

How Your Technology Environment Can Impact Your Surgery Center's Bottom Line

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National Medical
Billing Services



Introduction

- Running a surgery center is more complex today than ever before
 - Reimbursement challenges
 - Growth in patient financial responsibility due to high deductible health plans, etc.
 - Increased regulatory requirements such as ICD-10, Health Care Reform, quality reporting, etc.
 - Rapidly changing technology landscape – challenging to stay ahead
- Given these challenges, most owners and administrators of surgery centers are consistently working to increase revenue while maintaining or reducing expenses
 - Surgery centers tend to continue investing in surgical equipment & technology, but cut in areas that appear to not impact revenue growth or the patient experience
 - IT infrastructure, security, back office administrative, etc.
- Today, we are here to discuss how critical it is for IT professionals and owners of surgery centers to properly evaluate these technology investments, and the significant financial and reputational impact that these areas can have on your business
- Specifically, this presentation will address:
 - Cybersecurity in healthcare
 - IT infrastructure considerations
 - The importance of business intelligence and data analytics

Cybersecurity



Attacks are Happening Every Day!



Privacy & Security

Breach at BlueCross BlueShield of Michigan associated with 2.2 million records

Newark Products
acc
By J... Privacy & Security

Dar from

The cli against creden

By Jeff La

New Blue

Cyberattack at keeping EHR c

The West Virginia and Kent has yet to determine the ca it clinicians and oper

By Jessica Davis | September

Six days after announcing a record software, Appalachian southern West Virginia is still any patient data was breach

While all ARH Emergency Dr remains how long a health s

West Virginia requires health compromised, but after near

Approximately 500 patient records stolen from Athens Orthopedic Clinic have emerged on the black market by a group of hackers that goes by the name Dark Overlords.



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 How data is changing everything.
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Privacy & Security

University of Mississippi Medical Center to pay \$2.75 million HIPAA breach settlement

The Office for Civil Rights said that UMMC was aware of security risks as far back as April 2005 but did not take appropriate action.

By Bernie Monegain | July 25, 2016 | 10:59 AM

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Advocate Health to pay largest HIPAA settlement

By Erica Teichert | August 4, 2016

Advocate Health Care has agreed to pay \$5.55 million to settle multiple data protection violations over the past three years, marking the largest Health Insurance Portability and Accountability Act settlement HHS has ever received.

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 The latest data from consumers, payers and providers.
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The Statistics



- Results from IBM X-Force Research's 2016 Cyber Security Intelligence Index:
 - In 2015, Healthcare was ranked as the most attacked industry
 - Over 100 million healthcare records were reportedly compromised in 2015
 - On June 26th 2016, 655,000 patient records went up for sale on the Darknet from one healthcare organization... for more information regarding data posted on the Darknet, see databreaches.net
 - 60% of attackers are from insiders. Of those, 44.5% had malicious intent
 - As reported by Becker's in July of 2016, Alana Wells pled guilty to stealing patient information to file tax returns requesting refunds
 - In June of 2015, Monique Walker stole the personal information of 12,000 patients while working for Montefiore Medical Center and sold them to an identity theft ring
 - Average organization experiences 53 million security events annually
 - According to a 2015 Mandiant report, the average attacker isn't discovered on corporate networks for 146 days
 - Excellus Blue Cross Blue Shield was compromised as far back as December of 2013 before being discovered in August of 2015



The Cost

- According to a 2016 PwC Healthcare Research Institute report, breaches cost \$200.00 per patient record due to:
 - HIPAA fines, legal fees, lost business due to reputational damage, customer restitutions and monitoring services
- The same PwC report also concluded that the cost of prevention per patient record equaled \$8.00
 - Using this calculus, and the 2015 statistic of 100 million patient records compromised, that is \$20 billion in damages versus \$800 million in prevention



Solutions Beyond the Everyday

- There's a staggering amount of information available regarding firewalls, data encryption, and HIPAA
- Let's explore other solutions that are mentioned far less frequently:



OS Hardening

- Operating System Hardening
 - If you have a Windows environment, then you can harden your OS without buying new technology. The Defense Information Systems Agency has published over 1000 controls (STIGs) for Windows systems and can be downloaded for free.
 - Example of a DISA STIG:

STIG Name: Create Global Objects

STIG ID: V-26480

Discussion: Inappropriate granting of user rights can provide system, administrative, and other high-level capabilities. Accounts with the "Create global objects" user right can create objects that are available to all sessions, which could affect processes in other users' sessions. Therefore only the following accounts or groups should be able to create global objects: Administrators, Service, Local Service, Network Service.



- Mobile Device Management
 - Ensures your employees have encrypted devices, and protects that data if lost or stolen with GPS tracking and remote wiping.
 - Not all MDMs are created equal, but even the most basic software can require device encryption
 - More advanced MDMs are able to “wrap” iOS, Android and Windows apps in 256 bit AES encryption, thereby allowing those apps to communicate directly with your organization’s networks through micro VPN tunnels
 - As BYOD policies continue to be adopted by organizations, MDMs help to ensure corporate data is never commingled with personal data



- Data Loss Prevention
 - (From TechTarget) **DLP** is a strategy for making sure that end users do not send sensitive or critical information outside the corporate network. The term is also used to describe software products that help a network administrator control what data end users can transfer.
 - There are a plethora of DLP technologies available on the market
 - Some DLP capabilities include:
 - Document rights management – encrypt documents, so that only allowed, authenticated users, inside or outside of the organization can view, or edit... or not
 - Email DLP – scan messages for sensitive data and blocks their delivery unless authorized by an administrator
 - Detect abnormal access to sensitive information



- Security Information and Event Management
 - (From Gartner) - **SIEM** technology supports threat detection and security incident response through the real-time collection and historical analysis of security events from a wide variety of event and contextual data sources. It also supports compliance reporting and incident investigation through analysis of historical data from these sources. The core capabilities of SIEM technology are a broad scope of event collection and the ability to correlate and analyze events across disparate sources
 - SIEM is essentially an automated way to ensure those 53 million security events are actually audited
 - Some more advanced SIEM solutions not only provide the analysis of millions of security events, but also staff GIAC and SANS certified security professionals who provide 24 hour monitoring of your events as well



Recommendations for Security

- Appoint a security officer
 - Whether using a contractor or hiring someone internally, it's imperative that someone be *focused* on maintaining your organization's security posture
- Your security policy and posture should exceed HIPAA requirements
 - HIPAA requirements should be viewed as a starting place
 - Look to more comprehensive security standards (NIST and DISA)
- Research new tech and trends to improve your posture
- Training and education
- Win 85% of the war:
 - According to US-CERT (US-CERT is a branch of the Office of Cybersecurity and Communications' (CS&C) National Cybersecurity and Communications Integration Center for the Department of Homeland Security), 85% of attacks can be thwarted by simply patching systems with the latest security updates from software vendors

IT Infrastructure



Risks of Underinvesting in IT

- Decreased Efficiency
 - Employees struggling with slow systems take longer to complete tasks, costing additional resources and funds
- Noncompliance with industry regulations (outdated software versions, irretrievable copies of PHI, unreliable backups are all HIPAA-HITECH violations and carry significant financial penalties)
- Lose patients, clients, customers (more than 90% of consumers would consider taking their business elsewhere rather than work with a company that uses outdated technology)
- Inexperienced IT staff may not properly plan for disasters, compliance, growth, redundancy, etc.



Properly Funded and Valued IT Infrastructure Benefits

- Increased efficiency (beyond a responsive computer, modern technology can provide opportunities for automation, real-time management dashboards, easier collaboration, etc.)
- Flexibility to adapt to rapidly changing needs based on growth, new technology and regulations
- Enhancing your reputation (62% of consumers say they are likely to become a repeat customer of a business that uses modern tech)
- Experienced IT staff will not only make sure you're compliant and everything "works," but will also innovate. They will have your organization's future in mind as they design the present. They will understand your challenges and vigilantly seek out new technologies to address them

The Right People and the Right Budget



- Simply throwing money at IT isn't productive. Technology costs can run up very quickly. What is the right budget?
- The right budget is a moving target that depends on the *needs* of the organization
 - Availability
 - Do your users have access when they need it?
 - Reliability
 - Do your users trust the data they interact with?
 - Recoverability
 - In the event of a disaster, how long would it take to become fully operational?
 - Flexibility
 - How easily you can scale, either from growth or from loss?
 - Interoperability
 - Is your environment unified?
 - Capability
 - Reporting and analytics
 - Interpretation and comprehension of data



Available Solutions

- When it comes to where your infrastructure resides, and who manages it, there are many options
 - Infrastructure Options
 - On Premise
 - » Pros: 100% under your control, easy to access, easy to replace hardware
 - » Cons: 100% your responsibility, dependent on your building's power, your city's weather and your ISP
 - Private Data Center
 - » Pros: 100% under your control, dedicated and redundant power and internet
 - » Cons: Expensive, requires large expert staff
 - Hosted Data Center
 - » Pros: Dedicated experts, enterprise grade physical infrastructure
 - » Cons: Upgrades and fixes requires more coordination, support costs might not be fixed and therefore unpredictable
 - Cloud Hosted
 - » Pros: Cutting edge hardware, managed by industry experts
 - » Cons: Zero control of underlying hardware, subject to changes in service, available technology and support



Considerations for Managing Infrastructure On Premise

- You are responsible for:
 - Server hardware
 - Storage device
 - Switches, routers, firewalls, security appliances
 - Facilities-HVAC, UPS, generators, security (cameras), video storage
 - Backup-hardware (disks) and software
 - Disaster recovery
 - Help desk software
 - NOC-dashboards
 - Security (IPS, IDS apps) and compliance

MANY OF THESE PRODUCTS ONLY HAVE A 3 YEAR LIFECYCLE FOR MAINTENANCE—WHAT DO YOU DO IN YEAR 5 TO GET YOUR IT FIXED?



Cloud Computing Benefits

- Many companies are adopting Infrastructure as a Service (IAAS)
 - Gartner states that it has increased 38% from 2014 to 2015 globally for all sized companies
- Eliminates need to purchase, deploy and maintain IT assets
 - Gartner Research: annual cost of owning and managing SW applications can be 4X cost of initial purchase
- Ensures organizations are able to take advantage of latest features and innovations
 - Scalability on demand: adding a new surgery center
- Enhanced security
- More powerful system allows quicker access to data
- No downtime cost or loss of productivity



Where Would Your Data Live?

Geo Redundancy with MS Cloud and Amazon Web Services

Microsoft Azure global footprint



24x7x365 support

Over **1 billion** customers

20 million businesses

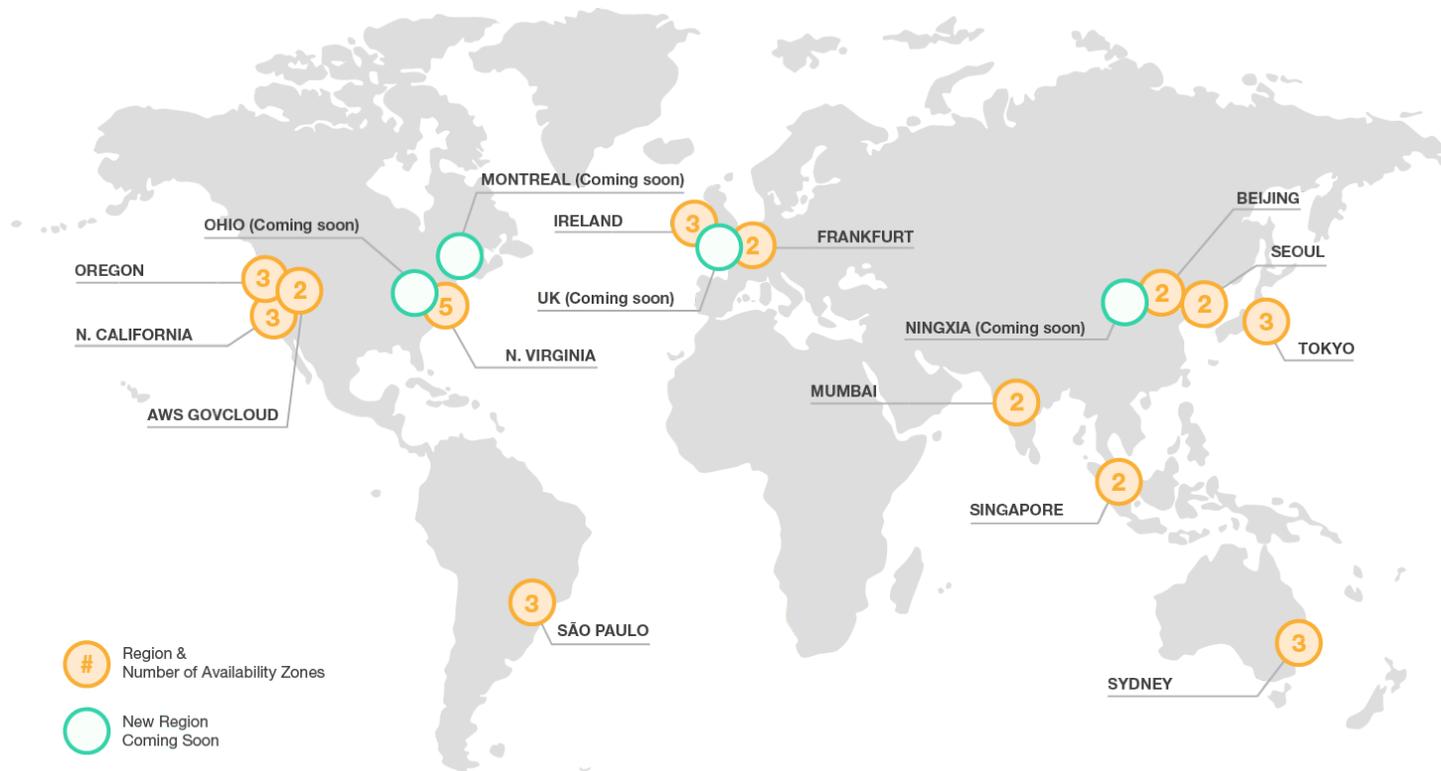
76 markets worldwide

280 years of combined industry experience in infrastructure, security, product dev, and global ops



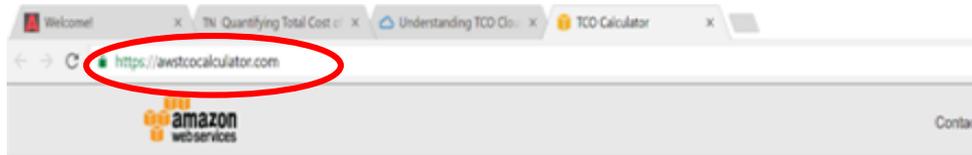
Where Would Your Data Live?

Geo Redundancy with MS Cloud and Amazon Web Services





TCO Calculator



AWS Total Cost of Ownership (TCO) Calculator

Use this calculator to compare the cost of running your applications in an on-premises or colocation environment to AWS. You can switch between the basic and advanced configuration details.

Select Currency:

What type of environment are you comparing against?
 On-Premises Colocation

Which AWS region is ideal for your geo requirements?

Choose workload type:

Servers
Are you comparing physical servers or virtual machines?
 Physical Servers Virtual Machines

Provide your configuration details:

Server Type	App. Name	Number of VMs	CPU Cores	Memory(GB)	Hypervisor	Guest OS	DB Eng
Non DB		1 - 10000	1 - 32	1 - 286	VMware	Linux	

Servers
Are you comparing physical servers or virtual machines?
 Physical Servers Virtual Machines

Provide your configuration details:

Server Type	App. Name	Number of VMs	CPU Cores	Memory(GB)	Hypervisor	Guest OS	DB Engine
Non DB		1 - 10000	1 - 32	1 - 286	VMware	Linux	

Total no. of VMs:

Storage

Provide your storage footprint details

Storage Type	Raw Storage Capacity	% Accessed Infrequently
SAN	0 - 1000 TB	

Business Intelligence and Analytics

“You can’t manage what you don’t measure.”

Dr. Robert Kaplan, Harvard Business School





What Are You Tracking?

- Daily
- Weekly
- Monthly
- How do you get this data?



Key Performance Indicators

Operational KPIs

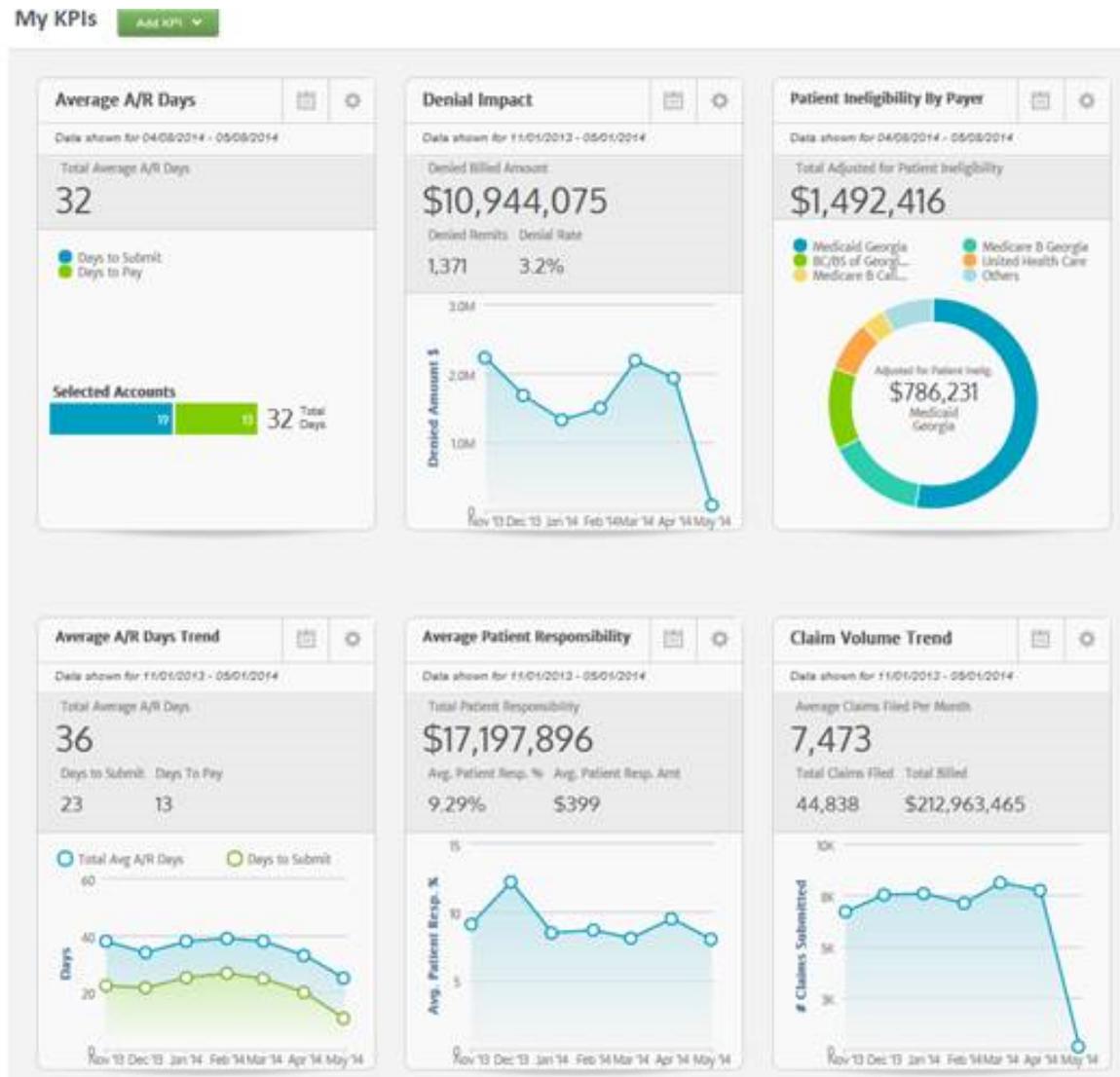
- Total clinical hours per case
- Medical supply costs per case
- Inventory turnover
- Total cases per number of operating rooms
- Days to bill
- Days to post
- Coding accuracy/turnaround time
- A/R productivity/resolution rate
- Appeal success rate (\$ and %)
- Days to pay (overall and by payor)
- Clean claim %
- Denial % (categorized: Demo, auth, coding, payor specific policy, paid per contract)
- Appeal success rate
- Point of service cash collections
- Case Mix (financial class, specialty, volume trend)

Financial KPIs

- Cash per case (overall, by provider & payor)
- Charges per case
- CPTs per case
- Net collection %
- Days in A/R
- A/R over 90 days (%)
- Bad debt write off (%)



Example: EDI Dashboard





Corporate Overview

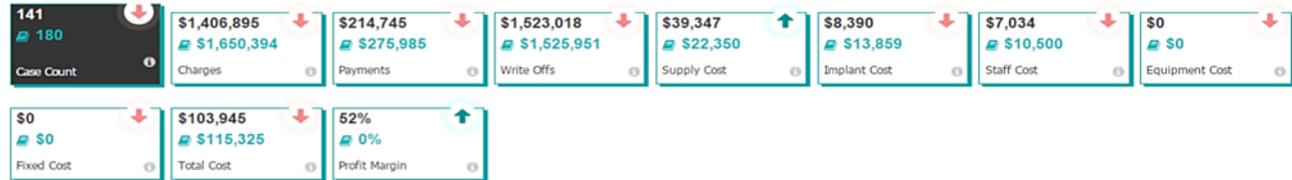
Menu Filters

- Dashboard
- Corporate Overview
- Operations
- Payors
- Physicians
- Benchmarking
- Geomap
- List of Reports
- Help
- Contact

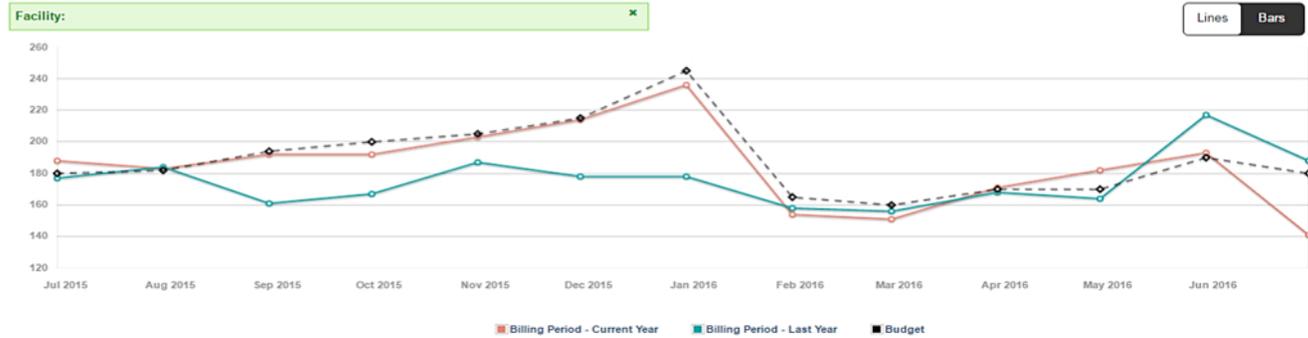
Corporate Overview > By Billing Period

Billing Period Jun 2016 Go

My KPIs



Case Count



Facilities' Overview

Year	Case Count	Charges	Payments	Write Offs	Supply Cost	Implant Cost	Staff Cost	Equipment Cost	Fixed Cost	Total Cost	Profit Margin
Filter by facility name [dropdown]											
Surgery Center											
2016	916	\$5,724,910	\$1,153,196	\$4,469,107	\$135,852	\$59,492	\$98,569	\$0	\$0	\$293,913	75%
2015	1,039	\$6,370,864	\$1,336,086	\$5,155,727	\$142,235	\$61,534	\$100,788	\$0	\$0	\$304,558	77%
Surgery Center											
2016	591	\$2,980,164	\$1,482,373	\$1,781,131	\$107,410	\$9,803	\$13	\$0	\$0	\$117,226	92%
2015	577	\$2,574,554	\$1,218,590	\$1,449,659	\$112,611	\$9,834	\$0	\$0	\$0	\$122,446	90%

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Smart Data: Payor Insights

Menu Filters

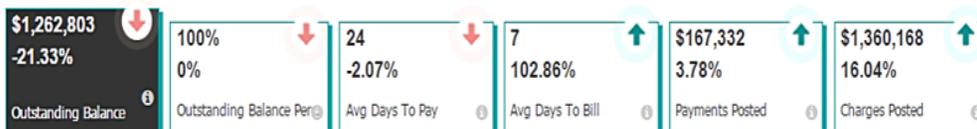
- Dashboard
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- Contact

Payors > By Date Posted

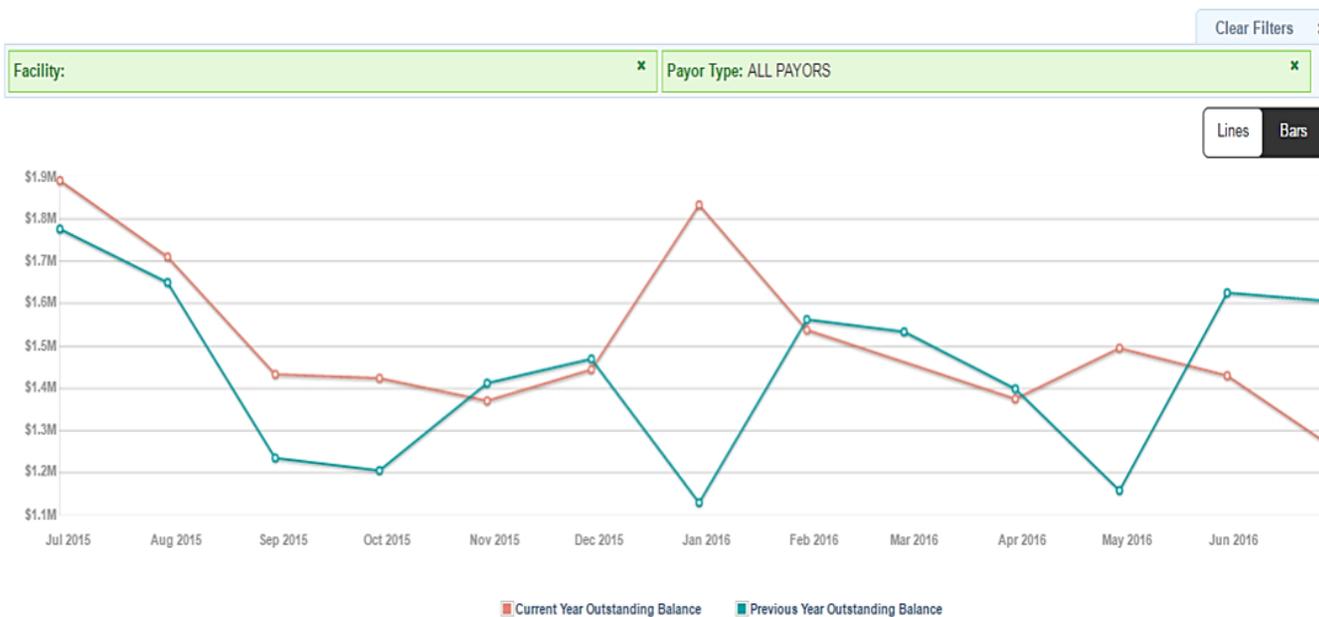
Jun 22, 2015 to Jun 22, 2016

Default

My KPIs



Outstanding Balance



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Smart Data: Operational Insights

Menu Filters <

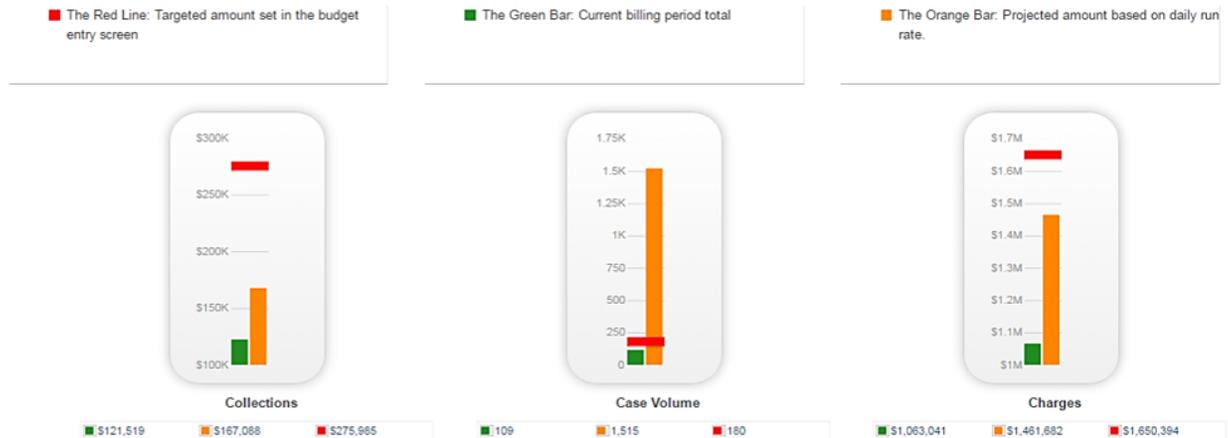
- [Dashboard](#)
- [Corporate Overview](#)
- [Operations](#)
- [Payers](#)
- [Physicians](#)
- [Benchmarking](#)
- [Geomap](#)
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Operations > By Billing Period

Facility:

Objectives

The operations page should provide daily values that are important to the operation of the facility. These values should allow for immediate action of staff on hand that day. They should be aligned with tactical objectives for improving efficiency and profitability for the facility.



5 Day Snapshot

	-2	-1	Current day	+1	+2
Scheduled Appointments	2	7	6	5	5
Performed Appointments	2	7	5	2	5
Cancelled Appointments					
Pending Appointments	0	0	0	0	0
Top Physician	EMIL FISHER	LEONARDO DA VINCI	JOHN DALTON	MICHAEL FARADAY	MARIE CURIE
Top OR	OR1	OR1	OR2	OR1	OR1

ⓘ This view is much like a 5 day forecast for the weather, but focuses on the critical aspects of what is happening in the operating rooms each day.

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“If you don’t know where you’re going, you might wind up someplace else”

Yogi Berra



Source Links

- <https://www.us-cert.gov/ncas/alerts/TA15-119A>
- <http://www.foxnews.com/tech/2016/06/28/hacker-looks-to-sell-9-3-million-alleged-patient-healthcare-records-on-dark-web.html>
- <http://www.securityweek.com/breach-detection-time-improves-destructive-attacks-rise-fireeye>
- <http://icitech.org/wp-content/uploads/2016/01/ICIT-Brief-Hacking-Healthcare-IT-in-2016.pdf>

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