



NEXT-GEN AUDITING AND ANALYTICS

January 2022

SPEAKERS

Jarod Baccus is a Director and Protiviti's Healthcare Internal Audit Solutions Leader. Jarod has more than 17 years of internal audit and consulting experience working in the healthcare provider industry across acute, post-acute, and physician settings. In addition, Jarod has worked with numerous large integrated healthcare delivery systems to assess and improve their internal audit function as well as their compliance, revenue cycle, clinical, operational, and financial processes. Jarod is a frequent speaker on internal audit, compliance, and next-gen concepts. Jarod has also published various healthcare thought leadership pieces. Jarod can be reached at jarod.baccus@protiviti.com or at 281.513.9559.



Landon Adkins is a Director and Protiviti's Healthcare Advanced Analytics Solutions Leader. Landon has more than 15 years of experience in providing revenue cycle improvement, audit, and compliance services across facility and physician settings. Landon has also presented at various healthcare organization conferences and published various healthcare thought leadership pieces. Landon can be reached at landon.adkins@protiviti.com or at 806.577.5756.

OBJECTIVES

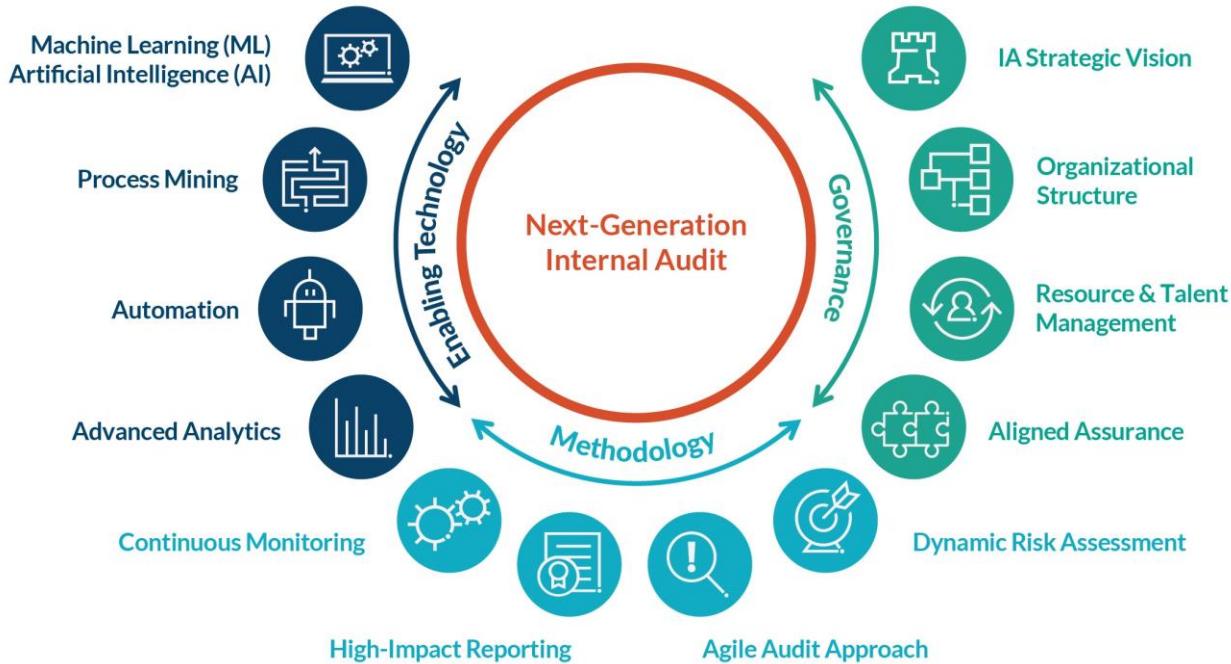
-    Describe the importance of auditing and monitoring within an internal audit program, the Next Generation Audit approach and supporting governance, methodology, and enabling technology frameworks.
-    Discuss how to utilize high impact reporting to demonstrate dynamic risk assessment and continuous monitoring results and other high-value analytic insights.
-    Demonstrate actionable analytic examples that can be derived and clearly articulated using enabling technologies such as data visualization business intelligence software.

AGENDA



NEXT-GEN AUDIT FRAMEWORK

NEXT GENERATION AUDIT FRAMEWORK



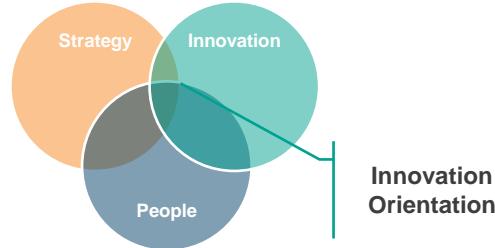
NEXT-GEN AUDIT COMPONENT DEFINITIONS

Governance	Methodology	Enabling Technology
Audit Strategic Vision Next Generation Audit defines a clear & concise strategy to establish the function's purpose, enable achievement of objectives within the established vision & mission, & facilitate an innovative culture that helps achieve organizational goals. 	Dynamic Risk Assessment Dynamic risk assessment generates timely and relevant information regarding risk factors to support risk-informed decisions, scenario planning, and forecasting. This approach effectively considers emerging risks & proactively adapts. 	Machine Learning (ML) / Artificial Intelligence (AI) ML & AI are advanced concepts that involve studying data to detect patterns or predict outcomes & leverage computer systems able to perform tasks that normally require human intelligence. 
Organizational Structure Audit functions are evolving due to a constantly changing regulatory & digital transformation landscape. Organization structures must be developed to allow for sufficient & flexible coverage across entities, geographies, and applicable risks. 	Continuous Monitoring Continuous Monitoring is the practice of reviewing business processes on a real-time basis to determine whether those processes are performing at the desired level of effectiveness and/or efficiency. 	Process Mining Process mining uses data from a company's internal IT systems to visually reconstruct how processes actually perform and to identify process deviations, weaknesses, and workflow delays. 
Resource & Talent Management Next Generation Audit sources talent creatively through partnerships and retains talent through innovative work environments, challenging existing norms. Flexible resource models will be employed to gain access to skillsets and capacity. 	Agile Audit Approach An Agile Audit Approach utilizes a framework based on iterative & sustainable development, where requirements & solutions evolve through collaboration between cross-functional audit teams focused on quality. Audit is focused on risk mitigation through responding to changing & emerging business needs. 	Automation Automation is a digital transformation technology that enables users to build and configure "bots" to emulate the labor-intensive, routine, or repetitive actions of a human interacting with a computer. 
Aligned Assurance Aligned Assurance is the correlation of risks, controls, and a broad view of the control environment across the three lines of defense. This seeks to maximize operating efficiency & provide clear visibility of results to stakeholders. 	High Impact Reporting Effective communication is essential to demonstrating the value Audit delivers. Optimizing many aspects of Audit's approach such as risk assessment, audit execution, methodology, & use of data provides a solid foundation for effective communication that is relevant, risk-informed, timely, & insightful. 	Advanced Analytics Proliferation of data in businesses coupled with the advancement of automation and data science technologies. Organizations have started focusing on where analytics can be incorporated to deliver proactive, efficient, & effective assurance. 

GOVERNANCE

Achieving Synergy Between Strategy and Innovation

- Define an innovation orientation.
- Thoughtful alignment of strategy and innovation / transformation.
- Establish an innovation mindset, capability, and culture.
- Empower and align resources to deliver.



Requires New (and Evolving) Skills and Capabilities

- Auditor skillsets are already evolving and the auditor of the “function of the future” will need to evolve further.
- Capabilities once considered “technical” will soon become core.
- New approaches to talent and resource management will be required.

Aligned Assurance and Agile Risk Management

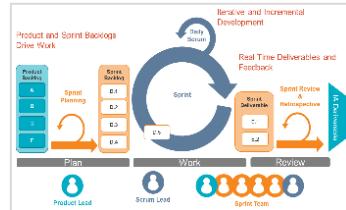
- Effective risk management comes from the collective view of multiple risk, control, compliance, and assurance functions – each providing a unique perspective.
- Maximum value depends upon alignment, consistency, and coordination (e.g., coverage, terminology, ratings, taxonomy, etc.).



METHODOLOGY

Dynamic Risk Assessment and Continuous Monitoring

- Dynamic risk assessment provides a closer to real-time risk view, often making use of internal and external data sources.
- Integrated with a mature continuous monitoring program to allow the audit function to respond to changes in the business in near real-time.



Agile Methodology

- Agile in audit is the application of modern SDLC approaches to drive efficiency and effectiveness driving audit to follow-the-risk and reduce time-to-value.
- Innovative audit functions are adopting (and adapting) concepts of agile to drive additional value while exploring new delivery models.

High-Impact Reporting

- In today's fast moving environment, timely communication of quality, actionable information is key.
- Long, narrative based reporting formats need to be re-examined.
- Innovative audit functions are delivering reports in more interactive, graphic-rich formats to deliver maximum impact.



ENABLING TECHNOLOGY

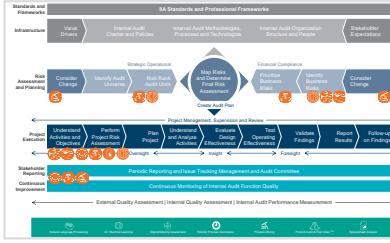
Data and Technology Enablement

- Data and technology embedded throughout the audit lifecycle and a core competency.
- In today's data rich environments, data should inform everything that is done and be core to reporting.
- Explore existing and emerging technologies (e.g., RPA, ML / AI, process mining, etc.).



RPA, Machine Learning/AI, Process Mining

- Automate highly manual tasks within the audit function
- Leverage data to understand processes at a deeper level and "automate" walkthroughs.
- Explore AI and algorithmic methods to increase the effectiveness and efficiency of complex testing and pattern recognition.



Embrace Emerging Technologies

- Extensive reliance on automation, data analysis and a variety of advanced technology applications is a defining feature of next generation audit functions.
- New technologies should not just be "dropped into" the old ways of doing things.



NEXT-GEN IA CAPABILITY MATURITY RANKINGS

Data from Protiviti's 2021 *The Next-Generation Internal Audit Journey Begins Now*

Next-Gen Area & Capability	All Respondents	Healthcare Industry	All Other Industries
Governance			
Internal Audit Strategic Vision	5.4	6.0	5.3
Organizational Structure	5.4	5.7	5.3
Aligned Assurance	5.3	5.4	5.3
Resource & Talent Management	5.2	5.2	5.1
Methodology			
High-Impact Reporting	5.5	5.8	5.4
Dynamic Risk Assessment	4.8	5.5	4.7
Continuous Monitoring	4.8	4.7	4.8
Agile Audit Approach	4.5	5.7	4.5
Enabling Technology			
Advanced Analytics	4.2	4.7	4.2
Automation	4.0	4.3	4.0
Process Mining	3.6	4.9	3.5
Machine Learning (ML)/Artificial Intelligence (AI)	3.1	3.4	3.1

For each next-generation internal audit capability, the score represents the average response based on a 10-point scale, where "1" indicates a low level of maturity and "10" indicates a high level of maturity.

Source: [Protiviti IA Survey](#)

NEXT-GEN AUDIT APPROACH & EXAMPLES

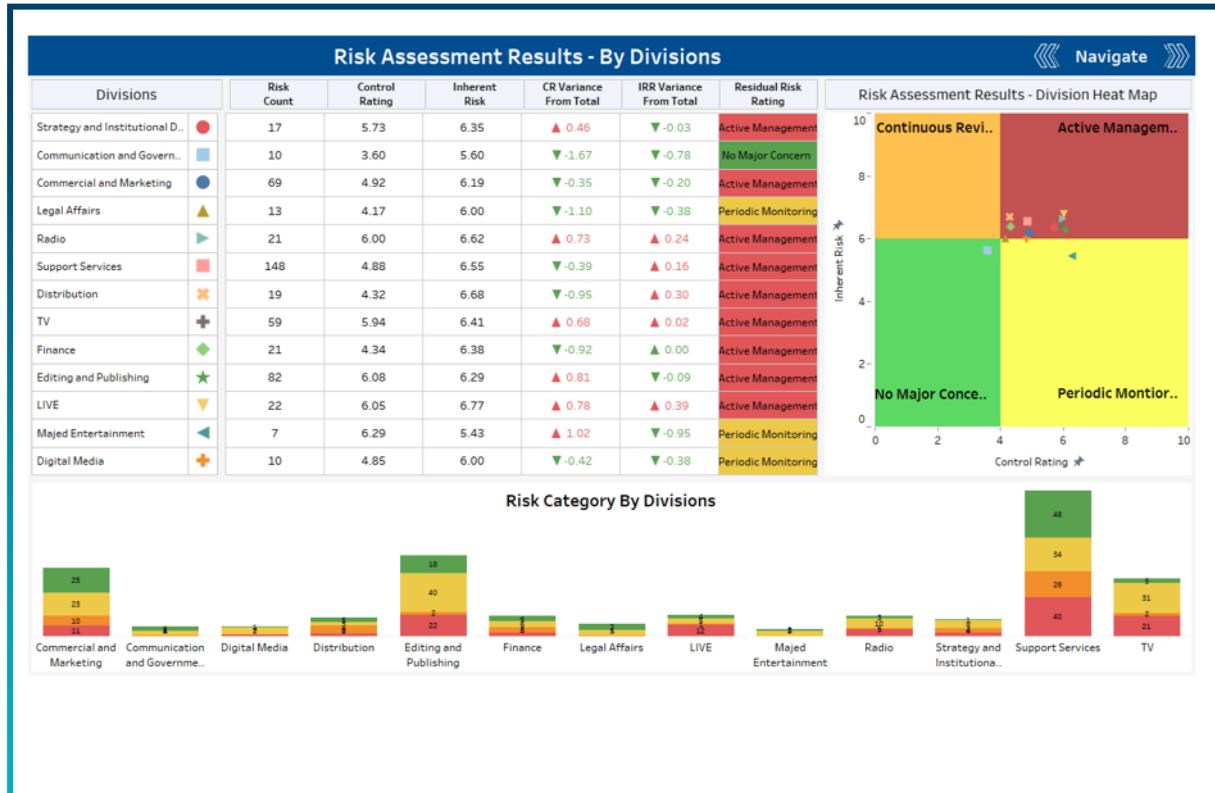
ANALYTICS PROGRAM APPROACH



AUDIT COMMITTEE REPORTING

High-Impact Reporting

RISK ASSESSMENT DASHBOARD



Static risk assessment results summary indicating risk counts, ratings, and variances across divisions and geographies.

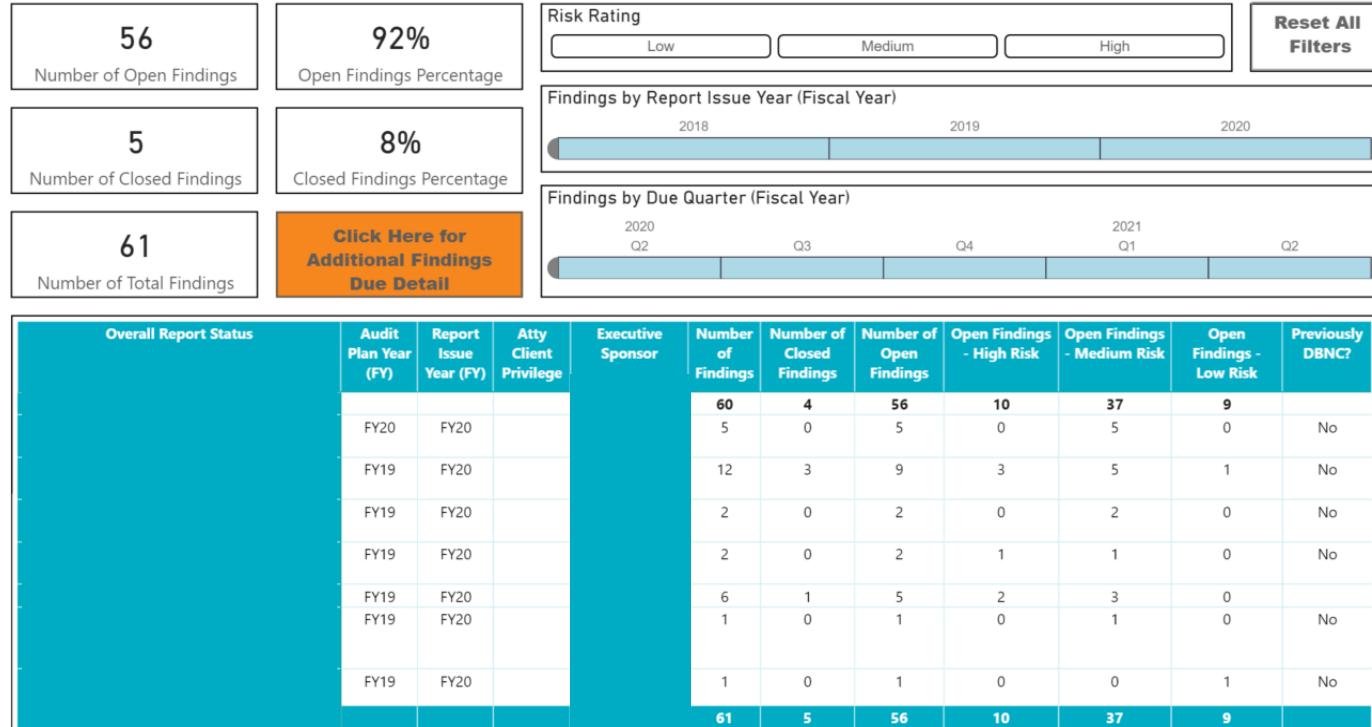
AUDIT ISSUES SUMMARY DASHBOARD

Internal Audit Observations			REMEDIATION STATUS			
PROCESS COMPONENT	OBSERVATION	PRIORITY	LMB Management		Internal Audit	
			Action Agreed	Action Complete	Tested	Evaluation*
Process Governance (Q1)	#1 - Policies & Procedures – Formalised and documented policies and procedures do not exist;	HIGH	✓	X	Q4	Yellow
	#2 - Segregation of Duties (SOD) – Lack of segregation of duties within key financial processes.	HIGH	✓	✓	Q4	Green
	#3 - Delegations of Authority – Formalised and documented delegations of authority do not exist.	HIGH	✓	X	Q4	Yellow
Order to Cash (Q1)	#4 - Customer Orders – Customer Orders can be amended in the order system without approval or review, before rolling/call-off;	HIGH	✓	X	Q4	Yellow
	#5 - Customer Credit Notes – A periodic review of all Credit Notes raised is not being performed;	HIGH	✓	✓	Q4	Green
	#6 - Customer Contract Terms – Varied credit, payment and inventory hold terms for top ten customers, with no formalised contracts in place to reflect these terms.	HIGH	✓	✓	Q4	Green
	#7 - Customer Masterfile – A periodic review of changes made to the Customer Masterfile in the accounting system, is not being performed;	HIGH	✓	✓	Q4	Green
	#8 - Customer Pricing – Sales order prices and quantities per invoices are not reviewed prior to sending to customer.	HIGH	✓	✓	Q4	Green
Purchase to Pay (Q1)	#9 - Supplier Invoicing – Insufficient evidence to support supplier invoices relating to IT services.	MEDIUM	✓	X	Q4	Yellow
	#10 - Supplier Masterfile – A periodic review of changes made to the Supplier Masterfile in the accounting system, is not being performed.	MEDIUM	✓	✓	Q4	Green
	#11 - Supplier Set-Up – Approved new supplier set-up forms not retained for all new suppliers added to accounting system.	MEDIUM	✓	✓	Q4	Green
	#12 - Supplier PO – Evidence of PO approval for stores and consumable purchases not retained.	MEDIUM	✓	✓	Q4	Green



Lists high and medium observations and includes updates regarding remediation activities and expected timing.

FOLLOW-UP / CORRECTIVE ACTION PLAN DASHBOARD

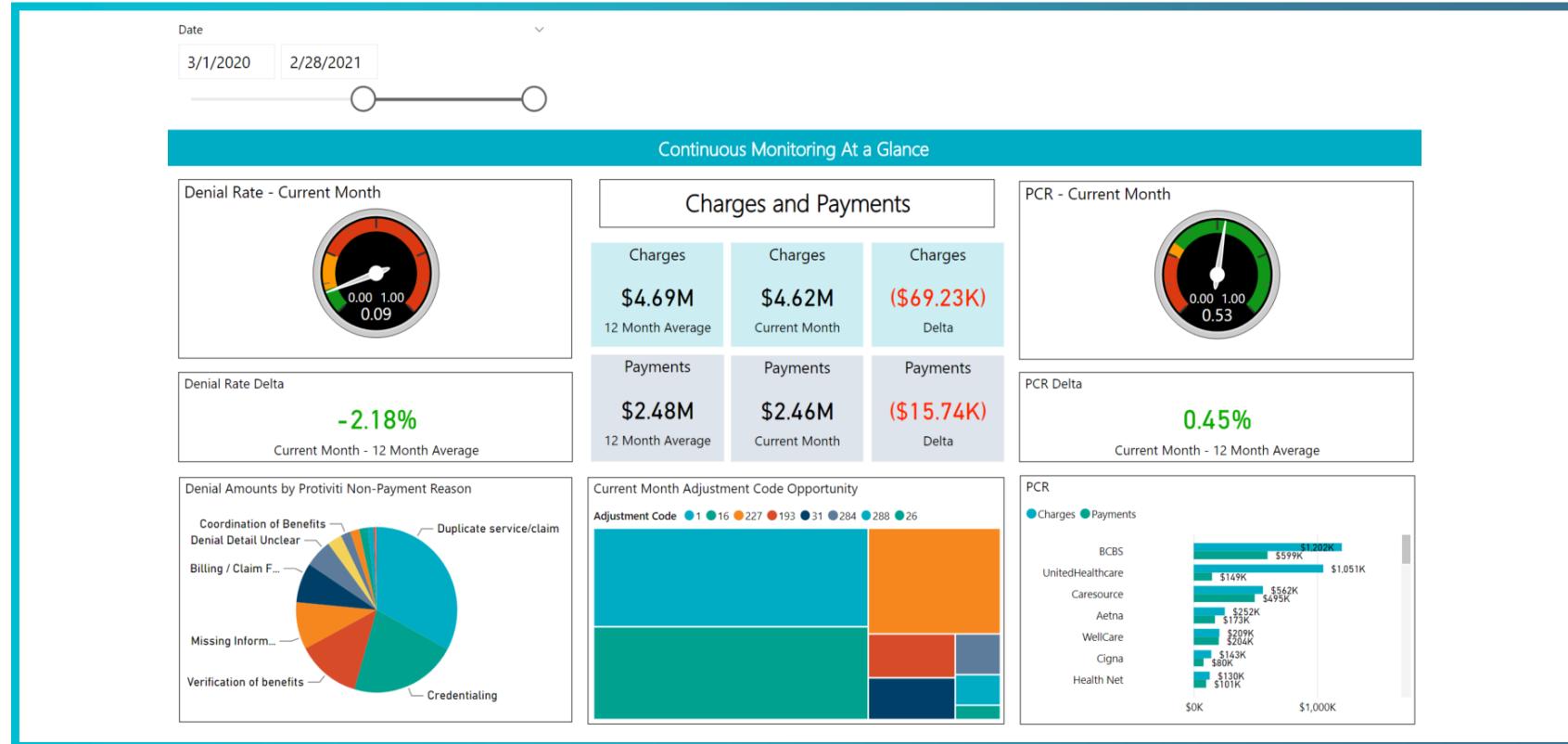


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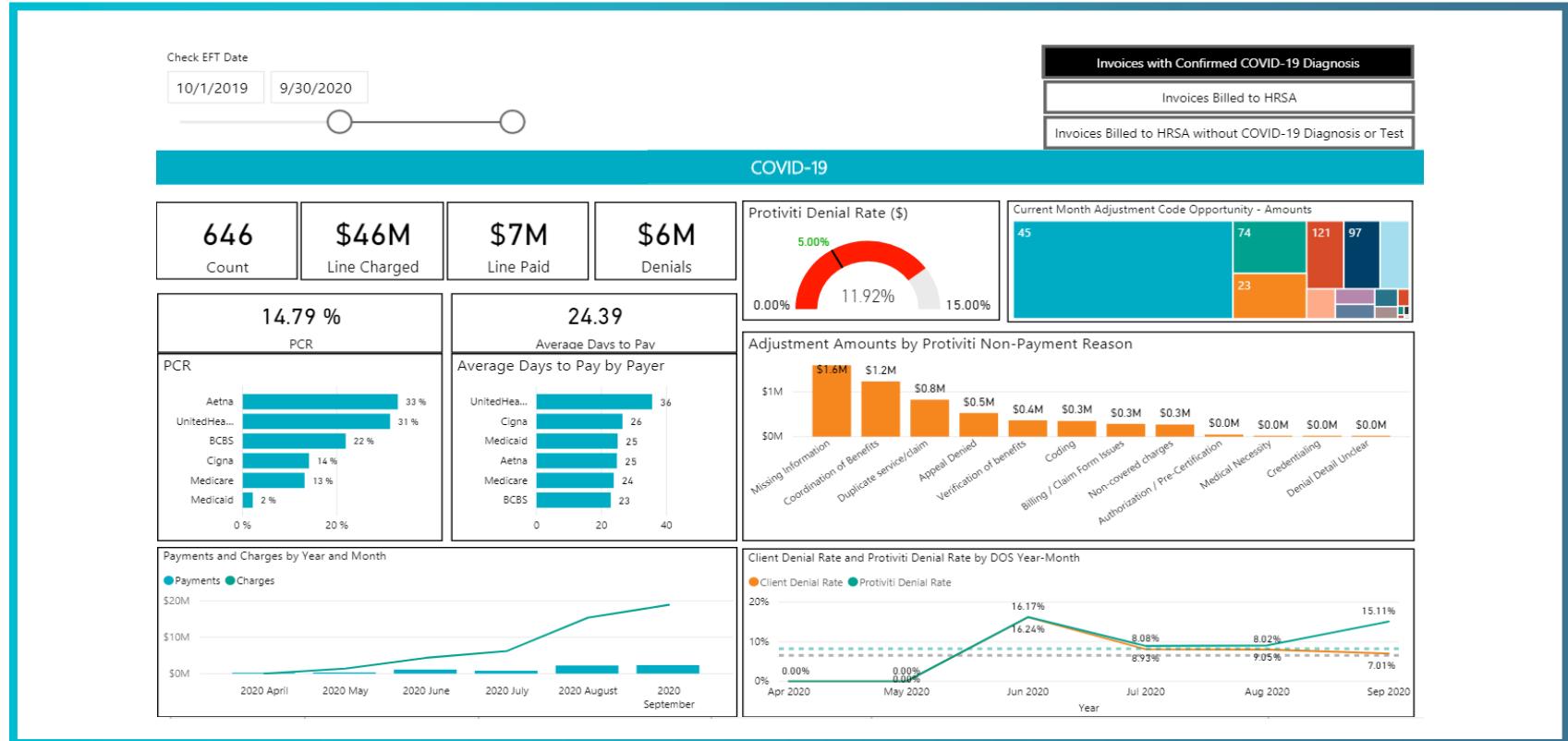
REVENUE INTEGRITY & COMPLIANCE ANALYTICS

High-Impact Reporting, Advanced Analytics, Continuous Monitoring

REVENUE ANALYTICS



COVID-19 ANALYSIS



STANDARD DEVIATION ANALYSIS

PROVIDER OUTLIER ANALYSIS



JW MODIFIER ANALYSIS

AUTOMATED DISPENSING MACHINE ANALYSIS

High-Impact Reporting, Advanced Analytics, Continuous Monitoring

AUTOMATED DISPENSING MACHINE DASHBOARDS



OUTLIERS BY TRANSACTION TYPE



BUDDY WASTE

Facility: All | CareAreaName: All | Syringe or Vial: Y

User and Drug Breakdown for Users with Withdrawals, but Zero Waste Transactions

Total Volume of Withdrawal Transactions by User			
UserName	Care Area and Facility	Volume	Number of Standard Deviations from the Mean
[REDACTED]	Surgery - OR	61	4.15
	- ORP	19	3.66
		2	2.83
	Main OR	8	2.24
	OR PACU	32	2.21
	Medical Specialties	2	2.00
	Surgical Specialties	8	1.92
	ED	10	1.81
	- ERP	14	1.73
	- Emergency Department	10	1.72
	- NTICU	10	1.72
	- ICU	10	1.70
	Progressive Care Unit	7	1.63
	(J)		
	Surgery - OR	29	1.59
	- Medical Specialties	3	1.41
	Labor and Delivery	2	1.41
	Labor and Delivery	2	1.41
	- Endoscopy	2	1.41
	FBC 25-26	7	1.40
Total		689	109.71

Includes lines without a Patient Name

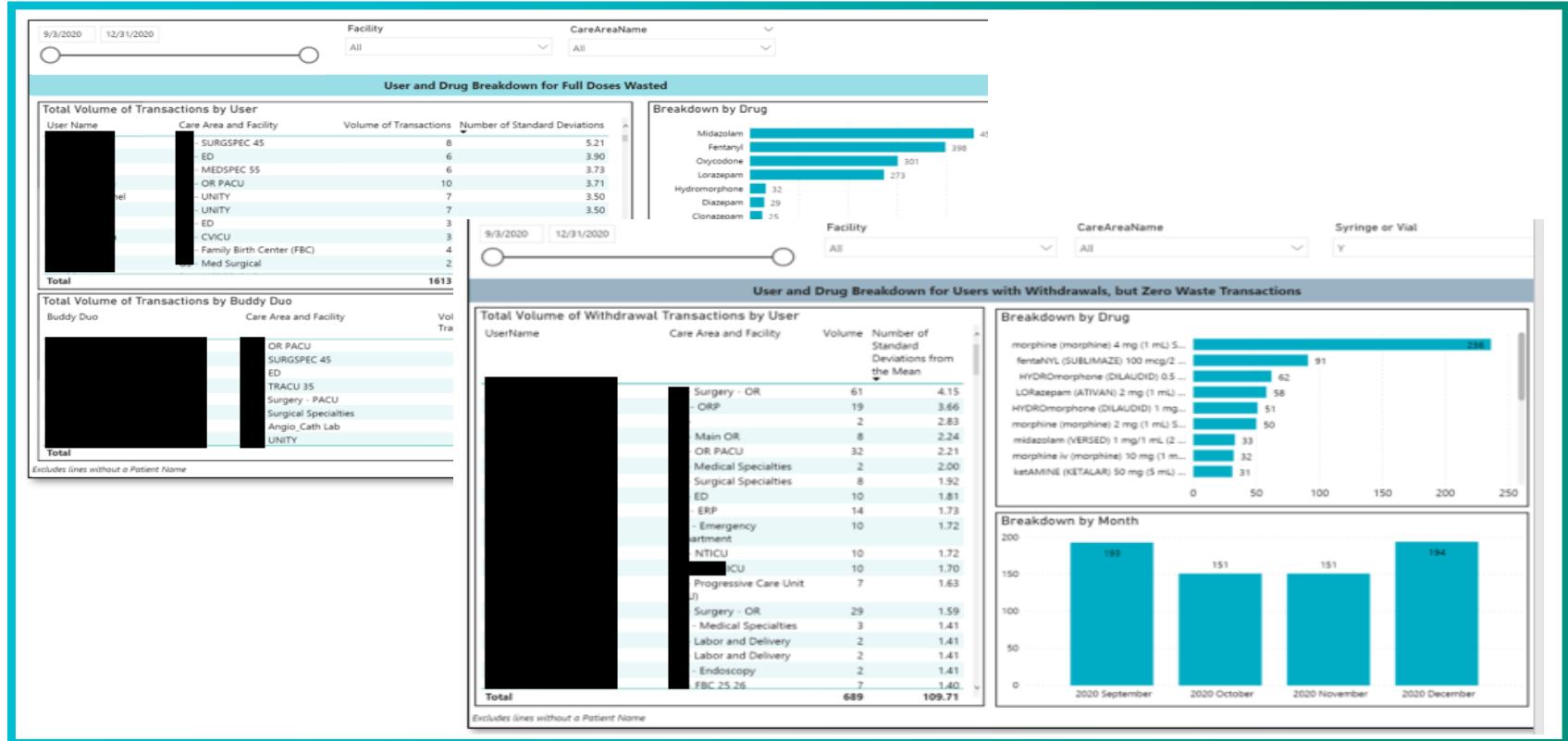
Breakdown by Drug

Drug	Volume
morphine (morphine) 4 mg (1 mL) 5%	236
fentanyl (SUBLIMAZE) 100 mcg/2 mL	91
HYDROmorphine (DI LAUDID) 0.5 mg/mL	62
LORazepam (ATIVAN) 2 mg (1 mL) 5%	58
HYDROmorphine (DI LAUDID) 1 mg/mL	51
morphine (morphine) 2 mg (1 mL) 5%	50
midazolam (VERSED) 1 mg/1 mL	33
morphine iv (morphine) 10 mg (1 mL)	32
ketamine (KETALAR) 50 mg (5 mL)	31

Breakdown by Month

Month	Volume
2020 September	193
2020 October	151
2020 November	151
2020 December	194

WASTING FULL DOSES OR ZERO WASTE

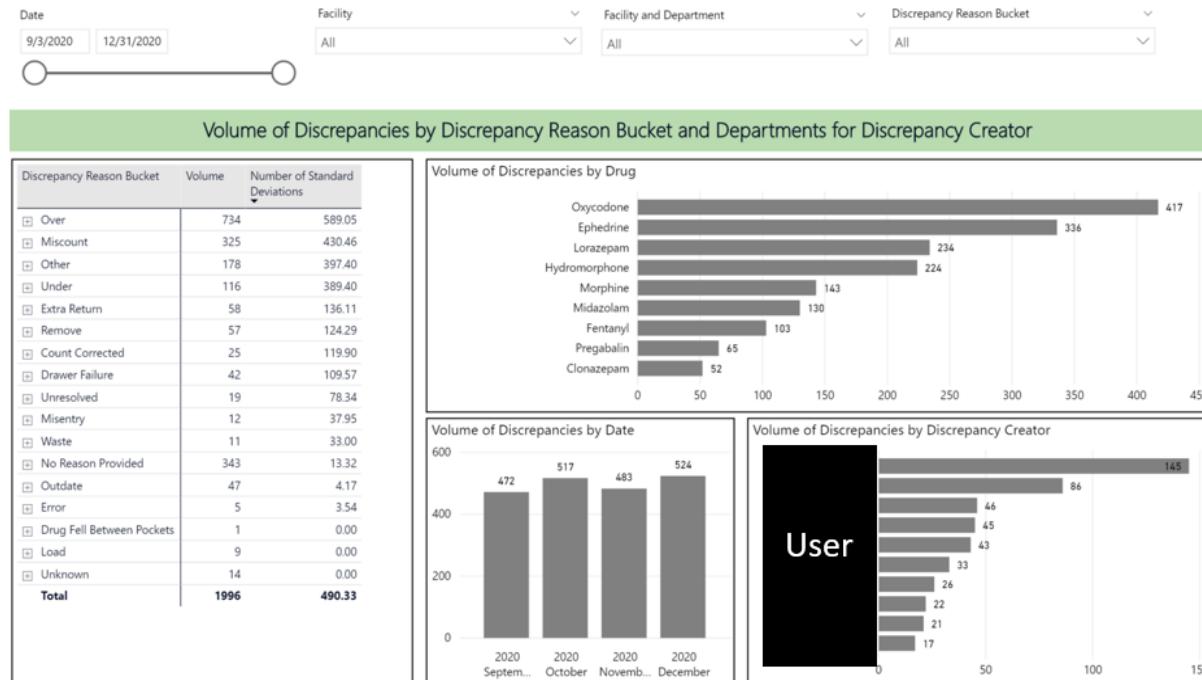


BLIND COUNT DISCREPANCY

High-Impact Reporting, Advanced Analytics, Continuous Monitoring,
Machine Learning (Natural Language Processing [NLP])

BLIND COUNT DISCREPANCY ANALYTICS

Volume by Reason / Drug / Department / Creator



BLIND COUNT DISCREPANCY ANALYTICS

Reason Quality

Date Facility Facility and Department Discrepancy Reason Bucket

Resolved by Name Good N/A Poor Total

Resolved by Name	Good	N/A	Poor	Total
	343	343		
120	22	9	151	
51	6	57		
43		43		
29	3	1	33	
18	1	13	32	
21	1		22	
18	2	1	21	
16	1	3	20	
12	5		17	
12			12	
11	1		12	
10			10	
8	2		10	
5	1	3	9	
5	4		9	
8	1		9	
3	5	1	9	
2	7		9	
9			9	
4	4	1	9	
1417	178	401	1996	

User

Discrepancy Reason Quality by Resolution User

Volume of Discrepancies by Drug and Discrepancy Reason Quality

Discrepancy Reason Bucket Quality ● Good ● N/A ● Poor

Drug	Good	N/A	Poor
Oxycodone	365	39	13
Ephedrine	328		
Lorazepam	190	35	9
Hydromorphone	192	24	8
Morphine	116	21	
Midazolam	115	8	7
Fentanyl	86	10	

Volume of Discrepancies by Department and Discrepancy Reason Quality

Discrepancy Reason Bucket Quality ● Good ● N/A ● Poor

Department	Good	N/A	Poor
Surgery - OR	20		283
ED	84	10	4
SURGSPC 45	74	6	
UNITY	76		
Progressive Care Unit (PCU)	75		
NICU	62	7	7
Surgical Specialties	66		

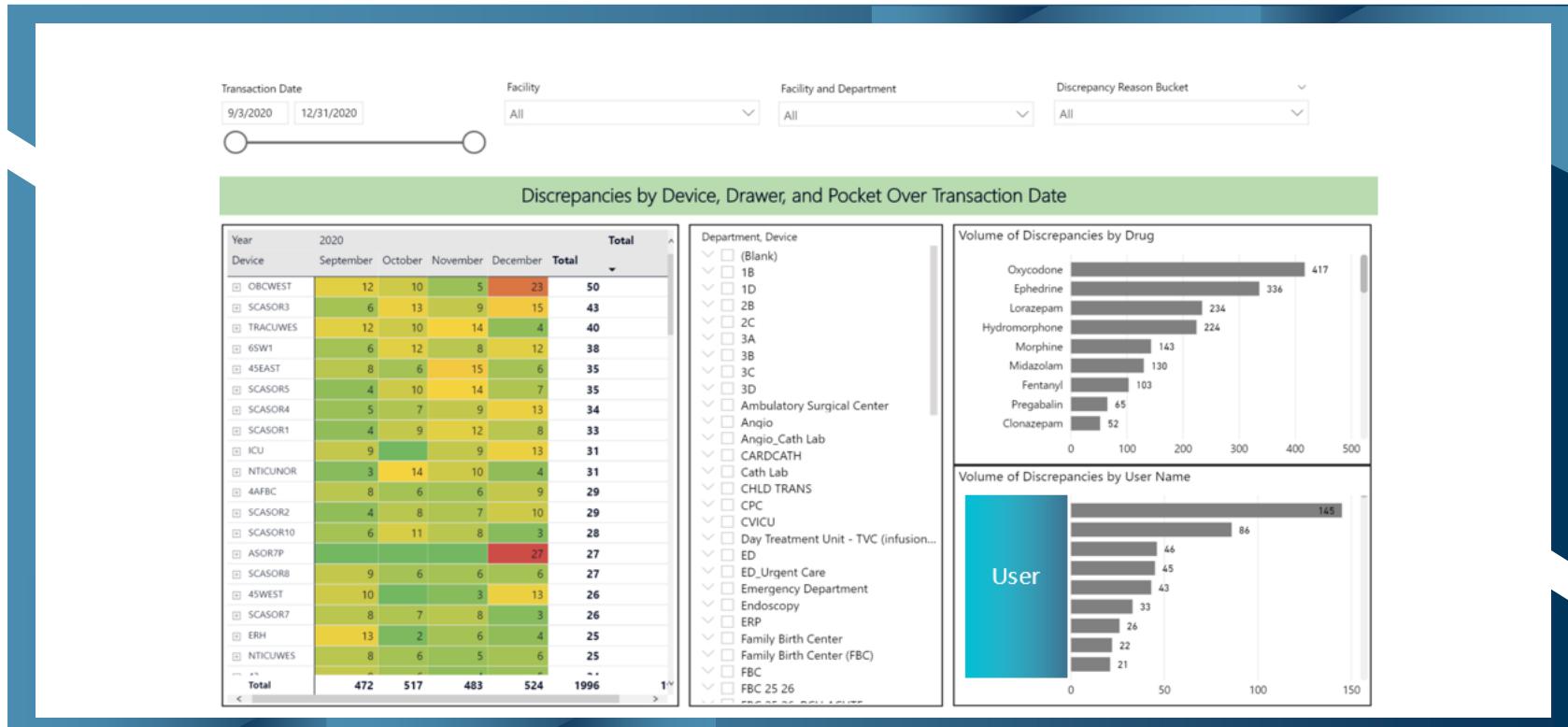
BLIND COUNT DISCREPANCY ANALYTICS

Timeliness



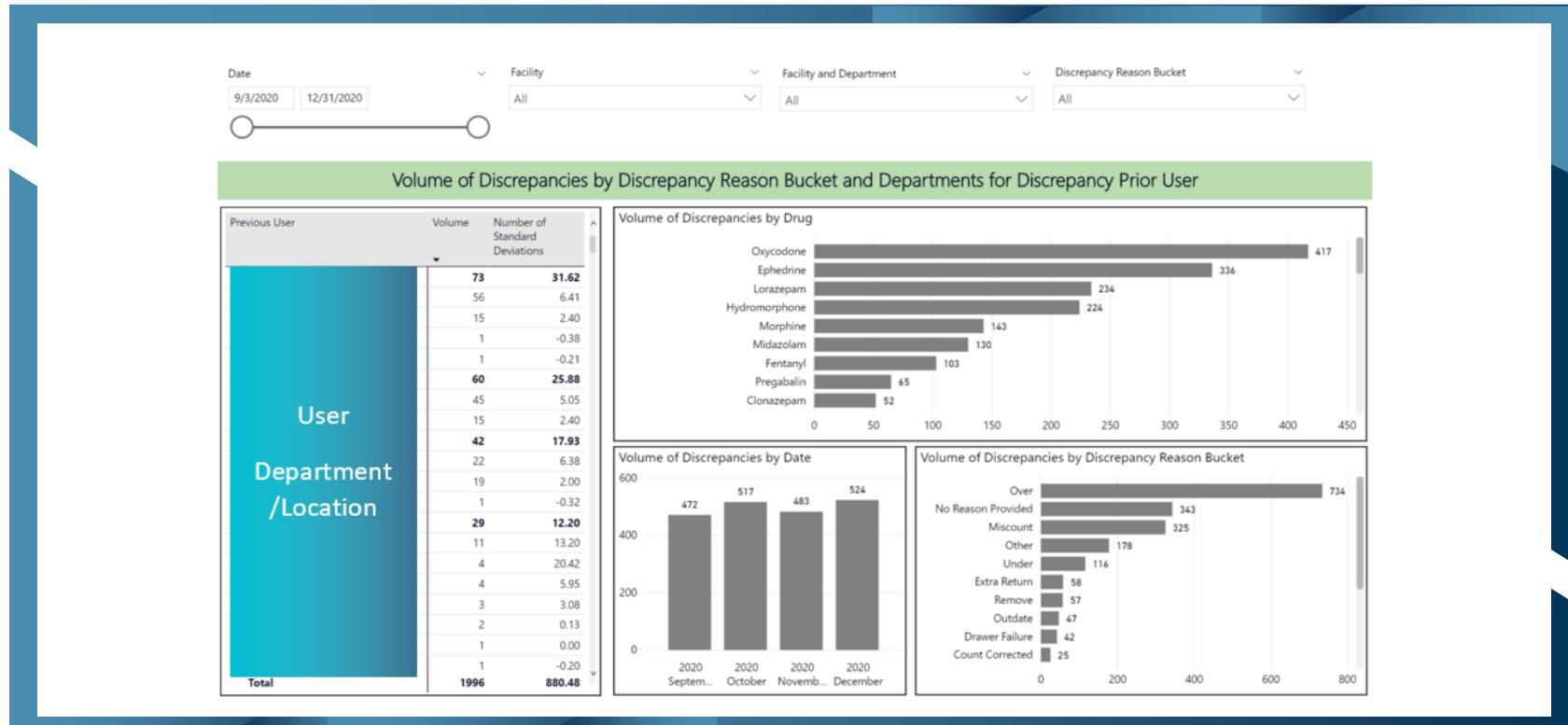
BLIND COUNT DISCREPANCY ANALYTICS

Device / Drawer / Pocket Comparison



BLIND COUNT DISCREPANCY ANALYTICS

Volume by Reason, Prior User



CONFLICT OF INTEREST / OPEN PAYMENTS DATABASE

High-Impact Reporting, Advanced Analytics, Automation

COI PROCESS CHANGES & ANALYTICS

 **New Provider Types** – Physician Assistants, Nurse Practitioners, Clinical Nurse Specialists, CRNAs and Anesthesiologist Assistants, and Certified Nurse-Midwives

 **New Natures of Payment Types** – Acquisition, Debt Forgiveness, Long-Term Medical Supply or Device Loan, Medical Education Faculty / Speaker Compensation

Potential COI Analytics	Analytic Descriptions
COI Survey Response Analysis / Trends	<p>Trend analysis of survey results to identify increase / decrease in survey response rates, volume of disclosures, disclosure types, etc.</p> <p>Comparison of Responses between current years COI responses against previous years COI responses (to identify changes).</p> <p>Identification of Missing Individuals (individuals within a role who should have received a survey but didn't) and duplicate survey responses (for both same survey and different surveys [general and research surveys]).</p>
Comparison of COI Responses to Purchases / Prescriptions	<p>Comparison of disclosures to vendor purchases / prescriptions to identify if purchasing patterns change with known conflicts of interest.</p>
Comparison of COI Responses to Open Payment Database	<p>Current years submitted COI responses against most current Open Payments Data (to identify if something was not reported through the COI process).</p> <p>Most current Open Payments Data against previous years Open Payments Data (to identify changes).</p>

COI / OPEN PAYMENTS DATABASE ANALYSIS



Demo Conflicts of Interest / Open Payments Database
Survey



COI / OPEN PAYMENTS DATABASE ANALYSIS



2021 Disclosure Form Confidential Information Employee

Your Information

Name *

Enter Name

Position / Title (with Protiviti or Protiviti Affiliate) *

Enter position / title

Protiviti Business Unit or Entity *

Select an option

Name of Board or Committee, if any

Enter name of board or committee

Introduction and Purpose

This Statement of Disclosure shall be completed by:

- Each member of the governing body (trustee or director) of Protiviti or one of its subsidiaries ("Protiviti")
- Each member of a standing or ad hoc committee of the governing bodies of Protiviti
- Each member of the medical staff of a hospital subsidiary of Protiviti who is under contract with Protiviti
- Each Protiviti Physicians Group physician, physician assistant, advance practice RN, allied health professional and practice manager
- Each employee officer or director of Protiviti (as well as persons with similar powers, responsibilities, or positions)
- Each person serving on a standing or ad hoc committee of Protiviti that has direct or indirect responsibility for making recommendations which may impact Protiviti purchasing decisions
- Other employees of Protiviti designated by the Chief Executive Officer of Protiviti

Cancel

Next

COI / OPEN PAYMENTS DATABASE ANALYSIS



2021 Disclosure Form Confidential Information Employee

Open Payments Data - Search for a Physician

The datasets are large and the search tool searches millions of records. For some searches the results will take some time to load, please be patient.

First Name <input type="text" value="Bob"/>	Last Name <input type="text" value="Zenker"/>
City <input type="text" value="Select an option"/>	State <input style="width: 40px;" type="text" value="Illinois"/> ▼ <input type="text" value="Select an option"/>
Specialty <input type="text" value="Specialty"/>	<input type="button" value="Search"/>

Instructions

Search for yourself through a listing of Physicians. If you come back in the list of results below, check the box on the left on your row.

If you are not listed and cannot find yourself through this tool, please confirm at the bottom of this page and click next.

Your Information

Name Bob Zenker
Position/TITLE Nurse
Business Unit City of Chicago Employee Health Center #8675309

Search Results

You?	Physician Name	Specialty	Primary Address	
<input type="checkbox"/>	ZENKER, CHRISTOPH	Podiatric Medicine & Surgery Service Providers Podiatrist Foot & Ankle Surgery	700 19TH ST S BIRMINGHAM, AL 35233-1927	<input type="button" value="More Info"/>
<input type="checkbox"/>	ZENKER, CHRISTOPH	Podiatric Medicine & Surgery Service Providers Podiatrist Foot & Ankle Surgery	700 19TH ST S BIRMINGHAM, AL 35233-1927	<input type="button" value="More Info"/>



I am unable to find myself in this tool

Back

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COI / OPEN PAYMENTS DATABASE ANALYSIS

Protiviti Dualities and Conflicts of Interest Disclosure Questionnaire:

Please read the Protiviti Dualities and Conflicts of Interest Policy and answer the following questions to the best of your knowledge. Please print your responses and do not leave any questions blank.

Your Information

Name	Bob Zenker
Position/Title	Nurse
Business Unit	City of Chicago Employee Health Center #8675309

Protiviti Dualities and Conflicts of Interest Disclosure Questionnaire:

Please read the Protiviti Dualities and Conflicts of Interest Policy and answer the following questions to the best of your knowledge. Please print your responses and do not leave any questions blank.

Definition of Protiviti – Protiviti Resources and each of its wholly owned or controlled entities including Protiviti Back Care or any other wholly owned or controlled entity.

Definition of Family Member - an individual's: (i) parents, (ii) spouse, (iii) child, grandchild, (iv) in-laws (v) siblings if known, as well as any (vi) other persons living in the same household.

Definition of Post-Acute Provider - Any representative of an outside entity that provides healthcare services to Protiviti patients outside the Protiviti acute care hospital, generally after the patient is discharged, such as home health, skilled nursing, inpatient rehabilitation, long term care, infusion services, durable medical equipment or other post-acute service.

Definition of Related Party - Individuals with the following current and former relationships, whether established by blood, marriage, domestic partnership, cohabitation, romantic relationship (including dating), adoption or other legal action: spouse, domestic partner, cohabitant, romantic partner, child, grandchild, sibling, parent, father-in-law, mother-in-law, stepparent, step relatives, grandparent, son- or daughter-in-law, brother- or sister-in-law, uncle, aunt, niece, nephew, or cousin.

1

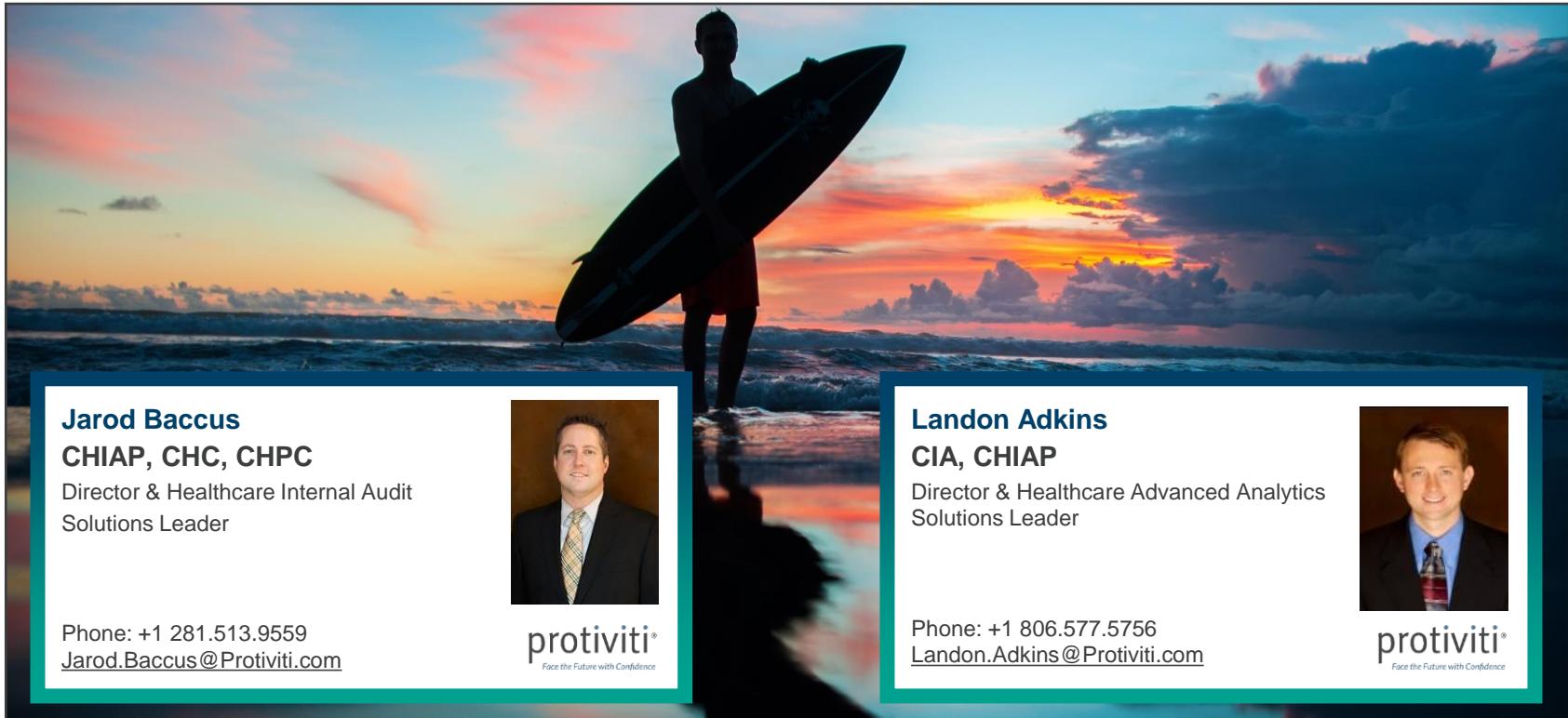
RELATED PARTY:

Do you have any related party(ies) who are employed by, or who are on the medical staff of, any Protiviti location?

Yes

No

QUESTIONS



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Solutions Leader

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IT'S TIME TO STAND UP AND MOVE FORWARD.

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