The Past, Present and Future of Healthcare BI

A to BI

It's generally understood in the healthcare industry that if organisations want to maximise their success, they need to have business intelligence (BI) on their side.

This is true for both internal goals, such as optimising the budget and empowering employees to work more efficiently, and external ones, such as giving patients the best possible care. In both of these worlds, having solid data to guide your efforts is a major plus.

But how did this reality come to be, and how is it still evolving today? This paper will explore the full trajectory of BI as it relates to health. What prompted the start of this movement originally, where is it today, and where is it headed in the future?

To figure out how they can make the most of analytics, it's beneficial for healthcare business leaders to know the back story first.

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The origins of analytics in healthcare

To understand where we began in terms of healthcare business intelligence, it's helpful first to look at the initial problems the industry faced.

What issues were the original health BI innovators up against, and how did data analysis present them with a viable path to solving them? According to Investopedia, the healthcare analytics movement initially sprung up as an attempt to address three main issues in the industry.

Three main Healthcare Challenges

- **Wasted Resources**
- **Better Medical Outcomes**
- **Cost Overruns**
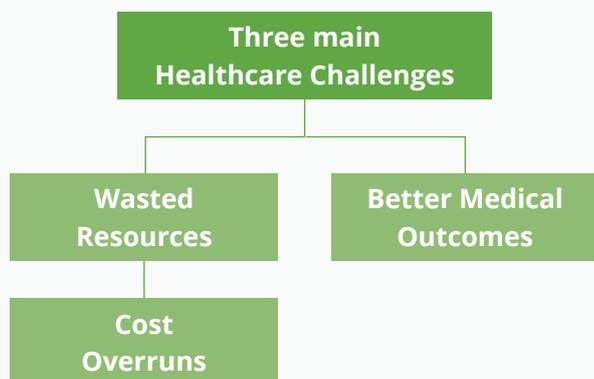
Source: Investopedia

➤ **Wasted resources** are a large-scale problem. This was especially noticeable in the United States, where it was estimated that a whopping $1.2 trillion in healthcare spending each year could be deemed "excess" spending. Labour was being allocated incorrectly, such as nursing staff being assigned to roles where their help was unnecessary, and resources were being wasted.

For example, people were kept in hospital beds for longer than needed, and excessive tests, treatments and prescription drugs were being sent their way.

➤ **Cost overruns** are the second key issue that healthcare IT needed to address - one that was clearly interconnected with the first. There were numerous situations where healthcare organisations were losing money in ways that could be avoided.

For example, doctors were being subjected to malpractice lawsuits because of mistakes they could have prevented, and inefficiencies in data management such as duplicate records were dragging down IT projects and causing them to waste time and money.

➤ **Better medical outcomes** are the third and most important issue. An early goal in healthcare analytics was to create better end results for patients. This will represent a win-win proposition for everyone involved - for the patients, they mean longer and healthier lives, and for health organisations, they're a way to retain customers and keep them happy. Early on in the healthcare BI movement, data scientists came to realise that analytics could help people learn to live healthier, more active lifestyles as well as make more intelligent decisions about future treatment plans.

To meet all of the above challenges, the innovators in healthcare business intelligence realised that they needed a more streamlined approach to gathering data and managing it efficiently.

To this end, HealthCatalyst noted that a key step in this movement was the construction of comprehensive data warehouses, which would better organise the data at the industry's disposal and make it far easier for medical professionals to make critical decisions.

Once this step in the process fell into place, everything became easier. Physicians and nurses could implement new clinical treatments with ease, confident that their decisions were supported by the data; meanwhile, personnel behind the scenes could handle logistical challenges like billing customers and managing accounts. Improved data management was the catalyst behind the rise of healthcare BI.

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The state of health BI today

As the healthcare BI movement continues to evolve, it's important that analytics thought leaders take the time to observe the ongoing trends that are taking hold in the industry and adjust their strategies accordingly.

What challenges are mounting in healthcare currently, and what can be done about them? As data analysis becomes faster and more sophisticated, health organisations are now finding it more feasible to use BI to identify their most pressing challenges and combat them.

For example, Charlie Farah, Qlik's healthcare market development director for the Asia-Pacific region, noted on the company's website that by revamping their approach to data management and using more advanced solutions for crunching numbers in real time, health organisations have gotten a much better handle on their ongoing improvement.

Farah pointed out that with QlikView and Qlik Sense leading the way, it's become easier to usher in revamped, data-driven strategies.

For example, the state Department of Health was able to deploy a performance reporting system that measures

a series of key performance indicators (KPIs) at all health facilities and compares the results to statewide benchmark levels. As a result of this implementation, everyone from executives to managers and clinicians now has the information needed to support better decision-making on a daily basis.

These KPIs can be wide-ranging, depending on what the organisation is attempting to measure. They can include all different types of variables.

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Administrative	Patient-facing	Financial
When managing a hospital, it's important to measure not just the effectiveness of medical treatments, but also the entire patient experience surrounding treatment. • How long is the wait time to see a doctor? • How often do patients get the rooms and beds they need? • How much attention do they receive from nurses?	This refers to the medical treatment itself. • How often are people treated properly? • What's the frequency of complications, infections or unexpected deaths? • Are patients often readmitted after being released? • How do patients rate the overall medical attention they receive?	• How successful are medical organisations at collecting the payments they're owed? • Are their revenues enough for them to meet expenses? • Is cash flow sufficient to meet immediate financial needs from month to month?

If all health organisations are able to use these same measurements to gauge their effectiveness and compare their results to the same benchmarks, the end result will be the standardisation of high-quality care. Ideally, no matter where you went for medical treatment, be it in Australia or elsewhere, you'd know what to expect from the doctors and nurses who treated you because work would be held to a consistently high standard.

The key to making this happen is having a centralised source of data that enables all medical professionals, regardless of their location or the specific field they work in, to collaborate. This has been an ongoing goal of the thought leaders behind the healthcare analytics movement.

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The future of technology in health

As the movement toward more efficient, smarter work in the healthcare sector continues, it's important to look to the future. The question must be asked: What innovations are still coming? What are today's health IT thought leaders still looking to accomplish?

According to Healthcare IT News, the biggest and most overarching future goal for the healthcare analytics movement is to improve predictive abilities. Health organisations are now on the lookout for data analysis mechanisms that have the built-in capabilities they need to anticipate health issues before they arise and act accordingly.

This is what health organisations look for when they shop around for new analytics solutions. They're no longer looking just for applications that gather data on past trends and analyse it - they want the ability to look ahead, predict trends that may emerge in the near future and respond to new developments before they even happen.

This may well mean the very nature of analytics work needs to change. Under the old paradigm, it was common for health organisations to hire data scientists who could interpret numbers and help them make decisions accordingly; now, however, that interpretation and decision-making needs to be instantaneous. Rather than hire people to analyse data, health organisations will

instead look for talented people who can design more advanced solutions to automate that process.

The driving force behind healthcare analytics should be to gain a better understanding of the patient. The more information they collect, the easier it will be to make informed decisions on many levels.

This includes not just medical data but also information about people's life stories and their finances - census data, income information, credit scores and even people's social habits can go a long way toward delivering better treatments, patient outcomes and modes of delivery.

Before analytics arrived on the scene, healthcare providers had minimal visibility into any of the above factors, and what little knowledge they did have was anecdotal - trickling in through individual conversations with individual patients. The data revolution has been transcendent, as it's given professionals at every level of patient care the ability to zoom out and see the complete picture.

Health Catalyst noted that predictive modeling is an entirely different process from the old methods of analysing health data, and mastering it requires undertaking a three-step process.

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Data scientists have to first define the problem they're trying to solve, then select a model to solve it and then execute that model. That third step - execution - is often the most difficult to pull off. It's one thing to have a theoretical understanding of the data you're analysing, but it's quite enough to put those theoretical ideas to work in a real-world setting where the health of your fellow human beings is at stake.

It should come as no surprise, then, that organisations often reach out for assistance with implementing the analytical plans they have in mind.

Predictive Modeling Process

STEP 1:
Define the problem you're trying to solve

STEP 2:
Select a model to solve the problem

STEP 3:
Execute the model

Source: Health Catalyst

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The value of a good consultant

For any healthcare organisation in the world today, there's tremendous potential in business intelligence solutions - but potential is just that.

It's the possibility of success, but by no means a guarantee. To live up to all that possibility and really maximise the bang for your company's buck, it might be necessary to get help from the pros.

At **AtoBI**, we have a team of capable consultants who will help you craft your future strategies. We have a unique approach, and we're confident it will work for you.

Our work begins with listening carefully and developing an understanding of your organisation's business intelligence needs. This requires knowing the parameters of the projects you're looking to undertake. How will you gather the data that you use for the foundation of your BI work? Who will have access to this data - and if the answer is multiple people, how will these individuals share it amongst themselves?

We'll also need to know about the talent you have in house. What are the current strengths of your staff when it comes to analysing data? What are the weaknesses? Are there any specific areas where you could use our help

with getting your people up to speed? Our goal is to listen, find out where you stand and devise a course of action accordingly.

Whenever you get into business intelligence in healthcare, your organisation is surely making a big investment. This is true in a wide variety of ways - you're investing your time, your money and a great deal of the talent in your organisation. The last thing you want is to see all those resources go to waste.

We pledge to make sure they don't. We can assist you with crafting a long-term strategy for BI success - one that eliminates waste, plays to your people's strengths and ensures you get the maximum possible return for the sizable investment your organisation has made.

There are plenty of BI consultancies out there, but our approach is unique. Because of our combination of business savvy and technical expertise, we are confident we can learn the ins and outs of your business and help you achieve as much as you possibly can with analytics. Your patients, your employees and your bottom line will all be thankful.

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