

Title: Increasing efficiency through analytics – at all stages of the journey

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Data analytics: Addressing risk, providing value

As in many facets of the industry, the future of healthcare internal audit (IA) will feature use of advanced technologies such as robust data analytics and continuous monitoring. Data analytics

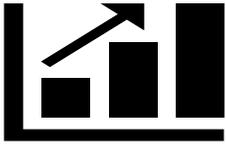


tools range from basic spreadsheet software to more advanced technologies that can sift through massive amounts of data in a short amount of time, automate workflows, streamline processes, and create relevant reports. Leading data analytics technologies might present a high barrier to entry due to costs of software, licenses, and training, but they also can help organizations address risks more proactively. In addition, analytics can increase the value internal audit brings to an organization, further cementing its role as an important business partner.

While some internal audit departments might use mature technologies and have dedicated staff members devoted to analytics, many are not as far along on their journeys. The good news is that using data analytics for internal audit need not be restricted to only the most expensive, cutting-edge analytics software.

No matter where an internal audit team stands in its level of data analytics maturity, it is never too early to begin laying the foundation for adoption of valuable analytics in the future. This white paper outlines data analytics' beneficial role in healthcare internal audit and provides case studies for examples of how analytics can be used in audits, from implementing data analytics into the organization's current state using existing processes and tools to using more advanced applications and techniques. The case studies also will illustrate the role data analytics plays in continuous risk monitoring and how valuable that monitoring can be for risk assessment and audit plans.

Why data analytics?



Using data analytics allows healthcare organizations – and auditors – to glean valuable insights from the vast amount of their organizations’ data, from electronic medical records to financial and other systems. These insights contribute to management’s ability to make more informed decisions in all areas, including clinical, financial, operational, and performance improvement. These insights also result in more efficient, beneficial, and accurate audits.

Using data analytics also provides a greater return on the investment an organization makes in internal audit. Increased efficiency results in time and resource savings because auditors can complete audits more efficiently and spend valuable time on emerging risks. Organizations also use data analytics to navigate today’s tough financial climate by helping internal audit teams do more work with the same or fewer resources. The COVID-19 pandemic has accentuated hiring challenges within the healthcare industry, from job furloughs in the early months of 2020 to more recent staff shortages. These challenges, combined with overall budget woes, make doing more with less an increasingly attractive prospect in all areas of business, including internal audit.

Getting started with data analytics

Before deciding which, if any, data analytics tools or techniques are right for the internal audit team, staff members should take stock of where the organization stands with using data analytics and what tools it currently has. To start, organizations should take an inventory of the internal audit department’s analytics tools as well as those available at the organization level, from general spreadsheet software to formal internal audit software. Then they should analyze the extent to which the tools are being used. For example, does the organization have a license for an advanced analytics software tool that it rarely uses? Is there anyone on the internal audit team with expertise in using the advanced tool or tools? Some departments might have sophisticated data analytics tools but not use them to their full potential. Other IA departments that are not as far along on their analytics journeys might not know how to use existing, less sophisticated

tools to their full advantage. The following questions are useful starting points for discussing the IA team's current state of using data analytics:

- What can technology do for the team? How can it enhance the work currently performed?
- Does the team use data analytics?
- What technology is the team using now? Is there anything on the team's wish list?
- What does the team want the internal audit department to look like in one, three, or five or more years?

In addition to assessing technology tools, the audit department also should consider reviewing team members' technological capabilities and knowledge. It can be helpful for today's audit teams to expand their auditors' skill sets in data analytics, as that is where the future of healthcare internal audit is headed.

Audit teams can expand data analytics skill sets within an IA department starting with taking an inventory of staff members' current skill sets. Once skills are identified and any deficiencies are pinpointed, the team can take steps to strengthen the department's data analytics capabilities. Options include providing formal analytics training for in-house staff, possibly through a third party, or considering whether some data analytics functions could be outsourced or cosourced.

After taking an inventory, assessing the IA department's current use of analytics, and determining the team's expertise in data analytics, the next step is incorporating analytics into the internal audit function – or, if the organization is more mature in its use of data analytics, taking analytics even further.

Case studies

The following case studies illustrate various scenarios for incorporating data analytics into internal audit, from the most basic use of existing applications to more advanced

applications and tools. The case studies do not endorse one method for incorporating data analytics over another; rather, they showcase how organizations can benefit from data analytics at any point in their journey.

Case study 1: Working with basic tools

Many audit teams today still use manual or basic technological processes for most or even all their work, such as risk assessment, planning, testing, report writing, and board reporting. Such organizations that still, for example, rely on email questionnaires and notes recorded on paper and then transcribed into spreadsheet software or some other tool might adopt more advanced data analytics technologies slowly, and that is OK. This case study is an example of an audit engagement that used existing reports and spreadsheet software to analyze data.

About the audit: This example is a general payment card audit. Auditors had to examine purchases and identify questionable items, purchases that were in violation of the organization's policy, and potential fraud.

Performing the audit: Data gathering is a crucial part of any audit. Working with incorrect data can waste time on the front end, as auditors must go back and forth with the auditee attempting to get the right data. Working with incorrect data also wastes time on the back end if auditors use that bad data and later learn they must start over with the correct data. For this audit, the audit team conferred with the organization's centralized finance department, shared service center leadership (responsible for purchasing), accounts payable (AP), and information technology (IT) to gather data and determine the audit scope, concerns, trends in data, and what data could be obtained.

Inputting data also is an important part of an audit, so it is important to note limitations of the spreadsheet software related to file size and adjust accordingly. For example, most software can handle only so many rows and lines of data. In addition, the more data that is added to it, the slower the application runs. Filtering out any unnecessary data fields at the outset of the data collection process can help address these issues. For example,

for this payment card audit, the team wanted to know employees' names and identification numbers, but home addresses and phone numbers were not important. The team removed those fields, which kept the file size more manageable.

Once auditors received what they believed to be the relevant data, it was important to validate that data. The team took these steps to validate the data:

- Comparing the data request to what was received
- Spot-checking to determine whether any fields or large chunks of data were missing by scrolling through the data and using data filters to identify information that looked out of place
- Performing high-level summarizations of data
- Verifying the data against independent source documents to determine completeness and accuracy of data received, such as comparing totals or number of records
- Validating a sample of data elements to determine accuracy by comparing the data to the organization's financials and other data sources
- Discussing the spreadsheet file with management to see if it was in line with previous trends and if the number of transactions in the period being audited appeared to be accurate

The next step in this audit was data testing. Auditors dug deep into the data, testing (and then testing more) until findings were revealed. When exceptions were found during testing, the auditors tested those exceptions to validate whether they truly were exceptions. Examples of some of the exceptions found in this payment card audit included:

- Instances of payment card purchases made by employees who were not on the payment card listing
- Duplicate payment card numbers or the same numbers assigned to multiple employees

- Duplicate names in the payment card listing
- Duplicate transactions
- Employees in the payment card listing who were not current employees
- Transactions to vendors outside of approved vendor listing
- Transactions just below or over approval limits

After identifying exceptions, the auditors took an extra step to test them. The auditors randomly sampled a few of the items from each category of the exception reports and findings to determine if they were true exceptions or if perhaps the data was indicating another issue.

Benefits of working with existing tools: Because the auditors used existing tools such as spreadsheet software, a major benefit of this method was the small investment necessary on the part of the auditee. In addition, because the auditors used tools familiar to the auditee, the auditee was better able to understand the audit process and results.

Another benefit of working with tools already present in the organization was ease of handing off the audit routine to the audited organization, which now performs this testing monthly on its own. Such ease of transition contributes to beneficial continuous monitoring.

Case study 2: Blending data analytics with existing tools

This case study moves slightly beyond using existing tools such as spreadsheet software to incorporating data analytics tools.

About the audit: The audit team used data analytics tools in combination with spreadsheet software to conduct a standard pharmacy audit and determine risk areas.

Performing the audit: Use of data analytics revealed potential concerns regarding drug diversion and overprescribing within the organization. The internal audit team ran

multiple analytics tests, and the results from two tests stood out. The results showed that one drug was being withdrawn from the automated dispensing machine more frequently than others. Sorting the data further, auditors discovered one nurse was making a significantly greater number of drug withdrawals than her peers. The auditors wondered if they had discovered an instance of drug diversion or if this nurse was just busier than her peers.

The auditors used data analytics again to determine what kinds of drugs the nurse was withdrawing. Not surprisingly, morphine, a commonly diverted drug, was at the top of the list.¹ One data analytics test performed by the auditors revealed that 80% of drug pulls were of morphine. The test revealed it was from a nurse, but the auditors needed to dig deeper to identify the individual.

Using spreadsheet software in combination with analytics, auditors were able to sort the results and eventually find the nurse who was diverting drugs. After a thorough investigation, the hospital removed the nurse from her position and provided her with help, including access to a recovery program.

Benefits of incorporating data analytics: Using data analytics tools allowed auditors to analyze a full population versus just a small sample. Relying on human intervention to spot differences or trends across thousands of lines of data is less reliable than the use of data analytics. Had the auditors used only spreadsheet software without analytics, this nurse might not have stood out. Being able to analyze 100% of a population, as in this example, helps auditors find outliers rather than hope they find a needle in a haystack through sample testing.

Case study 3: Using analytics and spreadsheets to review charge capture

While the first two case studies showcase auditing techniques using data analytics, the next two case studies highlight examples of how auditors can use analytics to replicate activities performed during audits. Replication can allow for valuable continuous

monitoring of risk areas. The possibilities for using data analytics in continuous monitoring are as vast as they are for use in an initial audit. Examples of analytics' use in continuous monitoring within healthcare organizations include areas such as payroll, supply chain, system access, 340B, AP, medication dispensing, journal entries, and denials. The following case study addresses charge capture reconciliation.

About the audit: While performing routine, period-over-period comparisons, an organization's accounting department discovered that the pharmacy department was losing money even though volumes and activity were consistent. This decrease in revenue raised a red flag with the accounting team, which then enlisted the help of the internal audit team to perform a root cause analysis.

Performing the audit: Internal audit found that a medication code had been retired and replaced in the billing system during the organization's annual charge description master (CDM) update. That code, however, was not changed in the organization's automated medication dispensing system, resulting in a lack of crossover activity. Charges were not being billed, and reorder activity for the drug was not being triggered, resulting in a shortage of that medication.

Benefits of continuous monitoring: Whenever a major change to a billing system occurs, such as the code change in this example, auditors should perform a reconciliation between the billing system and all its subsystems. Depending on the volume of charge codes and lines of data, auditors can compare the CDM charge codes with those in the automated dispensing system through a VLOOKUP spreadsheet function or a duplicates analysis to extract nonduplicates. For analyzing larger data sets, a more powerful software is better able to handle the volume. This reconciliation procedure should be standard; had it been in place, it likely would have caught the error. But because a reconciliation check might not catch everything, or changes might have occurred that seem minor but can still affect billing, charge capture is an ideal area for continuous monitoring.

The organization can monitor charge capture weekly, monthly, or quarterly, though the more frequently it is performed, the smaller and more manageable the data sets will be. This type of continuous monitoring does not require expensive, sophisticated tools; it is something that the organization can easily do. And while it is true that due to pharmacy volumes the organization might not be able to test 100% of the charge population without a more powerful analytics tool, it is still possible to focus testing on specific drugs, such as expensive or commonly dispensed medications. An action plan for continuous monitoring could look like the following:

- Perform reconciliations between billing systems and subsystems. At a minimum, perform reconciliation during any major systems changes (but best practice is to perform it regularly).
- Empower and educate the business to be able to perform testing on its own moving forward.
- Compare the number of charges between systems.
- Compare codes used between systems.
- Perform completeness testing.
- Inspect reconciliation results at regular intervals.

Case study 4: Using data analytics in risk assessment

About the audit: Following the acquisition of another business, organization leadership was concerned about vendors or even employees taking advantage of vulnerabilities occurring while the organizations' accounting systems merged, leaving the door open for fraud.

Performing the audit: Auditors first worked with management staff from the AP and payroll departments and third-party vendors, including banks, to determine what types of data could be obtained. Using information gained from that data, additional research, and commonly used AP tests, the audit team used data analytics tools to test for duplicate payments or vendors in various ways; cash management such as timing of invoice payments, gaps in check registers, uncleared checks, and potential lost

discounts; approval limits such as payments greater than authorized approval limits; whether purchase orders could be split; outliers and unusual invoice numbers; and employees in the vendor master file. The team designed the analytics to monitor transactions for outliers that could indicate fraud.

During the audit, testing identified fraudulent transactions. The audit team demonstrated to organization management that the testing worked well and could be repeated. The audit team determined quarterly testing would be most effective for detecting fraud, and management approved that testing frequency.

Benefits of continuous monitoring: Subsequent tests identified additional improper transactions and gaps in controls and processes related to AP transactions. These findings initially were unintended, but they demonstrated to management that performing continuous monitoring of AP transactions can serve as a preventive action.

As these case studies demonstrate, insights captured through continuous monitoring contribute to more robust and active risk assessment, which, in turn, results in creation of smarter audit plans. Today's healthcare organizations are moving away from traditional annual risk assessments toward more frequent assessments to keep pace with a dynamic industry. Continuous monitoring and repeated auditing allow for more frequent reviews of current and emerging risks, helping organizations stay at least somewhat ahead of what can seem like a constantly moving target.

Analytics' benefit in risk assessments and audit plan development

Use of data analytics in risk assessment and audit plan development has many benefits. In addition to providing insights and highlighting organizational risks, these tools can provide auditors with more



confidence when analyzing parts of the business that might be less familiar and more technical, such as clinical areas. Data analytics also contributes to a risk assessment that is objective, independent, and data driven. Following are two examples of how data analytics can be used in risk assessments.

Example 1: Using risk assessment dashboards

Risk assessment dashboards can help auditors identify and address quality and financial risks within a healthcare organization. Dashboards, which can take many shapes and sizes, can help auditors initiate productive risk assessment conversations with organization leadership.

Examples of common **quality topics** reported on dashboards include:

- Hospital-acquired conditions
- Never events
- Medically Unlikely Edits for Current Procedural Terminology (CPT) and Healthcare Common Procedure Coding System (HCPCS) codes
- One-day stays
- 30-day readmissions

Common **financial topics** reported on dashboards include:

- Point-of-service cash collections
- Payment percentages

- Late charges
- Credit balances
- Billing days

Example 2: Using data analytics prior to risk assessment meetings

As mentioned previously, data analytics can be a valuable tool for auditors when they present findings to C-suite leaders. Following are five examples of helpful data analytics auditors can run prior to risk assessment meetings:

- **Charge capture.** Auditors can perform a high-level analysis of selected departments using data analytics to determine which ones have missing charges. The reports can pertain to any operational area but typically are completed for emergency, surgery, cardiac catheterization, and interventional radiology, which are all areas driven by CPT codes.
- **Healthcare compliance.** Auditors can run compliance analytics reports in areas such as one-day stays, 30-day readmissions, same-day readmissions, transfers, and credit balances.
- **Patient access, denials, and CDM.** Data analytics can be helpful for assessing and addressing revenue cycle risks at a high level. Analytics can reveal risks such as patient access data entry errors, duplicate or multiple medical record assignment, and accounts missing an admitting diagnosis, all of which can ultimately lead to denials. Reviewing the CDM using data analytics can give auditors insights into areas including pricing strategies, CPT hard coding, implants, and revenue code mapping. Auditors also can use analytics to compare CDM prices against fee schedules or against competitors' pricing.
- **Length of stay (LOS).** Data analytics can provide high-level insights into physician behavior regarding hospital stays. For risk assessment, auditors can consider comparing calculated LOS to facility-reported LOS to note discrepancies.
- **Evaluation and management (E&M) codes.** Using data analytics to analyze physician practice E&M codes can help auditors identify physician billing risks.

Auditors can use analytics tools to analyze E&M codes by specialty and physician to provide deep insights. They can use the information gleaned during risk assessment to help determine, at a high level, which specialties and providers might be at risk for coding issues. Auditors can use that information to guide audit scheduling.

Demonstrating the high value of data analytics



It is more important than ever for internal auditors today to show the return on investment they bring to their organizations. Making the case to management about the importance of investing in technologies such as data analytics is a vital component of demonstrating IA's value. Doing so might look different for each organization, depending on how far along an organization is in its data analytics journey.

For example, if the internal audit team is more mature in its analytics implementation, discussions with management might explore obtaining the resources needed to purchase a license for a sophisticated data analytics internal audit tool. If an organization is even further along in its journey and already seeing value in using data analytics tools for its audit processes, it might discuss partnering with internal audit specialists to see if they can expand on what is already in place for even greater success. On the other hand, if the organization is comparatively early in its data analytics journey, it could discuss with management the benefits of making a culture shift away from older, more manual audit processes to newer, more sophisticated, technology-driven ones.

The benefits of using data analytics in internal audit are plentiful for auditing, monitoring, and compliance. By starting slowly and using existing tools and resources, analytics can be approachable, too. To improve and become more efficient – and to demonstrate the high value they bring to their organizations in these challenging times – auditors must adapt and evolve toward the technologies that can strengthen and sustain them.

Endnotes

¹ The Joint Commission, “Drug Diversion and Impaired Health Care Workers,” Quick Safety, Issue 48, April 2019, <https://www.jointcommission.org/resources/news-and-multimedia/newsletters/newsletters/quick-safety/quick-safety-48-drug-diversion-and-impaired-health-care-workers/>

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