some of the most innovative projects are currently taking place in developing countries where there are fewer restrictions:

* **India –** ran a trial using SMS technology on patient groups. Their sample size was 1.2 million insulin users[8]
* **Bangladesh -** an insurance company is partnering with a telecoms provider where they are providing health advice to 1 million people (within a year of launch) on their mobile phone via their health credit.[9]

1.7 Patients: who holds the key?

The combination of healthcare regulations, budget constraints and multiple stakeholders make any change difficult and true transformation of the healthcare system complicated. Patients in this environment are driving change through numerous ways including: sponsorship which is helpful, but not essential; creating a voice by pushing for businesses to provide healthy living choices to their customers; better standards of care which will engage decision makers in listening to patients and enabling them to participate in delivery of their healthcare services.

On the other hand, the developing world has begun to provide a great platform for innovation. Their even more limited budgets, ever expanding population, young and limited health systems as well as minimal regulatory processes in place, all together create a fertile ground for new approaches. Technology is enabling providers to deliver the relevant information to large populations which in turn is helping patients to take control of their health and make the necessary lifestyle changes.

8 Telecom giant Telenor launches a digital health service for emerging markets, June 7, 2016 by Jon Russell - https://techcrunch.com/2016/06/07/telecom-giant-telenor-launches-a-digital-health-service-for-emerging-markets/

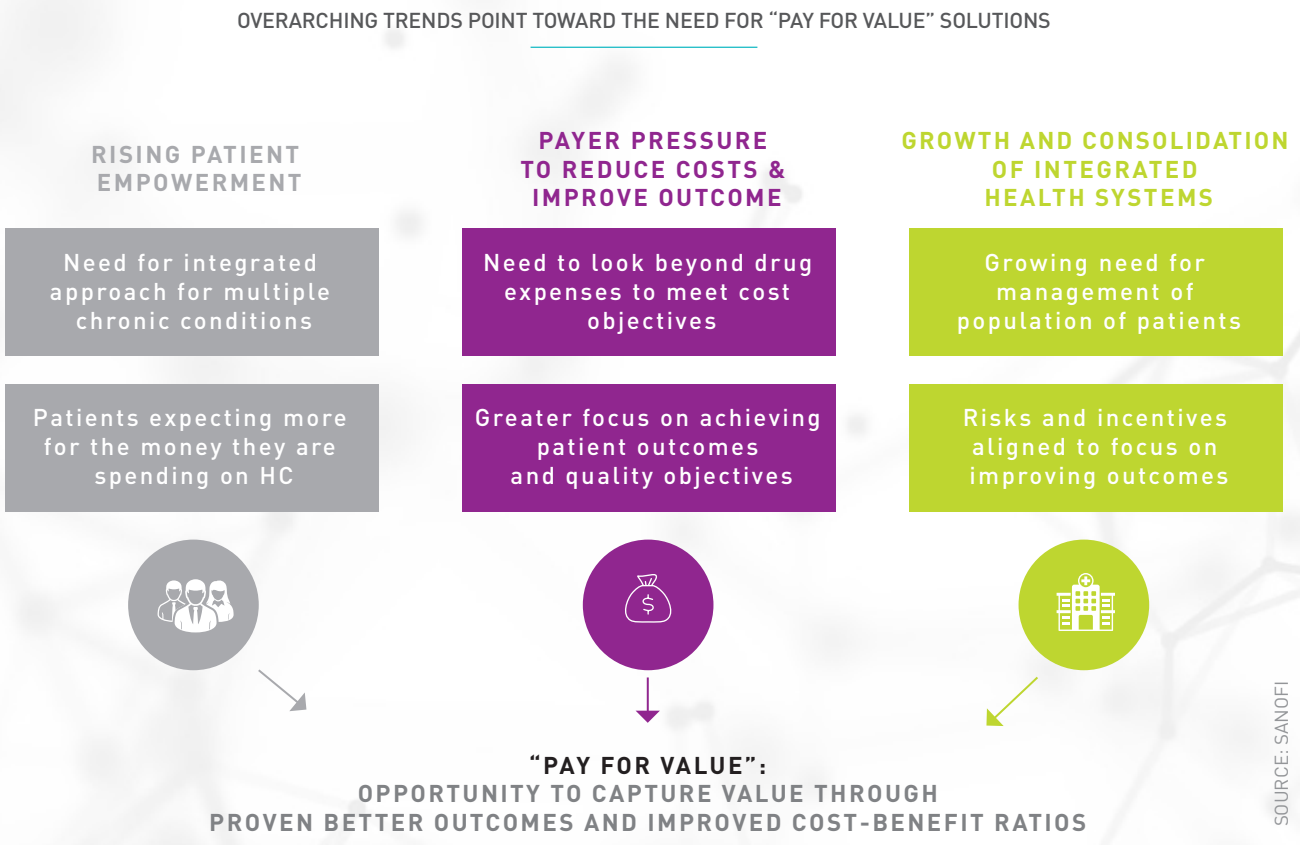
9 Effectiveness of Automated Mobile Phone Based Text Messaging on the Improvement of Glycaemic Outcomes, India Diabetes Research Foundation & Dr. A. Ramachandran's Diabetes Hospitals, July 2016 - https://clinicaltrials.gov/ct2/show/NCT02643277

2. Outcomes in Healthcare: the Supplier/Pharma Perspective

2.1 Introduction

> *"Once you have the payers and the providers under the same roof, it's much easier to align the incentives and to transform some elements of care."*
>
> *Francois Nicolas, Vice President of Diabetes and Cardiovascular care, Sanofi*

For pharma companies, value has traditionally come from patient data extracted from randomised clinical trials for regulatory purposes. Now value is moving towards value in real-life after the product is on the market.



The reasons for this trend towards 'pay-for-value' solutions are:

- **Payer pressure -** budget pressures to cut costs and improve outcomes are forcing the system to change. There is a need to look beyond drug expenses to meet cost objectives. Affordable outcomes will become the norm. This demonstrates a shift with payers now holding a part of the key to value.
- **Rising patient power -** patients are driving change because health solutions have to work for them and bring them the best possible outcomes. As payers are increasingly transferring some spend to patients, they are also more aware of what they are getting for their money. Pharma must not only provide cost-effective drugs, but also improve therapeutic benefits for patients.
- **Growth and consolidation of integrated health systems -** payer pressure means providers and payers are working together to manage patient populations. In the US, this has resulted in the creation of continued care organisations or integrated business networks.

2.2 Pressure on price and outcomes

Providers are currently experimenting with different models to deliver "pay for value" in response to increasing payer pressure to drive down price. In short, delivering outcomes at a lower a cost.

According to François Nicolas, the rise in payers' expectations is triggering an increase in exclusivity deals, even for pharmaceutical drugs. Previously, traditional payers supported many drugs in class, in order for physicians to select one that was most to appropriate for them and their patients.

Nowadays some payers select one treatment only. For example United Healthcare announced in May 2016, it would only reimburse Medtronic insulin pumps[10] (As previously mentioned by John Grumitt).

Formulary positioning is also becoming rebate sensitive. In certain schemes, full payment of some drugs is conditioned by the delivery of expected outcomes. If this is not achieved, then payment will be reduced and preferred partner status will be withdrawn.

Payers will consider that, for some drugs, full payment will only be awarded if the outcomes are achieved, otherwise they will reduce payment.

Express Scripts - Value in Diabetes Management

The largest US Pharmacy Benefit Manager (PBM) Express Scripts outlined a new program in April 2016. The company's Diabetes Care Value Program is being delivered in partnership with pharmacies who deliver high levels of care to patients. This demonstrates how value is shifting from the pharmaceutical industry to a digital care provider. The diabetes program aims to:

* Reduce medication price i.e. cut the cost of insulin products.
* Track and improve/increase outcomes by, amongst other initiatives, connecting patients with care providers via digital solutions such as Wi-Fi enabled glucose meters and remote monitoring.

10 Tandem Diabetes Care Announces Upcoming Change to United Healthcare Customer Access, May 2016 - http://www.businesswire.com/news/home/20160503005767/en/Tandem-Diabetes-Care-Announces-Upcoming-Change-UnitedHealthcare

11 Diabetes Care Value Program Guarantees More Affordable, Higher-Quality Diabetes Care – 2016- http://lab.express-scripts.com/lab/insights/drug-options/diabetes-care-value-program-guarantees-more-affordable-higher-quality-diabetes-care#sthash.VnpXyVCt.dpuf

2.3 The evolving business model – creating a new ecosystem

While market forces are pushing pharma to deliver drug innovation, they are being asked to move away from just selling drugs towards becoming outcome oriented. We are expected to become facilitators in the delivery of these outcomes. (Read more in GenSearch's white paper entitled: From products to services[12])

The key differentiators for pharma include:

- Working in partnership – the pharmaceutical industry cannot work alone and needs to be integrated into a broader ecosystem. It must include many different players: pharma, medical devices, start-ups, insurance companies etc.
- Develop Value Based Income models – these should not just be based on fee for service.
- Data analytics – services need to be powered by data and deliver concrete value. The data needs to be relevant.

2.4 Focus on SANOFI

Sanofi, a global healthcare leader discovers, develops and distributes therapeutic solutions focused on patients' needs. Sanofi is organized into five global business units: Diabetes and Cardiovascular, General Medicines and Emerging Markets, Sanofi Genzyme, Sanofi Pasteur and Merial. Sanofi has over employees 110,000 worldwide and an annual turnover of $37,057 million in 2015.

2.5 Two different business models

Sanofi is committed to working to address the diabetes public health concern worldwide through its integrated treatments and medical devices. At present Sanofi has two business models working in parallel.

The traditional pharma model

The traditional pharma approach - not only drugs are provided, but also services to improve the experience. At present this model still works well, as the systems are fit for purpose.

For example:

- COACH for Toujeo (patient support programme) - this optimises drug benefits using a traditional pharma approach. It improves the patient experience by providing services. No innovation in business model is needed and Sanofi has worked hard to optimise this program to optimize how patients experience this innovative drug.

12 From product to Services, GenSearch, 2014 http://gensearch-consulting.com/media/lifesciencetalks-white-paper-2014.pdf

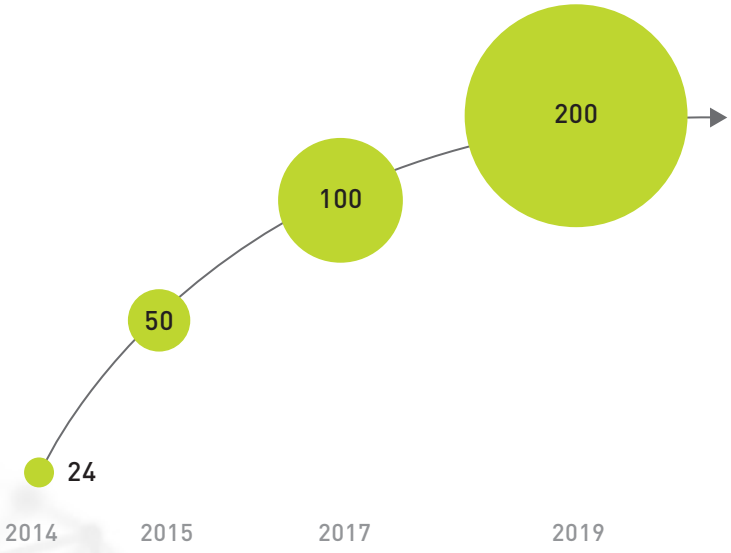
Facilitator models of integrated health solutions

- Integrated health solutions are focused on each patient and their needs, regardless of whose drugs they are using. Sanofi already have several solutions around this model.

LEARNING THROUGH PARTNERSHIP WITH NEW APPROACHES TO IMPROVE OUTCOMES

1 CLINICAL EXCELLENCE	2 PERSONALIZED CARE	3 BEHAVIOUR CHANGE
Strengthen Physician-patient relationship Senior HCP specialists Clinical protocol based approach with local customization Strong outcomes orientation Best in class diagnostics	Conveniently located neighbourhood clinic all connected on 1 care platform Comprehensive and consistent patient experience across India Customized care packages	Lifestyle and behaviour modification programs F2F: Dietician, counsellors, educators Digital: Call Centre, Mobile App

SOURCE: SANOFI



PRIORITY MARKETS

INDIA
- 30 major cities (Tier1 & Tier2)
- Rural India via PPP model

MIDDLE EAST AND GCC
- Oman
- Dubai
- Qatar
- Kuwait

SRI LANKA
BANGLADESH
USA & UK

- **Diabeo** – This is a connected medical solution with comprehensive management, using a mobile application and real-time call centre support for dosing support. It just received a positive opinion from the French HTA in the summer, paving the way for a potential reimbursement.

- **MyStar DoseCoach (connected medical solution)** - Up to half of patients do not reach their therapeutic targets. The reasons include: a lack of education/support, therefore they don't achieve the right/optimal dose, or they have stopped titration because of a bad experience e.g. a hypo glycaemic event. This insulin management solution works independently of the brand of drugs used for the Glargine class.
- **Apollo Sugar (partnership with a healthcare provider)** - Apollo Sugar is a specialist healthcare service provider for diabetes patients in India. Launched in 2014, its 'sugar clinics' help patients not only to manage their condition, but also complications. Sanofi is acting as a stakeholder by taking equity in an independent company, started with 24 clinics in 2014. This is an opportunity to provide clinical excellence, personalised care and behaviour change. This partnership also allows Sanofi to learn from this very innovative team how to optimise care delivery, especially in the context of emerging markets where resistance to change is minimal.
- **Google (partnership with tech company)** - in 2015 Sanofi announced a partnership with Google Life Sciences (Verily). Their aim is to develop technology-enabled services which will improve patient experience and outcomes. This strategic alliance resulted in the creation of a joint venture called Onduo which aims to simplify the life of diabetic patients by providing technology-enabled services.

KEY CHALLENGES FOR PHARMA

1 **VISION, SPEED & AGILITY**

"Pharma speed" vs. "Digital speed"
- Constant need for iteration in contradiction with pharma competencies & processes geared to risk minimization of an IP-protected asset

2 **REGULATORY, MEDICAL & LEGAL**

New competencies
- Digital very new to pharma … staffing with external skills
- Transformation in patient interaction … from controlled one-way to dynamic, data-rich and ongoing dialogue

3 **BUSINESS MODELS**

Business model to "sell outcomes" not defined yet
- Traditional focus on value-added services limit impact of solutions (mainly seen as marketing programs)
- Integrated care as a stand-alone business has many risks: limited paying customers, question on margin, …

SOURCE: SANOFI

CAN THESE CHALLENGES BE SUFFICIENTLY OVERCOME FOR DIGITAL HEALTH TO BE FULLY REALIZED WITHIN A PHARMA ORGANIZATION … ARE PARTNERSHIPS NEEDED ?

> *"The innovation that is needed, is as much if not more on the business side as on the technical side. The innovation on the technical side... is a bit behind us, a lot of things already exist."*
> ***Francois Nicolas,*** *Sanofi*

With the traditional model, pharma is used to having patent protected brands. These take a long time to develop and are monetised over the patent's lifespan. During this period, there is limited direct access to the patient for the pharmaceutical industry, as patient access is mediated by healthcare professionals and pharmacies. It is a cycle where once this has taken place you move onto the next innovation. Whereas now, the speed at which solutions have to change is extremely different. The IP protection is not necessarily there, and access to the patient is fundamental. From a pharmaceutical point of view this is can be perceived as a great challenge.

This transformation calls for patients and consumers to be at the centre of new business models. Therefore, we have to rethink our ways of working and the type of expertise required to deliver this new vision.

2.6 Providers: who holds the key?

At this point it is not yet clear "Who holds the key?". What is clear is that it's not just one stakeholder, but a wide number of players within an ecosystem, where each have a fundamental but complementary role to play.

However, it is obvious that to respond to the challenges ahead, the business model needs to be transformed. To keep up with the pace of change, whilst still continuing to deliver drug innovation, the pharmaceutical industry needs to take a rightful place in the integrated solutions ecosystem for the benefit of the patients as well as the consumers.

3. Value in Healthcare: The Payer Perspective (Europe)

3.1 Insight into health systems in Europe

Healthcare in Europe is provided through a wide range of different systems managed at the national level. The systems are primarily publicly funded through taxation (universal healthcare). Private funding may represent personal contributions towards meeting the non-taxpayer refunded portion of costs, or may reflect totally private (non-subsidized) healthcare. It can either be paid out of pocket or met by some form of personal or employer funded insurance. All EU and many other non EU countries in Europe offer their citizens a European Health Insurance Card which, on a reciprocal basis, provides cover for emergency medical treatment insurance when visiting other participating European countries[13].

Below are examples of how healthcare is funded in three European countries:

- **France -** Healthcare coverage in France is universal. All residents are entitled to receive publicly financed healthcare through statutory health insurance. 92% of the population has access to complementary and supplementary Voluntary Health Insurance (VHI) either through their employers or via means-tested vouchers (CMU complémentaire). Only services that are not covered by SHI (Statutory Health Insurance) may be covered by the not-for profit supplementary VHI. Private for profit companies are currently entering this market and offer coverage for all services.
- **UK-** The National Health Service (NHS) provides care, including hospital, physician services and prescription drugs, to all residents. Coverage is universal. Most private hospital care—largely for elective conditions—is financed through supplementary private voluntary health insurance. The usual reason for acquiring such insurance is that it offers more rapid and convenient access to care.
- **Germany –** Approximately 85% of the population are mandatory or voluntary members of the public health scheme while the rest have private health insurance. There are three options for health insurance in Germany; the government-regulated public health insurance system (GKV), private health insurance from a German or international insurance company (PKV) or a combination of the two. Residents can opt for full private plans if their income is above a certain threshold or if they are self-employed.

Below are two examples of private health insurance companies which provide value in different ways according to their role within the healthcare system.

13 Wikipedia - Healthcare in Europe - https://en.wikipedia.org/wiki/Healthcare_in_Europe

3.2 Focus on a private health insurer - AXA

AXA is Europe's number one health insurance company and is present in 60 countries. The company employs 161,000 people globally and has a $99 billion revenues and is paying out $12 billion to its healthcare and protection insurance customers. AXA's mission is to help customers live their lives with more peace of mind by protecting them, their relatives and their property against risks, and by managing their savings and assets.

As an international player, AXA decided for the first time a few years ago to manage its commercial activity not just by country, but also by line of business. Health Insurance is one of its lines of business.

In most industries, there is a supplier of a product/service, and a customer who usually pays. However, in healthcare, in addition to a supplier/provider (the hospital, pharma etc.) and a customer (the patient) according to Charles-Etienne de Cidrac, there is also a third party payer who foots the bill. This 'triangle' is relatively unique and too often at the source of inefficiencies in healthcare delivery.

In addition, the healthcare sector players tend to work in silos, and do not communicate enough with each other.

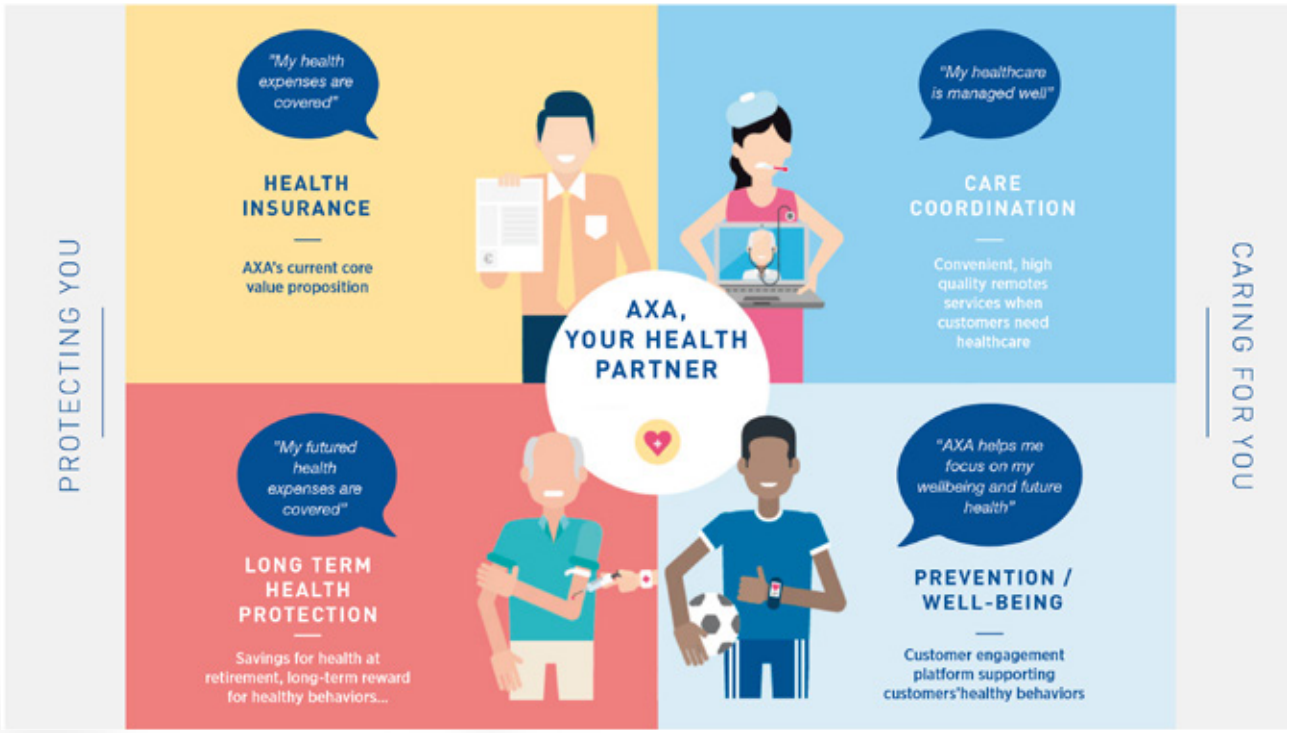
> *"This is a barrier to creating value for the patient, but also for insurers who pay the bill. We need to talk to each other, if we don't it's going to be hard to understand where the problems, the pain points and the issues are."* ***says Charles-Etienne de Cidrac,*** *AXA.*

3.2.1 The new business model

> *"We needed to stop thinking like an insurer with an insurance value chain in mind and instead look at the patient journey and what is happening for the patient at each stage of this journey."*
> *Charles-Etienne de Cidrac*

AXA could have decided to continue to just cover the medical costs when a patient visits a physician. However, this is putting the business at risk of commoditization, as potential patients would just chose their insurance company offering the lowest insurance premium while providing the best health cover, says Charles-Etienne de Cidrac.

Therefore, AXA carried out in-depth research into transforming the business to create value. Their goal was to put the patient at the centre of the company's business model.



SOURCE: AXA

AXA's new business model will continue to focus on its core business of covering health costs as well as the new activity areas below:

I. Care coordination

In entering into the Care Coordination space, AXA has 3 objectives:

1.1 **Improving outcomes from the patient's perspective** – Usually, the performance indicators of Healthcare Providers are designed from a doctor's perspective, e.g. a hospital will track Patient Readmission post discharge. Though not contradicting the former objective, patients are usually looking for more: they want to have their life back and to become functional again. These criteria are rarely tracked, but this is gradually where AXA's focus will be.

1.2 **Evaluating the patient's experience** – Most industries rate their customer experience. For example, tourists score a hotel stay on TripAdvisor. However, the scoring of healthcare is not yet very developed. The patient experience has not yet been a strong focus. Simple criteria like being properly informed as a patient, getting appropriate support before and after care etc. could be measured in order to identify potential areas of improvement.

1.3 **Relevant expenses and costs** – In a world where most Health Systems are financially challenged, money needs to be wisely spent. Examples of waste, like medical examinations performed several times when once could have been enough should be challenged. At the same time, there will be cases where more expensive treatments or tests will deliver better outcomes. In summary, much more attention should be paid on the Value-for-Money of Healthcare.

DISEASE MANAGEMENT - CONTENT

BEFORE DIAGNOSIS	**EARLY DETECTION / DIAGNOSIS**	• Promotion of screenings campaigns to customers (on targeted customers segment – e.g. men → 50 for colon cancer)
WHEN DIAGNOSED	**EDUCATION & PREVENTION**	• Education of patients about diseases and its medical routine/protocol (e.g. how to measure glucose and inject insulin for diabetics) • Promotion of healthy behaviours to reduce main risks factors (e.g. for weight loss and smoking cessation programmes)
	MEDICAL MONITORING	• Compliance with the medical protocols to prevent memory lapse, double medication…
	MANAGEMENT OF CARE PATHWAYS	• Medical second opinion • Logistics coordination of care for the disease in AXA's networks • Definition of the care protocols for diseases (drugs, care pathways): e.g. home chemotherapy
	PROCUREMENT	• Pharmacy benefit management

SOURCE: AXA HEALTHCARE

Healthcare costs are rising and if this continues, healthcare systems will go bankrupt. Efforts are needed on a wide scale to curb expenditure. The way forward is in early detection and disease management of chronic conditions and cancer.

> *"As a car insurance company, we try to ensure that people don't have accidents and we've come a long way. In healthcare, most of the money is spent in curing people. At the same time, the majority of diseases affecting people today are a direct consequence of their behaviour and lifestyle. This means that we're paying to repair damaged bodies instead of making sure they're not harmed in the first place. This is where AXA needs to invest."*
> *Charles-Etienne de Cidrac, AXA*

Screening and early detection for Bowel Cancer and Diabetes Disease management in Germany

In Germany, the patient may decide to opt out of the state health system and choose private medical insurance. In this case, AXA will pay all the patients' healthcare costs and in most cases, will do it for their entire life. Therefore, it's in the company's interest that the patient remains in good health.

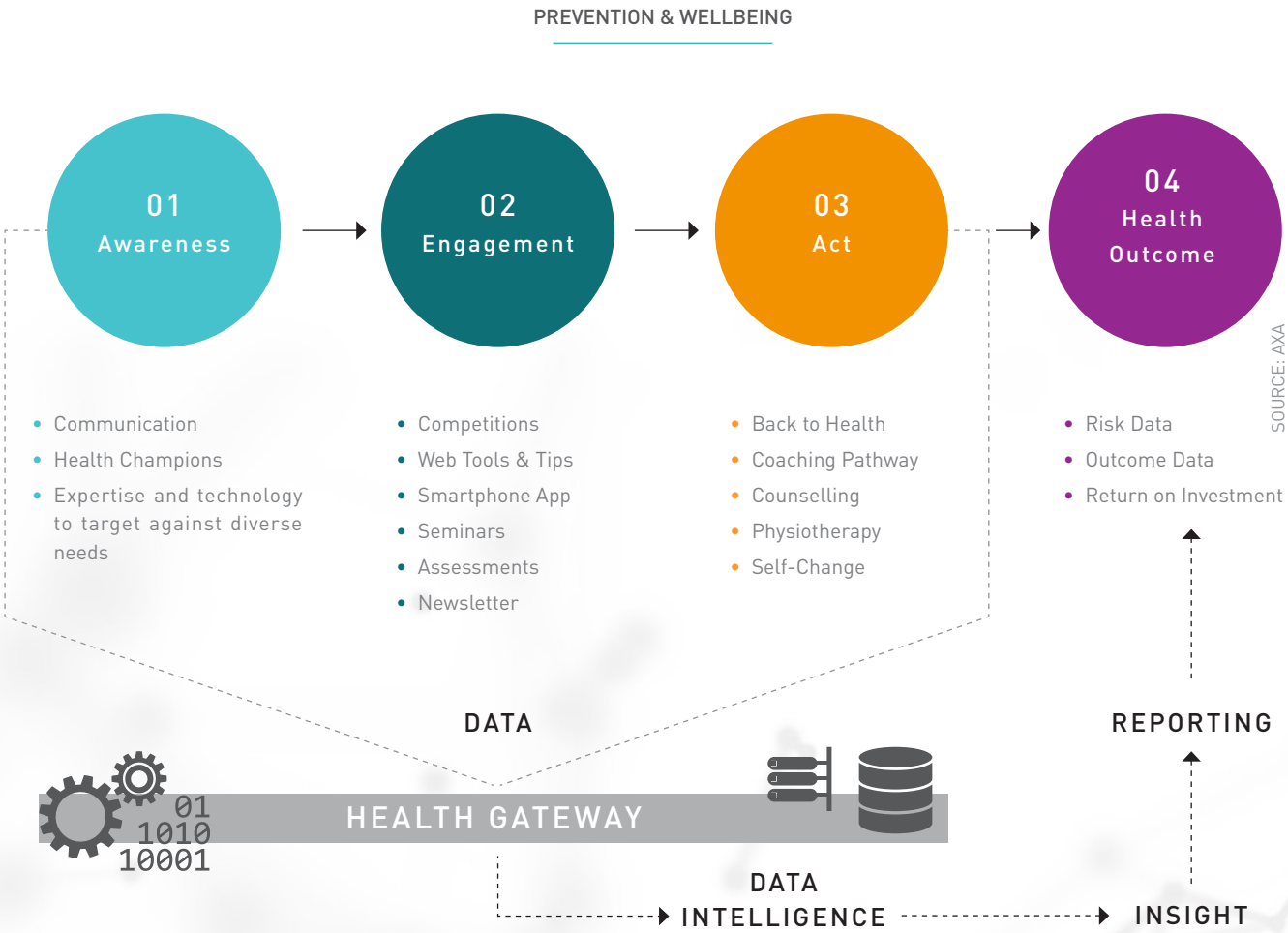
With this objective in mind, the company has developed a comprehensive disease management programme. This addresses many aspects among which early detection.

For example, in the last 2 years, AXA has screened 53,000 people at risk of bowel cancer in Germany. Of these patients 3,200 needed a follow up with a colonoscopy. Early signs of cancer were identified and treated in 141 patients demonstrating how early detection is life saving and cost saving.

A similar approach has been used to identify pre-diabetes condition. This has enabled AXA to identify early signs of the disease, to offer subscribers an education programme showing them how they can reverse this trend and the consequences of not taking action. Results have been promising. Most people's health has returned to normal.

Primary prevention is a challenge. It involves managing the health of people who have no specific symptoms and who appear healthy, but who are starting to accumulate risk factors. This is often linked to a change in behaviour.

However, value exists in delivering primary prevention for employers who want to keep their employees in good health. Acceptance differs between countries, for example, in the UK employers are open to the idea.



There are four steps to optimum prevention and wellbeing:

1. **Awareness -** People need to be educated about health risks. Communication is vital for this to happen.
2. **Engagement -** Patients need to be engaged in protecting their health. It's not just a case of eating five fruits and vegetables a day.
3. **Action -** Patients need methods to act on the above such as coaching and counselling.
4. **Measurement -** Patients' progress needs to be measured. AXA uses a simple assessment using an online questionnaire and/or a physical assessment. The questionnaire identifies risk factors but also allows to track progress.

A questionnaire is designed so that it can be understood by patients. As an output, customers are told their health age which can then be compared with their real biological age:

- **Healthy lifestyle -** a lower health age than their real age.
- **Unhealthy lifestyle -** a higher health age than their real age which may be the consequence of smoking, drinking, not exercising enough or too much stress etc...

An application then suggests how they can improve their lifestyle. This is focused on choice, not dictating what people should do. AXA will work with an employer by taking a group of staff, measuring risk factors, aggregating the scores then calculating the overall (not individual) risk factors in the company. The same group of staff is measured again a year later. This has confirmed that risk factors can be reduced by following healthy lifestyle advice.

3.3.2 The way ahead for private insurers

> *"A lot of the work we do is done working with partners, because we know our strengths and weaknesses."*
>
> *Charles-Etienne de Cidrac, AXA*

AXA is not an integrated health insurance company. However, investing in healthcare provision e.g. owning hospitals and clinics, is a recurring question for the company.

Investing in in-patient facilities is capital intensive which is one of the reasons why AXA has made the decision to not own hospitals/clinics. In addition, managing a successful healthcare operation with a hospital requires a completely different set of skills than those needed to be a successful insurance company. Those skills could be acquired, but this is not a consideration for the reasons already given.

The exceptions to this rule could be:

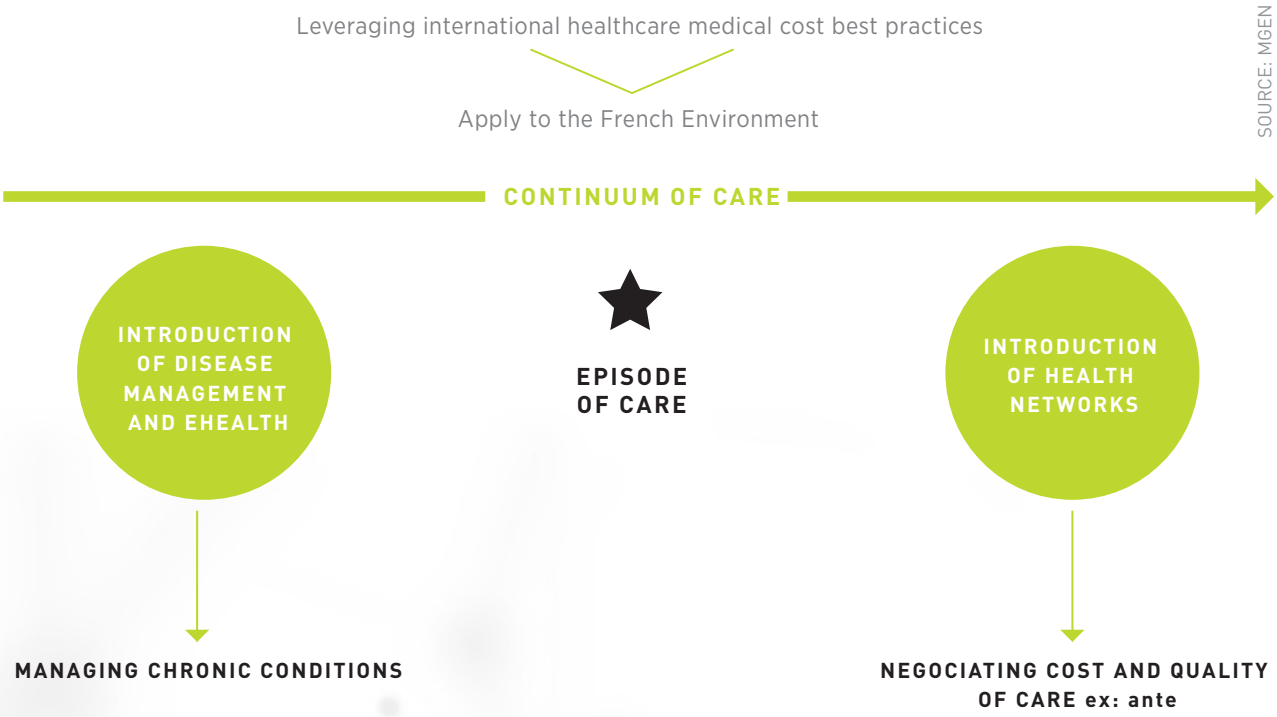
- Market inefficiency - hospital cartels - in countries or regions where there is an undersupply of hospital beds, which usually drives hospitalization prices up, AXA could consider buying, building or partnering.
- Countries with limited or low-quality healthcare - AXA has a presence in 60+ countries and this includes countries where healthcare delivery is not fully satisfactory. In these countries, AXA would consider partnerships to increase and develop the healthcare delivery capacities of the country.

3.3 Focus on a mutual fund insurer in France - MGEN

MGEN is a French mutual insurer focused mostly on public service clients. The company employs 10,000 staff, has an annual revenue of 3.83 billion euros and provides cover for 10 million subscribers. MGEN is not only an insurer, but also a healthcare provider with 35 clinics.

In France, private complementary health insurance is provided by three types of organisations: Mutuelles represent roughly 60% of the total market, non-profit provident institutions and private insurance companies (including both for-profit and non-profit carriers) split the remaining 40%. The three types of organisations operate under distinct regulations as well as different philosophies. Mutuelles emphasise the concept of solidarity, which means premiums and contract provisions tend not to vary with subscriber risk. Private insurance companies make greater use of risk-rating, though less so than is typical in the US. In recent years their regulatory treatment has converged, as dictated by European Union regulations. This convergence is likely to increase competition among the different types of carriers and perhaps alter the nature of private health insurance[14].

14 OECD HEALTH WORKING PAPERS NO. 12 PRIVATE HEALTH INSURANCE IN FRANCE 2001, https://www.oecd.org/els/health-systems/30455292.pdf



Introduction to healthcare networks and disease management

If we look at the French system from an American perspective, it is characterised by the centralisation of its social security, with healthcare accessible to all and with a reduced burden of cost sharing for its users.

Similarly, a concept that is already widely implemented in the US is called the 'Continuum of care'[15] . It involves an integrated system of care that tracks patients over time. This is achieved through a comprehensive range of services

When looking at the recent contribution of complementary health insurers in France two main themes emerge:

1. Healthcare networks - which are critical for mutual fund payers.
2. Disease management - which helps to manage chronic conditions

For health payers, this system means innovating to discover programmes that add value, while enabling them to manage treatment costs. It enables payers to minimise the cost of a care episode through healthcare networks. Beforehand, they can negotiate and agree on the content, the cost and quality agreement.

However, in France the mutual funds organisations or supplementary insurers (Complémentaire Santé) don't have ownership of the claims, they just manage them. They therefore have no power to influence the economic model. They must cover everybody, and they don't make a profit. In light of this they are unable to develop an economic model to justify investment in this area.

15 Continuum of care - Definition: Continuum of Care, - http://www.himss.org/definition-continuum-care

If we look at the US, healthcare networks are part of the system. It's a B-to-B business and is how healthcare is delivered.

In France networks started to develop about 10 years ago, first with vision care and later on, with hearing aid networks. Until the arrival of these networks, patients were able to choose their audio or vision corrective devices, knowing that they would be reimbursed generously not matter the product chosen.

> *"It's been a long way towards acceptability for healthcare networks in France"*
>
> *Isabelle Hébert, Vice President of Insurance MGEN.*

Up until 5 years ago, employers had to be convinced of the value of using healthcare networks such as Santeclair, Kalivia, and Optistya. Now with the "Accord national interprofessionnel" (Inter-professional National Agreement – ANI) on employment security and businesses competitiveness, all the employer organisations must provide employees, amongst other things, with compulsory collective coverage, in terms of additional reimbursement of healthcare costs [16]. There was a lot of initial resistance to this major change from the vision industry as well as from patients.

Healthcare networks

MGEN runs two healthcare networks:

1. **Optistya**

   Launched in 2008, this eye/vision care network was one of the first in France and now has 7,000 optical centres. More than 84% MGEN of members have acquired vision equipment e.g. glasses through Optistya. This saves on out-of-pocket costs while ensuring quality of care. It also demonstrates how payers can have an impact on the behaviours of the (insured population) subscribers.

2. **Audistya**

   This is an audio care network and 88% MGEN members have acquired equipment e.g. hearing aids through Audistya. Again, this saves on out-of-pocket while ensuring quality of care.

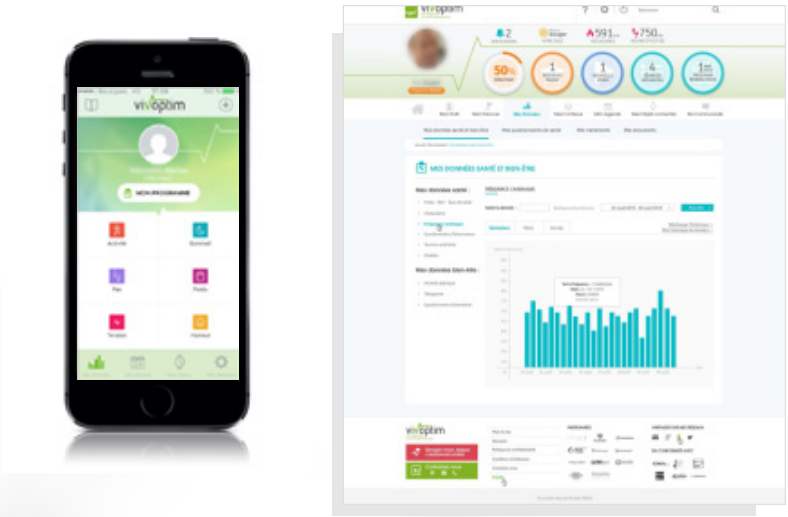
> *"If your insured (population) trust your brand, and believe it can add value, then you can tell them: 'Go buy your glasses here. Go and get into this diabetes programme.' And they'll do it."*
>
> *Isabelle Hébert, MGEN*

16 29 March 2013: Generalisation of Complementary Health Insurance, Autorité de la concurrence http://www.autoritedelaconcurrence.fr/user/standard.php?id_rub=483&id_article=2071

Disease management programmes

MGEN also runs e-health disease management programmes including:

HEALTHCARE TRANSFORMATIONS IN FRANCE EXAMPLE: VIVOPTIM DM E-HEALTH



SOURCE: MGEN

PHR (MY VIVOPTIM) FOR REGISTERED USERS:

- Evaluate your cardiac risk through an HRA
- Access personalized services based on your profile
- Define health objectives and track progress

VIVOPTIM DM e-Health

Launched in 2015 at a cost of several million euros, this personalised coaching programme with strong focus on diabetes, prevents and manages cardiovascular risk by focusing on patient behaviour. Patients can take control of their health e.g. via IPhone apps. Vivoptim is the only disease management programme deployed on a large scale by a health insurer in France.

MGEN didn't think it was credible to develop the entire programme alone. Instead, it acted as an integrator by issuing a Request For Proposal (RFP) on the different components, and created a consortium of around 10 different companies to provide:

1. Patient personal health records
2. Coaching e.g. nurses and nutritionists
3. Clinical analysis
4. Medical outcomes

It took around one and a half years to build the solution. A total of 7,000 people were signed up in two regions- Midi-Pyrenees and Burgundy - within five months. It was then extended to two other regions. Vivoptim is being assessed through a detailed Return on Investment (ROI) procedure. MGEN plans to extend it to all members.

The programme includes:

- Health information
- Health Risk Assessments (HRAs)
- Community based support

- Patients are graded according to the severity of their cardiac condition. This dictates the level of coaching they receive and whether they receive intensive digital support. Their personal health record connects to devices which upload data and track progress. All this data is publicly available.

The aim of coaching is to engage patients and add value/services to the product. MGEN's goal is to reduce both disability and medical cost.

The priorities for patients are:

- Interaction with a medical professional
- Telephone access to a nutritionist or nurse
- Access to their own data

MGEN adapts their communication according to the audience. Employed people don't want to receive information while at work whereas older people are happy to receive SMS messages.

Subscriber engagement with health programmes

In France, economic incentives don't exist for patients to join health coaching programmes. The insurance cost of the programme is free to subscribers.

Payers cannot rule out the impact of a financial incentives. However, MGEN's belief is that efficiency is possible without them. Communicating effectively (with the employer promoting the scheme and subscribers) is vital for the programme to be successful. This approach as has resulted in 6,000 subscribers having moved to Vivoptim within five months.

Keeping subscribers engaged

Losing people is a waste of investment. The challenge is engaging people for 12-18 months and this involves lifestyle changes. MGEN has conducted behavioural health research to understand how their patient population wants to be coached. This ensures they stick to the programme.

3.3.1 The challenges facing insurers in France

Whereas in the US insurers negotiate the entire rate of coverage per episode of care (first dollar coverage), in France, negotiation for rates takes place through the Caisse Nationale d'Assurance Maladie (the French health service or CNAM) and through physicians' unions for the entire insured population. Negotiation takes place with a small number of providers who have agreed rates and quality contracts. The CNAM covers a percentage of the total cost (around 70%) and insurers then cover the full or part remaining cost of care.

Insurers have to be paid back for their investment through the patient's medical cost, disability cost and long-time care cost. Insurers need to find a Return on Investment (ROI), a payer, and a reason to continue investing in any disease management programme. To be sustainable, these programmes have to fit into the medical cost analysis.

3.3.2 Challenges brought on by digital health

Access to data for disease management - For the disease management programmes to be efficient, health data needs to be readily available. At present only the CNAM can use medical data to identify (via an algorithm) the most interesting population to coach at different stages of a disease. This means only the Caisse Nationale d'Assurance Maladie (the French health service or CNAM) is truly able to carry out effective disease management e.g. developing the Sophia programme[17] (a diabetes disease management programme run by the CNAM). Insurers don't have access to the medical information that would allow them to tailor services to different patient groups. They are 'blind' payers.

Making disease management sustainable – Population segmentation is needed for programmes such as MGEN's Vivoptim to be more effective and to deliver good ROI. In the US, disease management programmes are very efficient as data analysis and population segmentation is carried out before coaching is offered.

Shifting business model - In this new digital age patients belonging to a network can now, not only go to physical stores to purchase their equipment, but can also go online. This is a significant shift in the payer system.

3.3.3 The way ahead for insurers

A new kind of insurance is being developed. Instead of focusing on line by line reimbursement for example for pharmacy costs, X-ray, visit to the physicians, etc. French complementary insurers are looking to create a different type of insurance care design, that is episode based, no matter the condition.

Technology that is currently used for an active younger population could be used for senior care and homecare. The more people are managed before they retire, and before their chronic condition worsens, the more the ROI. To achieve this, healthcare management programmes need to be redesigned to focus on the elderly and on long-term care. Once patients' data has been collected, MGEN plan to apply this model.

3.4 Payers: who holds the key for insurance companies?

Depending on national health systems, private insurers can hold a key by putting patients at the centre while reducing costs. This can be achieved by creating prevention and disease management programmes for individual or collective subscribers.

Whenever payers (private/mutual funds) have full access to patient data and they have some degree of control over reimbursement rates, their disease management programmes will have a greater impact for patients. This is because they are able to adapt and target their services towards specific segments of the population based on the data collated. Therefore, they can also clearly see the ROI.

17 Life Science Talks – Healthcare, from products to solutions, GenSearch - 2015

4. Value in Healthcare: The Supplier Perspective

4.1 Introduction

In the past, the focus of medical practice was to treat disease in a reactive mode, the physician treating symptoms rather than the whole patient. The considerable limitations and dissatisfaction with this approach has led to the emergence of personalised medicine. This has brought on the development and increasing adoption of diagnostic tools. As a consequence, healthcare systems now need to consider how they can be more efficient, reducing costs and providing the necessary service to the patients.

The mission of In Vitro Diagnostics (IVD) is to efficiently provide high quality and timely information to clinicians at reasonable costs.

IVD tests are an essential part of the treatment process, and play a role at all stages of disease. They have a decisive impact on quality at each step of the healthcare chain, as well as on early diagnosis:

- For screening to help prevent certain diseases,
- For early diagnosis at the onset of a disease when symptoms are still very mild,
- For diagnosis and prognosis, in particular of infectious diseases, to help identify the responsible pathogen and determine its antibiotic resistance profile,
- For therapeutic decisions and treatment monitoring.

They help avoid trial-and-error treatments and the over-prescription of medicines. Between 60-70% of medical decisions depend on diagnostic test results which account for only 2 to 3% of healthcare spending.[18]

Diagnostic companies provide instruments, reagents and software to hospitals or private laboratories which perform tests on various body fluid sample types (blood, urine, respiratory samples, cerebro-spinal fluid, etc...), The results of these tests will enable the clinician to make actionable decisions for improved patient outcomes. One of the challenges for IVD companies is to demonstrate the medical value of their tests and their contribution to the sustainability of healthcare systems.

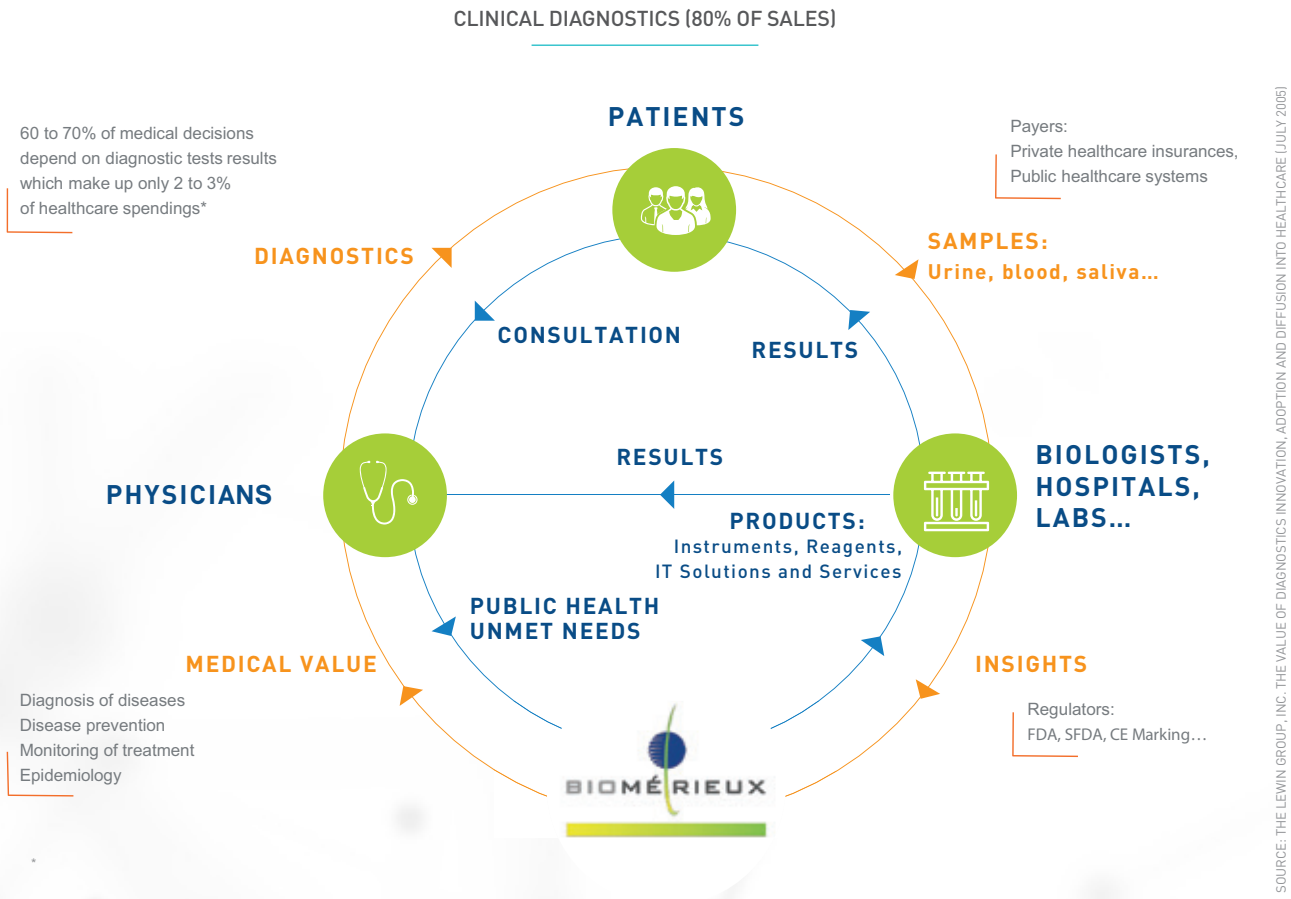
Moreover, since the patient is taking an increasing part in the healthcare pathway, he/she is more informed and active regarding his/her care. Patients are "connected" and are a source of greater demand for both accurate and personalized medicine.

In parallel, the role of clinicians is also evolving towards increased coordination of additional healthcare professionals involved in patient management. Likewise, there is a need for increasing skills to use new technologies in an efficient and secure way.

18 The Lewin Group, Inc. The Value of Diagnostics Innovation, Adoption and Diffusion into Healthcare (July 2005)

4.2 Focus on - bioMérieux

With a presence in more than 150 countries through 42 subsidiaries, this French diagnostics company's revenue reached $1,965 million in 2015.



bioMérieux is a fast growing company with 90% of sales achieved internationally. The majority of revenues (80%) comes from the clinical field (solutions mainly for the diagnosis of infectious diseases). The additional 20% are achieved through sales of solutions for microbiological control in industrial settings (prevention/tracking of contamination in food/biopharmaceuticals/cosmetics products and in the manufacturing environment).

4.3 The medical value of In Vitro Diagnostics

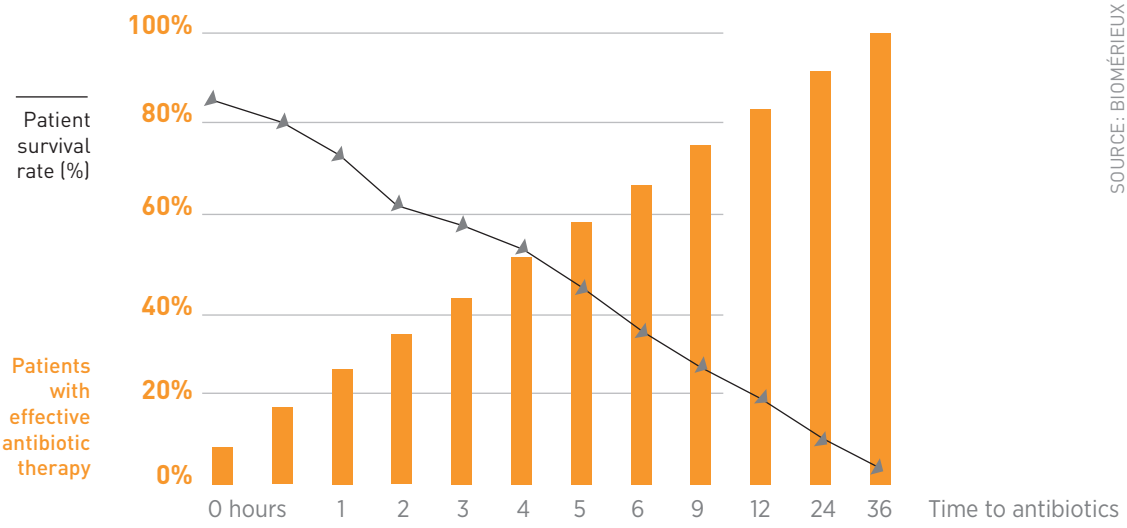
> *"Medical value is key for diagnostic tests but in addition, our mission is to demonstrate this value to the physician and simultaneously the medico-economic value which helps contribute to the sustainability of healthcare systems"*
>
> ***Yasha Mitrotti,*** *Corporate VP, Europe, Middle East, Africa Region & Global Commercial Performance, bioMérieux*

Both sellers and providers need to demonstrate this value to the patient. The physician and the payers need to understand the value of diagnostics before performing diagnostic tests. In addition to providing reliable and accurate high medical value tests, when developing new products, bioMérieux is also sensitive to the cost for both patients and healthcare systems.

bioMérieux focuses on the medical value of its products, services and solutions in a number of ways. The role of the Medical Affairs department within the organization is essential in supporting this focus. These experts assist laboratory professionals by providing them with clinical studies on products, as well as training sessions and educational tools. They also produce medico-economic studies on the value of tests for the patient, the physician and the payers in order to raise awareness on their medical and economic benefits.

In the case of emerging pathogens, we have recently seen that viruses such as Zika or Ebola can develop or spread extremely rapidly. In such situations, the priority is to speedily make new diagnostic tests available to the medical teams in the field. This is what bioMérieux achieved for Ebola with their test during the Ebola outbreak.

TIMING IS CRITICAL IN SEPSIS:
THE LONGER IT TAKES TO ADMINISTER THE CORRECT ANTIBIOTIC, THE HIGHER THE MORTALITY



Kumar A, Roberts D, Wood KE, et al.: Duration of hypotension before initiation of effective antimicrobial therapy is the critical determinant of survival in human septic shock. Crit Care Med, 34: 1589-1596, 2006.

Examples of medical value in diagnostics and their impact on patients:

- **Patient mortality** - decreased with the possibility of testing to identify the patient's condition.
- **Patient morbidity** - a non-identified or misdiagnosed condition can lead to complications or even irreversible damage.
- **Antimicrobial drug resistance** - a major public health issue. Tests are valuable to identify the pathogen causing an infectious disease and to detect bacterial resistance mechanisms, allowing for the most appropriate antibiotic treatment.

Solutions for sepsis

Sepsis is a life-threatening illness triggered by the body's response to bacterial infection. The time it takes to administer the correct antibiotic is crucial. Reaching a diagnosis as rapidly as possible is critical for patient outcomes. The survival rate is 60% when the right treatment is administered within 2 hours after the onset of care and it falls to 30% if treatment is given within 4 hours . bioMérieux has developed a range of diagnostic solutions for the diagnosis of sepsis among which VIDAS® B•R•A•H•M•S PCT™, a test which provides actionable results in only 20 minutes.

4.4 The way ahead for the diagnostics industry

There are budget constraints in all major European and global markets. Governments are embracing value-based programs to lower costs while improving the quality of care. Shared risk payment models, value-based repurchasing programs, procurement strategies based on full life cycle cost, all these aspects have an impact on business models evolutions.

New stakeholders

The diagnostics business is facing a paradigm shift which is illustrated through the polarization of the market with, on the one hand central laboratories and decentralized IVD which is performed closer to the patient in the hospital, at the practitioner's, or even at home, introducing shorter time to results and more personalized approaches to patient care.

Organisational change

In the past, the sales and marketing teams used to focus on selling a product for a specific practical requirement. The key stakeholders have now changed and include physicians, hospitals and patients. Teams are now learning to focus on diagnostic solutions and consider a holistic approach based on patient outcomes, health conditions, cost management or savings.

Diagnostic companies are hiring and creating new organizations to meet these new requirements. They are also developing new competencies and new ways of working with the new stakeholders.

Collecting data

The healthcare sector is facing a digital transformation. New technologies and sciences are entering the markets providing more and more information. The combination of leadership in microbiology to the management of big data and new technologies will contribute effectively to shaping the future of diagnostics.

19 Reaching a diagnosis as rapidly as possible is critical for patient outcomes. The survival rate is 60% when the right treatment is administered within 2 hours after the onset of care and it falls to 30% if treatment is given within 4 hours.
20 Procalcitonin: Uses in the Clinical Laboratory for the Diagnosis of Sepsis, Ming Jin, PhD; Adil I. Khan, PhD, 2014 - http://www.medscape.com/viewarticle/720621

Innovation

Innovation is key for IVD companies. As an example, bioMérieux is driven by medical value, and leverages international, academic, public and private partnerships and its own internal strengths to pioneer high medical value solutions and new markets. This also involves improving customers' operational performance by providing differentiated solutions to enhance customer workflow, efficiency and laboratory informatics.

Health economics

Despite a complex regulatory environment which varies from one country to the other, IVD's increasingly important role in extended healthcare settings will drive the industry's continued progress and growth.

Marketing need to understand the medical needs before the development starts. The value chain needs to be clearly understood to enable companies to position their products where it makes a difference.

4.5 Suppliers: who holds the key?

With the emergence of novel, more user-friendly tests, the introduction of innovative technologies and disciplines, the increasing number of stakeholders including both professionals and the patients themselves, the IVD industry is facing a paradigm change.

The IVD industry needs to be agile and able to adapt to these new expectations, constraints and opportunities generated by this fundamental shift.

The IVD market weighs $55 billion compared to nearly $1,000 billion for the pharmaceutical industry, although annual growth is at 4%-5%. Considering the increasing access to healthcare and the prevalence of numerous chronic and infectious diseases, the global IVD market is likely to pursue a dynamic development.

Conclusion

In this white paper, we have gathered the experience of various healthcare stakeholders who are tackling the challenges brought on by the current transformation of the healthcare system by addressing the question: "Value in healthcare: who holds the key?"

Across the world, in both developed and developing markets, healthcare systems are transforming in different ways. Emerging markets are leading the way by providing cost effective, efficient, innovative and simple solutions to complex needs. Key players in the mature markets are having to rethink their business models, to respond to national budget constraints, the dramatic increase in chronic diseases and patient demands.

With the emergence of this new healthcare ecosystem, new stakeholders have appeared and existing players are having to rethink their approach to deliver their products or services. The patient is now at the heart of their business model, and for all concerned, what is key within this new environment, is collaboration.

Numerous solutions were discussed which all involved the use of digital technology to connect the patient to their providers. Through the use of these digital platforms patients are given the power and responsibility to manage their health, and providers are better able to monitor and demonstrate their value to the patient and to the payers.

Therefore who really does hold the key? The answer is simple all the stakeholders hold a piece of the key. Without them fully collaborating together the system cannot function!

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