



healthcurrent

Imagine fully informed health



Bringing Clinical Decision Support to the Point-of-Care

HIMSS
ARIZONA Chapter

Speaker Introductions

Anthony F. Oliva, DO MMM CPE FACPE

Vice President and Chief Medical Officer

Nuance Healthcare

Sadie Tedder, RT, BHS

EMR Analyst

HonorHealth

Conflict of interest

Anthony F. Oliva

Employed by Nuance Communications, Inc. Information from Nuance is proprietary.

Sadie Tedder

Has no real or apparent conflicts of interest to report.

Agenda

- What health systems are up against; provider burden
- Artificial Intelligence bringing clinical decision support to the point of care
- Honor Health radiology use case
 - Intent of PAMA mandate
 - Impact on providers, patients
 - CDS Implementation priorities, challenges
 - Outcome
- Q&A

Artificial Intelligence at the point-of-care

Areas of significant opportunity

- Clinical documentation improvement
 - inpatient and outpatient to achieve appropriate reimbursement
 - to achieve credit for the risk and severity of the population of patients you care for
- Clinical decision support
 - Using technology to improve the ability to bring information to the provider more efficiently and timely
 - Ability to search the record for vital information without physically touching the EHR
 - “Show Me” the last procedure note....
 - Best practice and evidence-based care available within workflow to help standardize care and avoid errors

EHR documentation requirements, mandates burning out clinicians



Docs are burned out

43%

of a doctor's workday is spent on data entry



4,000 clicks for an average day of documentation



7.2 million words documented by a single doctor in just one year

User conforms to technology

Effects

- **Not patient focused**
Only 27% of physician time spent interacting with patients
- **Mentally taxing**
Physician controls and adapts to the EHR – Click, click, click (“click fatigue”)
- **Damaging to their well-being**
Physicians 15x more likely to experience burnout than other professionals and 10-20% higher divorce rates
- **More medical errors**
Overwork and stress leading to higher medical errors

Common problem areas

Where weaknesses exist in provider workflow

Inefficient work practices are contributing to increased **burnout**

Expanding CDI program to meet organizational goals considering your current staffing/hiring need

Transparency in quality performance metrics is used by consumers and payers

There isn't always enough time to address every problem or interventional opportunity in one visit

Rules around documentation are constantly evolving – it's hard for physicians to provide consistent information

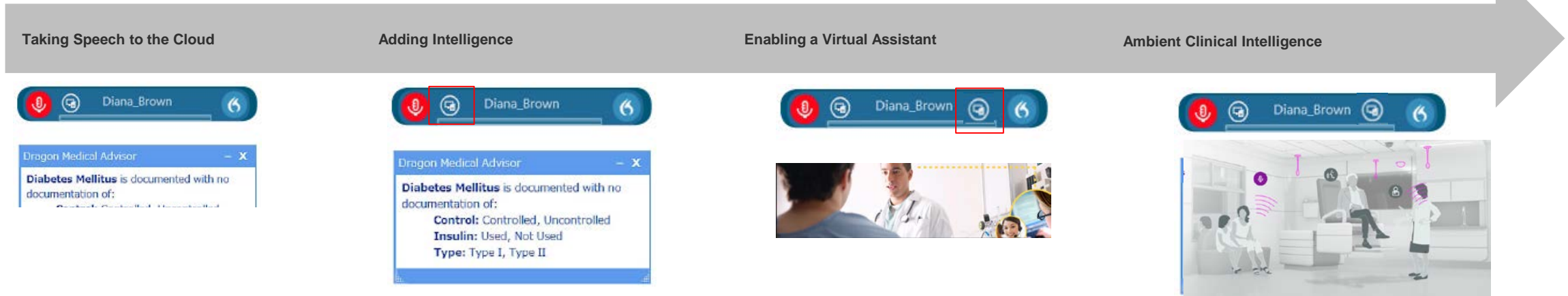
Achieving appropriate reimbursement is difficult when documentation lacks sufficient details

Identifying **key intervention opportunities** and **risk factors** requires sifting through large volumes of data

Most physicians do not know **what to document for proper** coding and reimbursement

The evolution of speech towards the AI-powered clinical guidance

Continuing the evolution from a *speech point application* to an *AI-powered clinical guidance* that **delivers strategies to providers and helps with decision making at the point of care**



Speech on the Cloud

- Provides ubiquitous speech dial tone

Computer-Assisted Physician Documentation (“CAPD”)

- Provides real-time feedback for note quality and other alerts

Decision support

- Enables better clinical decision making and reduces admin burden

Virtual assistant capabilities

- Provides automated virtual assistant functionality for common, high-value clinical workflows

Virtual (remote) Scribe

- Provides on-demand, or scheduled access to remote scribes to offload non patient-centric physician functions
- Scribe platform provides various labor efficiencies (workflow and partial automation)

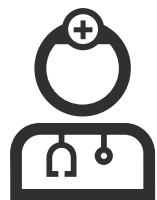
Ambient Clinical Intelligence

- Provides increasingly complex scribe functions in an automated, or semi-automated (i.e. computer-assisted) fashion and is tightly integrated with the EHR

Amplifying Human Intelligence with Clinical Guidance at the point-of-care



AI-enabled clinical guidance for physicians



For physicians Speech and CAPD

Improve documentation efficiency

Impact reimbursement

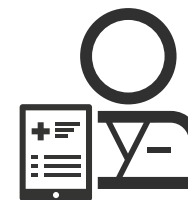
Drive documentation of appropriate patient acuity
and improve risk-adjusted quality outcomes

Achieve high physician response and agreement
rates while decreasing post-discharge queries

Specialty workflows



Artificial Intelligence



For CDI teams CDI Workflow and CACDI

Impact reimbursement

Expand payer coverage and CDI program
effectiveness

Assist CDI teams with worklist triage through
automated encounter prioritization

Workflow management strategies, references
and support for an Advanced Practice CDI
program

Helping the physician at the point-of-care

The right solution for the situation

Diagnosis specificity

CAPD presents real-time advice for the specificity of diagnoses so that the encounter can be ICD-10 or HCC coded—impacting DNFB and risk adjustment and identifying potential HACs.

Clinical guidance

Using clinical strategies, CAPD analyzes all encounter notes searching for supporting clinical evidence, discovers undocumented diagnoses and presents clinical clarifications—impacting principal diagnosis and severity.

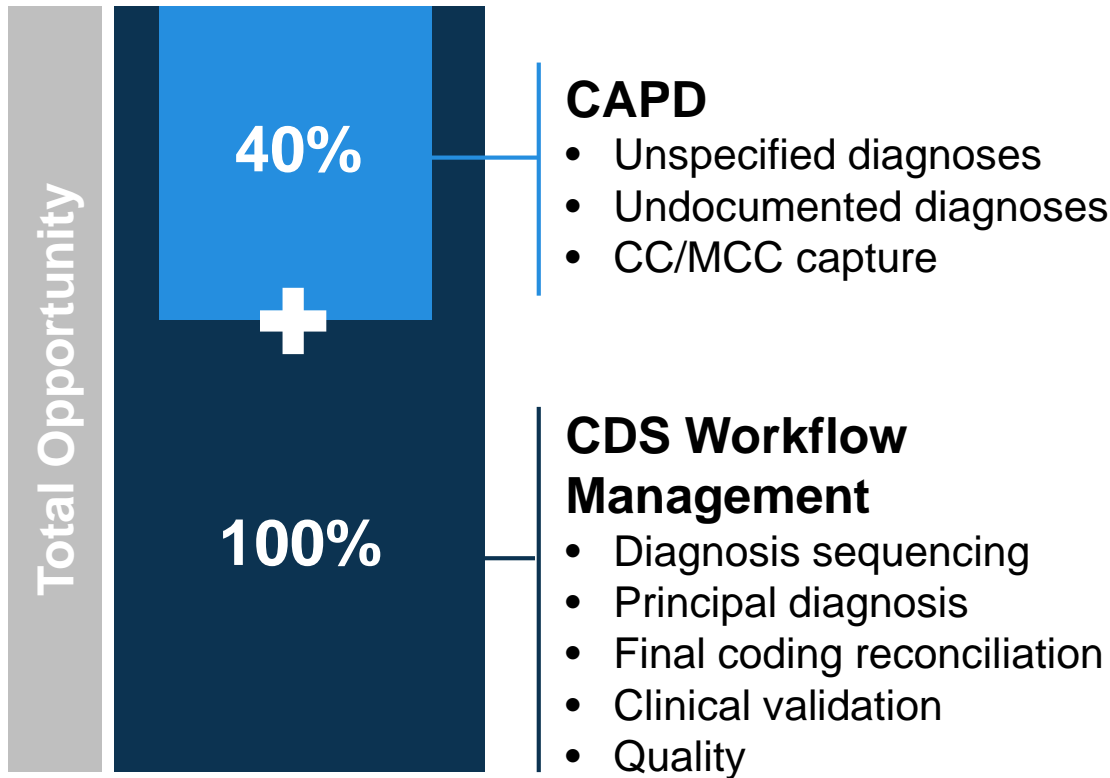
Specialty workflows

Specialty workflows offer to address unique challenges for surgeons and ambulatory practices, ensuring sufficient detail for appropriate reimbursement and quality reporting

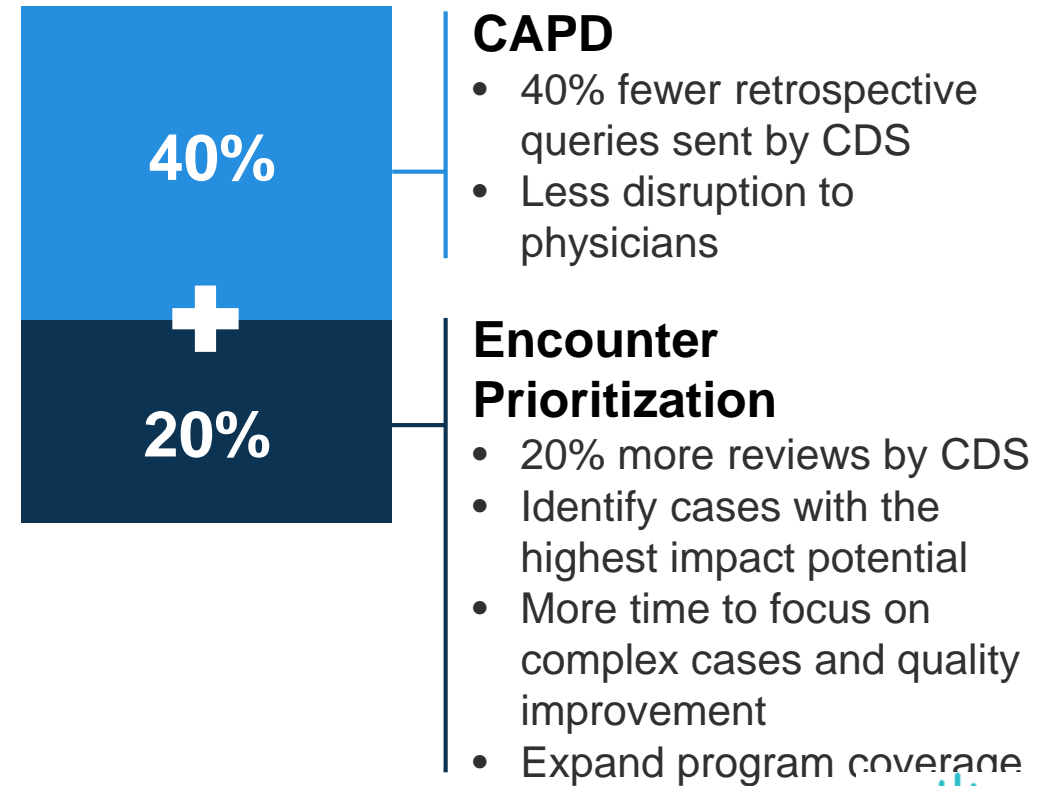
Close the gap on reimbursement

You choose which levers to impact productivity and value

CMI Opportunity

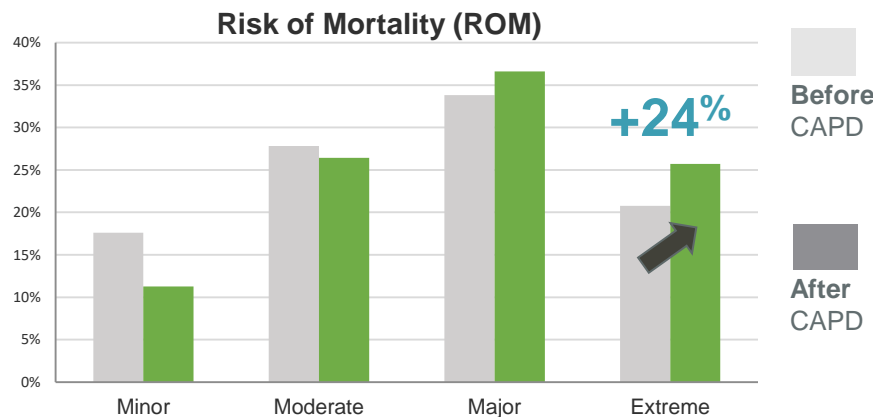
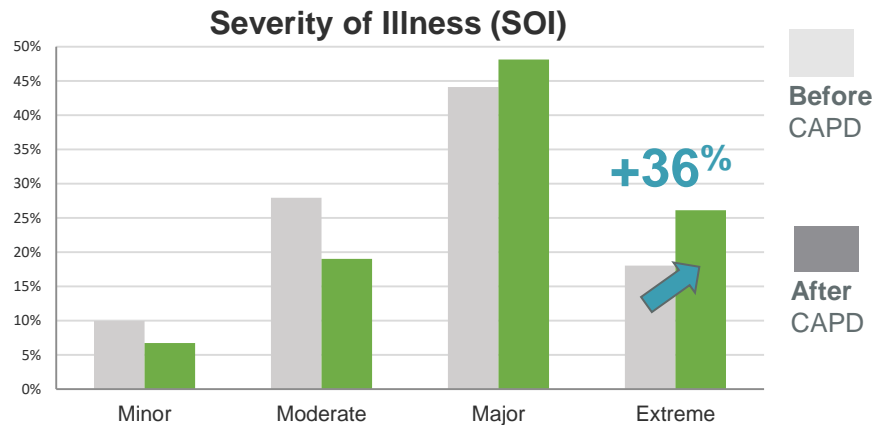


Productivity



CDS adoption leads to better quality outcomes

Computer-Assisted Physician Documentation (CAPD) brings a first time right result that appropriately captures SOI, ROM and quality measures



- Volume-to-value- MDs quality scores are based on their documentation
- Once the MDs are engaged for their daily documentation (not just orders or results) it becomes easier to “interact” with them electronically [NOTE: If an MD is using speech recognition there’s further opportunity to engage early in the workflow]
- Ability to leverage CAPD at the point of care
- Reviews the MD “notes” as they are being saved into the system
- Creates the ability to assist in complete and accurate documentation

ED Guidance at point of documentation

Achieving Diagnostic Excellence

Where documentation guidance plays a key role

The ‘Failure to Diagnose’ accounts for **60%** of medical errors and malpractice claims in emergency medicine.

Medical Errors and Claims are typically **related to** overlooking basic elements of the patient history, physical exam and monitoring.

ED analysis of tens of thousands of claims over 20 years reveals those basic elements or ‘Diagnostic Drivers’ for the highest risk ED presentations.

Real-time advice and guidance is needed to align physician practice patterns and compliance around the Diagnostic Drivers.

ED guidance has achieved that clinical alignment in hundreds of emergency departments over the last two decades.

Clinical alignment around the highest risks is proven to result in reductions in medical errors and claims by **71%**.

Workflow that engages physicians...

ED Guidance for Dragon Medical Advisor

- Real-time guidance that helps mitigate the most commonly missed, highest-risk conditions in emergency medicine using industry-leading content from The Sullivan Group.

Influences clinical practice patterns to improve patient safety

Provides chief complaint specific passive, unobtrusive Diagnostic Driver reminders and notifications (e.g., chest pain, abdominal pain, child with fever).

Guidance is seamless and conditional

Guidance is in the background and is retried when addressed. It responds to practitioner input to provide the minimum required and always remain relevant.

Immediate and sustained improvement in the ED risk profile

In hundreds of EDs shown to immediately drive alignment around the Diagnostic Drivers with compliance rates typically above 90%.

Proven clinical risk mitigation and patient safety expertise

The Sullivan Group is an internationally recognized risk management firm with over 20 years of experience in harnessing information technology to assist the diagnostic process with programs in nearly 1,000 U.S. hospitals.

...delivered through preferred workflow

Real-time, at the Point-of-Care within Dragon Medical Advisor

The screenshot displays the Dragon Medical Advisor interface for a patient named Steven Briggs. The patient's MRN is mrm0133740. The interface is divided into several sections:

- Advisor Header:** Shows the patient's name, MRN, and a 'Specificity' indicator that says 'More detail is needed'.
- Alerts:** A 'Chest Pain With Risk Alert' is displayed, with a note: 'Sudden Or Abrupt Onset Sudden Onset Pain. TAD pain is often sudden or abrupt in onset. Consider TAD in the DDx.' Links for 'TAD Image', 'TAD', and 'Classification' are provided.
- Vital Signs:** A table shows the following data:

Time	Vital Sign	Value	Unit
2/2 01:19p	Heart Rate	120	bpm
2/2 01:19p	Blood Pressure	140/90	mm Hg
2/2 01:19p	Oxygen Saturation	98	%
2/2 01:19p	Respirations	12	resp min
- Patient Summary:** A text area containing the following information:
 - CC: The patient is a 68-year-old male with a complaint of chest pain.
 - HPI: The patient had a sudden onset of pain 2 days ago. There has been no movement of the pain.
 - The patient has a history of hypertension. There are no other risk factors for coronary artery disease or thoracic aortic dissection.
 - The patient has a risk factor for pulmonary embolism, he had hip surgery within the last 60 days.
 - PE: Vital signs have been reviewed. The HR is 120, Resipirations 12, O2 Sat is 98%, BP is 140/90, patient is afebrile. Lungs are clear, no rales rhonchi or wheezing.
 - Cardiovascular examination is normal. There is no aortic murmur. There is no blood pressure or pulse differential.
 - Lower extremity, calf examination is normal.
 - Neurologic exam, nonfocal, completely within normal limits.
- Buttons:** 'Save', 'Sign', and 'Cancel' buttons are located at the bottom of the patient summary area.

- Drivers have all been addressed and have been retired (alignment)
- Sudden onset of pain triggered a reminder to consider TAD.
- Decision support resources immediately available.
- Current state of the vital signs color coded for abnormali

...delivered through preferred workflow

Real-time, at the Point-of-Care within Dragon Medical Advisor

Advisor

Briggs, Steven MRN mrm0133740

Specificity
More detail is needed

Chest Pain With Risk Alert

Sudden Or Abrupt Onset
Sudden Onset Pain. TAD pain is often sudden or abrupt in onset. Consider TAD in the DDx.

[TAD Image](#)
[TAD Classification](#)

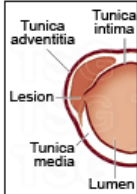
VITAL SIGNS History

2/2 01:19p	Heart Rate	120 bpm
2/2 01:19p	Blood Pressure	140/90 mm Hg
2/2 01:19p	Oxygen Saturation	98 %
2/2 01:19p	Respirations	12 resp min

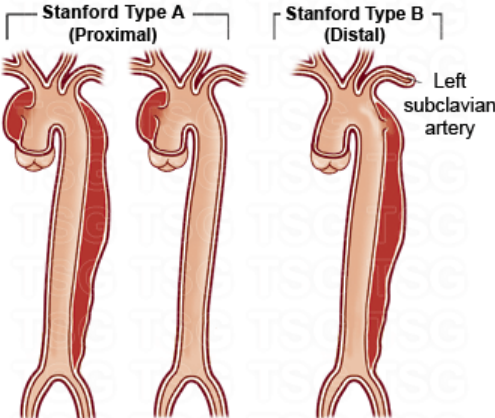
Steven Briggs [Visit Id: v0133739]

MRN: mrm0133740 Sex: Male Blood Pressure: 160/98mmHg
 DOB: 4/9/1950 Height: 5' 9" Pulse: 65
 Age: 68 Weight: 165 lbs Temperature: 99F

Thoracic Aortic Dissection



- Stanford classification
- DeBakey classification



DeBakey Classification Types I and II DeBakey Classification Type III

© 2007-2008, The Salkin Group All Rights Reserved

Save Sign Cancel

3.2 Thoracic Aortic Dissection: Classification

Last Updated / Last Reviewed: 01/18/2018

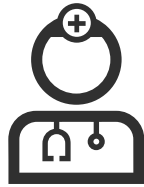
The anatomic classification of aortic dissection is relevant not only to diagnosis, but also to therapy. There are two accepted systems of classification.

The DeBakey System	
The DeBakey system divides aortic dissection into three types.	
Type I	Dissections begin in the ascending aorta and extend distally to involve the aortic arch and the descending aorta.
Type II	Dissections involve only the ascending aorta.
Type III	Dissections involve the descending aorta, distal to the left subclavian artery. Dissections may also propagate in a retrograde fashion to involve the proximal aorta.
Type IIIA	Dissections stop above the diaphragm.
Type IIIB	Dissections propagate below the diaphragm.

The Stanford System	
In the Stanford System, all dissections involving the ascending aorta are Type A. All other dissections are Type B.	
Stanford Type A	Any dissection involving the proximal aorta. Corresponds to DeBakey Types I and II. Accounts for about 70% of cases.
Stanford Type B	Dissection of the distal aorta. Corresponds to DeBakey Type III. Accounts for about 30% of cases.

How it works

Intelligence to analyze data, prioritize workflow, and document care



Physician dictates with Dragon Medical One in any EHR to create documentation related to a chief complaint such as chest pain or abdominal pain.

Opportunities are presented to the provider through Dragon Medical Advisor based on key signs & symptoms discovered in the documentation related to high risk conditions.

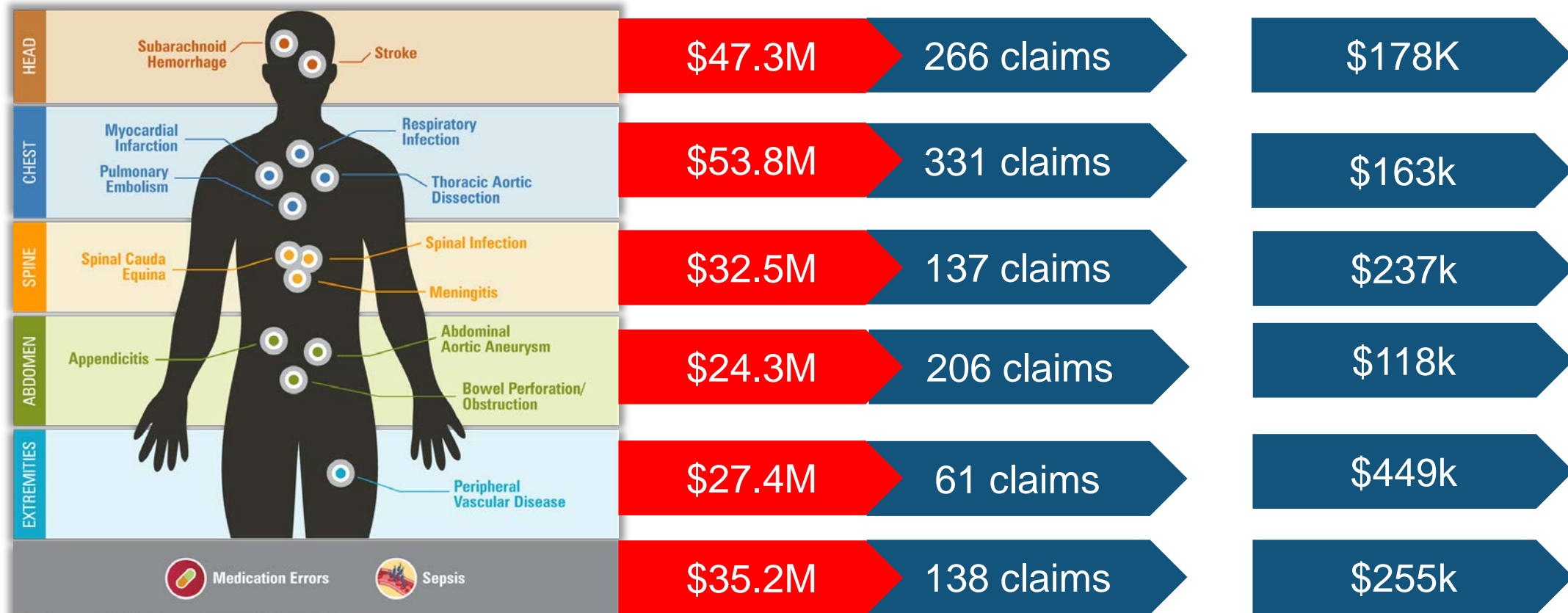
Diagnostic Drivers are addressed and considered real-time at the point of care resulting in the creation of an appropriate differential diagnosis.

Performance and ROI are measured against 20 years of benchmarking data

Reporting analytics provides statistics to the care team to identify areas for improvement, adoption and continuing education opportunities.

Targeting 15 Highest-Risk Claims

Largest current analysis of Emergency Medicine claims





healthcurrent

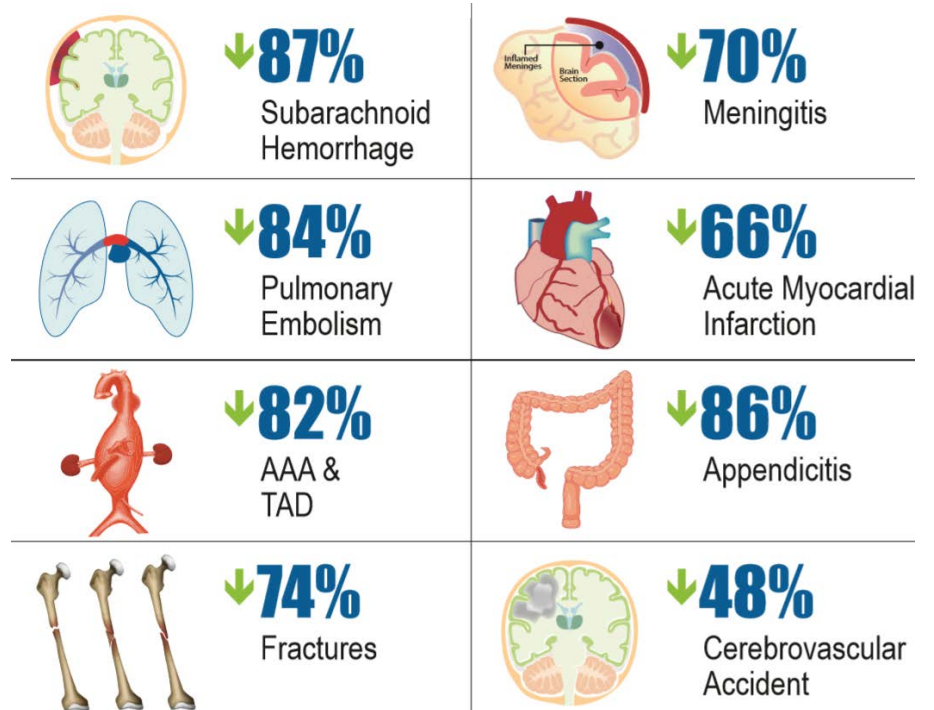
Imagine fully informed health

Guidance Impacts Outcomes

DMA ED Guidance Helps Achieve Diagnostic Driver Compliance

Med Record Type	Compliance
Handwriting	71%
Dictation	74%
Paper Template	79%
Best in Breed EMR	84%
Electronic with Highlighted RSQ® System (guidance)	90%

90% Compliance Reduces Adverse



HonorHealth:

A radiology use case

Clinical Decision Support for Advanced Imaging Studies

PAMA mandated by 1/2020

- Protecting Access to Medicare Act in April 2014 which mandated use and adherence to Radiology Decision Support by 1/2020.
 - This means all ordering providers must consult AUC from a qualified Clinical Decision Support Mechanism (qCDSM) for advanced imaging orders (Medicare part B only).

Benefits

- Reduce unnecessary exposure to radiation
- Correct exam for the indication
- Correct exam is ordered the first time
- Exams are supported by evidence based practice
- Appropriate utilization of resources
- Reduced prior authorizations for imaging exams

Scope Strategy

Priority Clinical Areas

Minimum requirement for mandate

Focus on areas of high misuse

- Cancer of the Lung
- Cervical or Neck Pain
- Coronary Artery Disease
- Headache
- Hip Pain
- Low Back Pain
- Shoulder Pain
- Suspected Pulmonary Embolism



Priority Clinical Areas

Exams Included:

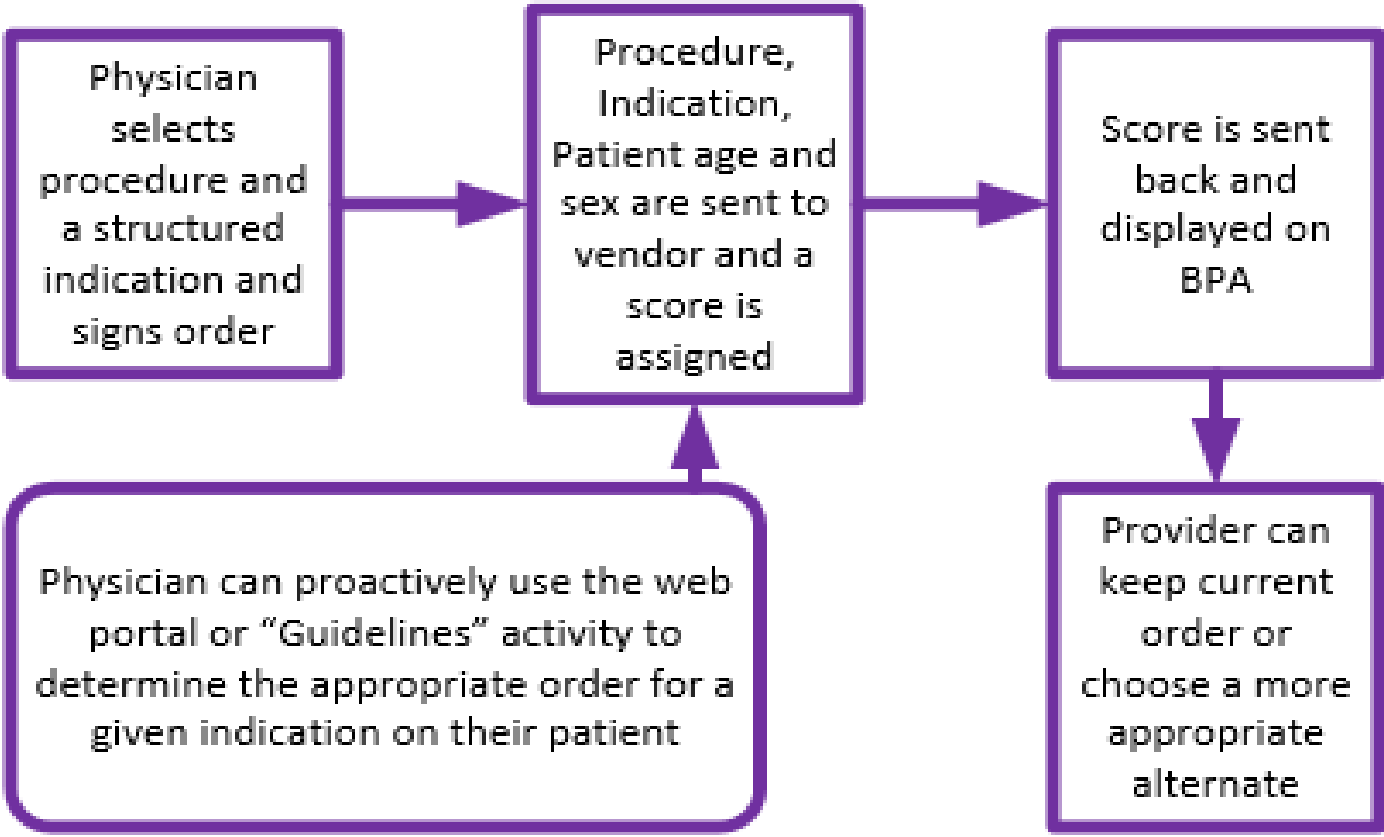
- CTA Chest
- CTA Coronary
- CT Chest
- CT Head
- CT Hip
- CT Shoulder
- CT Cervical Spine
- CT Lumbar Spine
- MRI Lumbar Spine
- MRI Chest
- MRI Head
- CT Face/Paranasal Sinus
- MR Face/Paranasal Sinus
- MRI Cervical Spine
- MRI Hip
- MRI Shoulder
- Nuc Med Myocardial Perfusion

Increased Scope

Maximize the Benefits

- Expand scope to include all “High Tech” imaging or other target areas
- Get the most from your software
- Be ahead of the game
- Prioritize patient care

Provider Workflow



Score Calculations

Databases Used

- American College of Radiology (ACR)
- American College of Cardiology (ACC)
- National Comprehensive Cancer Network (NCCN)
- Green:** Appropriate
- Yellow:** Not as appropriate
- Red:** Not Appropriate

Appropriateness rankings for a 66 year old male

Indications:

Appropriateness	Procedure	Cost	RRL
2	CT ABDOMEN PELVIS W CONTRAST	\$\$\$	<input type="checkbox"/> <input type="checkbox"/>
Alternate Procedures to Consider			
8	XR ABDOMEN 1 VIEW	\$	<input type="checkbox"/> <input type="checkbox"/>
8	XR ABDOMEN 2 VIEWS	\$	<input type="checkbox"/> <input type="checkbox"/>

[Click here for ACR Appropriateness Criteria reference information](#)

Remove the following orders?

CT Abdomen Pelvis W Contrast
Expected: 3/20/2019, Expires: 3/20/2020, Routine, HonorHealth Imaging
Score 2

Apply the following?

Score 8 (XR Abdomen 1 View)

Score 8 (XR Abdomen 2 Views)

Score 7 (US Abdomen Complete)

Score 7 (US Abdomen Limited)

Acknowledge Reason

Structured Indications

- Controlled by ACR
- Cannot Modify
- Can Request Changes/Additions
- Some flexibility to create generics

MR Brain W Contrast

None Anesthesia Conscious Sedation

Record Select

Search:

%	Medical Cond Name	Medical Cond ID
<input type="checkbox"/>	Headache, acute, normal neuro exam	1050465
<input type="checkbox"/>	Headache, acute, severe, worst HA of life	1050466
<input type="checkbox"/>	Headache, chronic, neuro deficit	1050467
<input type="checkbox"/>	Headache, chronic, normal neuro exam	1050468
<input type="checkbox"/>	Headache, dental or sinus or mastoid	1051196
<input type="checkbox"/>	Headache, dural venous sinus thrombosis suspected	1056516
<input type="checkbox"/>	Headache, focal deficit or papilledema	1051197
<input type="checkbox"/>	Headache, new, malignancy suspected	1051198
<input type="checkbox"/>	Headache, new, meningitis or encephalitis suspected	1050470
<input type="checkbox"/>	Headache, new, pregnant	1050471
<input type="checkbox"/>	Headache, positional	1051199
<input type="checkbox"/>	Headache, post traumatic	1051200
<input type="checkbox"/>	Headache, sinusitis and/or mastoiditis complication ...	1050473
<input type="checkbox"/>	Headache, sudden, carotid/vertebral dissection susp...	1050474
<input type="checkbox"/>	Headache, temporal arteritis suspected	1050475
<input type="checkbox"/>	Headache, trigeminal distribution	1051201
<input type="checkbox"/>	Headache with cough, exertion, or sex	1051194
<input type="checkbox"/>	Head trauma, headache	1051957
<input type="checkbox"/>	Meningismus (aka headache)	1053287
<input type="checkbox"/>	Monkeypox (aka headache)	1056132
<input type="checkbox"/>	Ped 3mo-18y, acute increase ICP signs (headaches...	1053809
<input type="checkbox"/>	Ped 3mo-18y, chronic increase ICP signs (headach...	1053810
<input type="checkbox"/>	Ped, headache, intense-abrupt, thunderclap, vascul...	1050844
<input type="checkbox"/>	Ped, headache, neuro deficit or signs of incr ICP (ak...	1050845
<input type="checkbox"/>	Ped, headache, no neuro deficit or signs of incr ICP ...	1050846
<input type="checkbox"/>	SAH suspected, initial exam (aka headache)	1050472
<input type="checkbox"/>	Vasculitis. CNS (aka headache)	1051896

27 records total, all records loaded.

Accept Cancel

Implementation Strategy

Recommend Stages over “Big Bang”

- Release structured reason for exam on a small subset of frequently ordered exams
- Release structured reason for exam on all in scope procedures
- Release BPA
- Engage External Providers
- Analyze success between stages

Provider Adoption

- Lead with the mandate
- Engage them early
- Keep them informed and involved
- Make finding the indications easier
 - Common Indications
 - Add indications to order sets
 - Use Synonyms
 - Pay special attention to ED
- You cannot over communicate
- Release in stages
- Provide a feedback method

Analytics

- Order Appropriateness
 - % of red, yellow and green scores
 - Can be broken down to the provider level
- Red Rate
 - Inappropriate order trending
 - Should decline over time
- Free Text Rate
 - What providers are still relying on free text if available
- Common Indication Usage – If available
 - Ensure indication is the common section are valuable
- ROI
 - See how much money is being saved by providers selecting lower tech imaging as an alternate

Statistics

HonorHealth – Live since 07/2018

- 14% Decrease in inappropriate imaging orders
- 3% of orders are changed in response to BPA
- 4% of orders are not signed in response to BPA
- Translates to a \$33k/mo ROI (calculated by vendor)

Questions?