Qualities of an Excellent Healthcare Data Analyst

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Some people think that looking at numbers on a spreadsheet for more than 20 minutes is tantamount to torture. Others get excited uncovering trends and turning huge, complex datasets into simple, elegant reports that allow leadership to make strategic decisions. There are numerous competent healthcare professionals out there with a true passion for analytics. And whether they have been in the field for a while or are looking to transition into the field, there are some specific skills that will really help individuals stand out.

Learn Relational Databases

For those who are trying to enter the field, there are some pretty basic core competencies that are fairly universal. Chief among these would be the understanding of relational databases. Few other industries deal with data as complex and sensitive as the field of healthcare. Understanding how relational databases are structured, and how to join data together from different sources, should be baseline knowledge for any healthcare data analyst. Look no further than Medicare claims data to justify the need for this skillset. Even the public use files published by the Centers for Medicare and Medicaid Services (CMS) are only useful to those who know how to piecemeal the information back together to tell a comprehensive story.

Knowledge of structured query language (SQL) is indispensable for current and future data analysts. What makes SQL particularly attractive for data manipulation, as opposed to a tool such as Excel, is the fact that the code acts as a natural record for the transformations that were completed. Additionally, a report is often requested on a recurring basis, and having the transformations coded in SQL allows for a fast, reliable way to replicate the report. It also provides a clear record of steps for other analysts who may have to help support a report if the original author is no longer available.

Other analysts, however, have been able to produce some very elegant summary reports by just using Excel along with VLOOKUP functions. VLOOKUP is a function in Excel that allows the user to merge data. While these tools may not be the most efficient for recurring requests, they are powerful tools that still have their place in the analyst's tool kit. At the end of the day, the tool used is less important than understanding the core concepts of data acquisition, manipulation, and reporting.

Know Basic Statistics

Any data analyst should have familiarity and comfort with basic statistics, as a lot of data analysis work revolves around calculating rates and pulling descriptive statistics for populations. Analysts are often asked to select random samples for abstraction and—depending on the circumstance—it may be appropriate to suggest a stratified random sample. Additionally, with higher levels of adoption of Lean Six Sigma process improvement work, analysts are being asked to help run statistical analyses comparing pre- and post-work efforts. For example, T-tests and Z-tests are becoming much more commonplace than they have in the past. In order to select which statistical test is appropriate, analysts need to understand the difference between categorical and continuous variables. Use a resource such as the book *A Practical Approach to Analyzing Healthcare Data* to learn the various statistical methods and how to apply them to healthcare data.

Have Good Data Visualization Techniques

Another key quality of a data analyst is the ability to utilize proper data visualization techniques. This goes beyond just the ability to create a control chart or a bar graph in Excel. The idea is to be able to tell the story of the data in an intuitive manner. Colors, shapes, and labels should be used strategically and simply. There are many excellent resources posted online that outline the best practices for data visualization.

Project Management Knowledge a Plus

More and more analysts are required to take on a project management type role. Large dashboard projects require scoping out the work to be done, engaging with multiple stakeholders, and working within strict timelines and budgets. While formalized project management certification is not necessary, understanding some of the core principles and tools used within the project management domain will be increasingly important in this field.

Be Curious

In addition to the technical competencies, there are myriad soft skills required for success in this profession. The best data analysts are innately curious and inquisitive. They strive to understand a business process and organizational structure. These folks understand that the better they know their client, the better analysts they become. The inquisitive nature also relates back to the technical side of what they do. Good data analysts ask important questions, such as: Is there a better, faster, more efficient way to do this task? Is there a better tool out there that I should be learning? Is there a more effective visualization technique that I could apply to my report? These folks are eager to learn and hungry to stay on top of exciting new industry trends.

Be Communicative

The vast majority of data analysis "customers" really do not understand the intricacies of data and analytics. They often do not even know how to ask for the data they really need. Analysts need to be mindful of this dynamic and be able to ask the requestor for more information about their data needs to get at the heart of the request. Data analysts should be able to ask and listen to the story of why the report is needed and come up with suggestions for additional elements, report summarizations, etc. Also within the realm of communication are presentation skills. One must be able to read their audience and quickly adapt to either summarizing findings at a higher level, or conversely be able to speak to more of the technical nuance work that occurs behind the scenes.

Be Analytical

There are many very good analysts out there who are experts in pulling data and utilizing the tools at their disposal. Some analysts, however, can be very rigid in their approach. What really separates a good data analyst from an excellent data analyst is the ability to think outside the box. For example, when a problem arises, an excellent analyst is able to take the tools out of the equation and really break down a problem to the fundamental building blocks to come up with new, creative solutions. While there are many new tools on the market to help solve data and analytics challenges, the financial stability of the industry as a whole is being challenged. Analysts must be able to think critically and creatively about how to solve problems without adding to the financial burden organizations are already facing.

Be Flexible

Data analysts need to be flexible in their approach and recognize that new requests often require an iterative process to complete. As an example, data will often be requested as part of a process improvement initiative. As this work progresses, new variables often need to be added or altered to ensure the validity of the data being measured. Even an expertly executed scoping call cannot always uncover these nuances prior to building the initial report. Similarly, every single year there are sweeping changes to healthcare policy and quality measures. What works for a particular report or scorecard one year will likely need to be updated for the following year.

Be Principled

A good healthcare data analyst will always be on the search for the truth. Accuracy and integrity should be guiding principles behind the work being done. One must understand that the time taken to validate the results of an analysis is just as important as the work of putting the report together in the first place. An analyst needs to be willing to take the extra time to chase down one outlier and understand the nuance behind that case.

Have Passion

Finally, what really differentiates a great analyst is the passion they have for the work that they do. While the work they do is not done on the frontlines with clinical staff, data analysts' work directly impacts patient care and outcomes. Their work can still save lives. What is your super power?

Reference

White, Susan. *A Practical Approach to Analyzing Healthcare Data*. Chicago, IL: AHIMA Press, 2016.

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Article citation:
Spears, Amanda. "Qualities of an Excellent Healthcare Data Analyst." *Journal of AHIMA* 89, no. 9 (October 2018): 36-37.