VisualDx Diagnostic Clinical Decision Support

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HL7® FHIR® Applications Roundtable
What Problem Are We Working To Solve?
“Nearly every person will experience a diagnostic error in their lifetime”

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A Medical Crisis
BELOW THE SURFACE

Surgical & Medication Errors

5% of outpatient office visits

10% of hospital inpatient deaths

18 MILLION diagnostic ERRORS each year

Diagnostic Errors

12% of hospital adverse events

74,000 deaths each year

visualDx
Diagnostic Error
AN EPIDEMIC IGNORED

A Physician’s Typical Day

Each patient is different

9:00AM rash
10:05AM fainting spells
11:00AM chest pain
1:15PM breathing difficulty
2:10PM heartburn
3:00PM depression
3:50PM diarrhea
4:30PM flank pain
4:50PM fever
5:30PM dizziness

20
Average number of patient visits per day

34%
Percentage of visits involving a diagnostic question

ERROR
Diagnosed benign positional vertigo, missed cerebellar stroke.

Premature Closure: Diagnosis was first to come to mind, did not consider other possible diagnoses and failed to take a detailed patient history.

ERROR
Diagnosed tension headache, did not realize workplace exposure to carbon monoxide.

Anchoring Error: Locked in on a diagnosis based on initial symptoms and failed to adjust.
What planning is your healthcare system doing to improve diagnostic accuracy?

Have you ever evaluated tools to reduce diagnostic errors in order to improve patient care, patient throughput, medical education and financial performance?
In an ACO or capitated payment structure, reducing diagnostic error is a financial necessity, in all payment models reducing diagnostic error will build patient quality scores, reduce risk and improve efficiency.
VisualDx

- A point of care, diagnostic clinical decision support system used in over 2,300 hospitals and clinics
- Over 90 US medical schools use VisualDx
- ROI drivers including reduced diagnostic errors, increased patient safety, physician efficiency gains, lower costs, and enhanced patient engagement
VisualDx

Used by MD’s, PA’s, NP’s, and Residents at the point of care. VisualDx is:

• Proven to Increase Diagnostic Accuracy
• Proven to Provide Therapeutic Speed To Answer
• Proven to Assist in Patient Education and Speed Visit
• Proven to be Used by Busy Clinicians, (96% yearly renewal rate)
The educational paradigm has changed

20th Century
- Memory oriented
- Unaided decisions
- Manuals in white coat
- Model “roundsmanship”
- Hide doubt from patients

21st Century
- Process oriented
- Assisted decisions
- Smartphones in white coat
- Model information acquisition
- Shared decision-making
Speed and Accuracy Through Visualization

Text-based Analysis

Visual Pattern Recognition

Results shown in Sympticon™ format in VisualDx:
Invoked via the SMART API, VisualDx uses the SMART/FHIR standard to obtain:

- patient’s age
- Sex
- problem list (conditions encoded with SNOMED-CT)
- medication list (medication orders encoded with RxNorm)

Result: provides the user with VisualDx data and images matching their specific conditions or drug eruption/reaction differentials.

VisualDx has partnered with Cerner to be one of the first commercial applications using FHIR inside of Cerner Millenium.
Diagnostic CDS FHIR Integration in EHR

VisualDx FHIR List of medications and medical problems
Diagnostic CDS FHIR Integration in EHR

Medication Reactions: Shows timeline of medications, and select a medication to see adverse events and medication induced disease differential diagnosis.
Diagnostic CDS FHIR Integration in EHR

Enter additional findings
Diagnostic CDS FHIR Integration in EHR

Visualization of differential diagnosis: Sympticon View.
Diagnostic CDS FHIR Integration in EHR

Visualization of differential diagnosis of “Isoniazid and Vesicles”
Diagnostic CDS FHIR Integration in EHR

Problem List Diagnoses
Differential Builder Image Results in VisualDx

Problem List Diagnoses: Example Gout

Gout

See also in: Nail and Distal Digits

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Synopsis

Gout is the systemic deposition of monosodium urate crystals in tissues due to hyperuricemia. Elevated uric acid levels can be caused by overproduction of uric acid from purine catabolism or insufficient excretion by the kidneys. The deposition of urate crystals in tissues leads to inflammation and subsequent tissue damage. Men aged 40-50 are most commonly affected. African-Americans are reported as being at higher risk for gout, but the association is weakened when the increased incidence of hypertension in this population is taken into account. Other risk factors include renal insufficiency, obesity, increased alcohol consumption, medications (e.g., diuretics), lymphomas, leukemias, tumor lysis syndrome, and hemolysis as well as lead exposure (e.g., from illegally distilled liquor, or “moonshine”).

The most common sites involved are the skin and joints. Gout can present in an acute and chronic form: acute gouty arthritis or chronic tophaceous gout, respectively. The acute form presents as a painful, swollen, warm, tender, and erythematic joint. Most common joints include the first metatarsophalangeal joint, the ankle, foot, and knee. The majority of attacks involve one joint. Chronic tophaceous gout presents most commonly on the joints or hells of the ear. Smooth or multilobulated nodules can ulcerate, leading to extrusion of a chalk-like substance. Rarely, urate bullae may develop.

Codes
VisualDx in the Workflow

- Web-based access via any modern browser. No installation required.
- Mobile access: Native iOS and Android Apps.
- Interoperable with leading health information resources including UpToDate and Lexicomp.
Clinicians Earn CME for Point of Care Use

Earn and claim CME AMA PRA Category 1 Credits while using VisualDx at the point of care
Engage with Patients

- Change the nature of the discussion from proving the accuracy of your diagnosis to the treatment plan and management.
- Calm a worried patient.
- Use images to connect with patients.
- Provide patient handouts for common conditions.
Contact Us

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