

COVID-19 Webinar Series

Empowering Healthcare Providers with Clinical Decision Support During COVID-19 and Beyond

Welcome



Michael Casamassa
Vice President, Solutions

Webinar Overview

We will learn about how VisualDx clinical decision support can help you build an informed diagnosis by providing fast, context-sensitive guidance during COVID-19 and beyond.

- Assist differential diagnosis
- Reinforce treatment options at the point of care
- Improve skin visits by the use of AI
- Aid in understating medication-induced diseases
- Ease the nerves of an anxious patient with shared information and images



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**University of Rochester
College of Medicine**



AI, Clinical Decision Support and Telemedicine



Art Papier, MD

Associate Professor of Dermatology and Medical Informatics,
University of Rochester
Chief Executive Officer, VisualDx



Overview

- COVID-19 is accelerating digital medicine
- AI is part of Clinical Decision Support
- Telemedicine and virtual medicine
- Machine learning and AI
- Patient satisfaction



20th Century

Memory oriented

Unaided decisions

Manuals in white coat

Model “roundsmanship”



21st Century

Process oriented

Assisted decisions

Smartphones in white coat

Model information acquisition



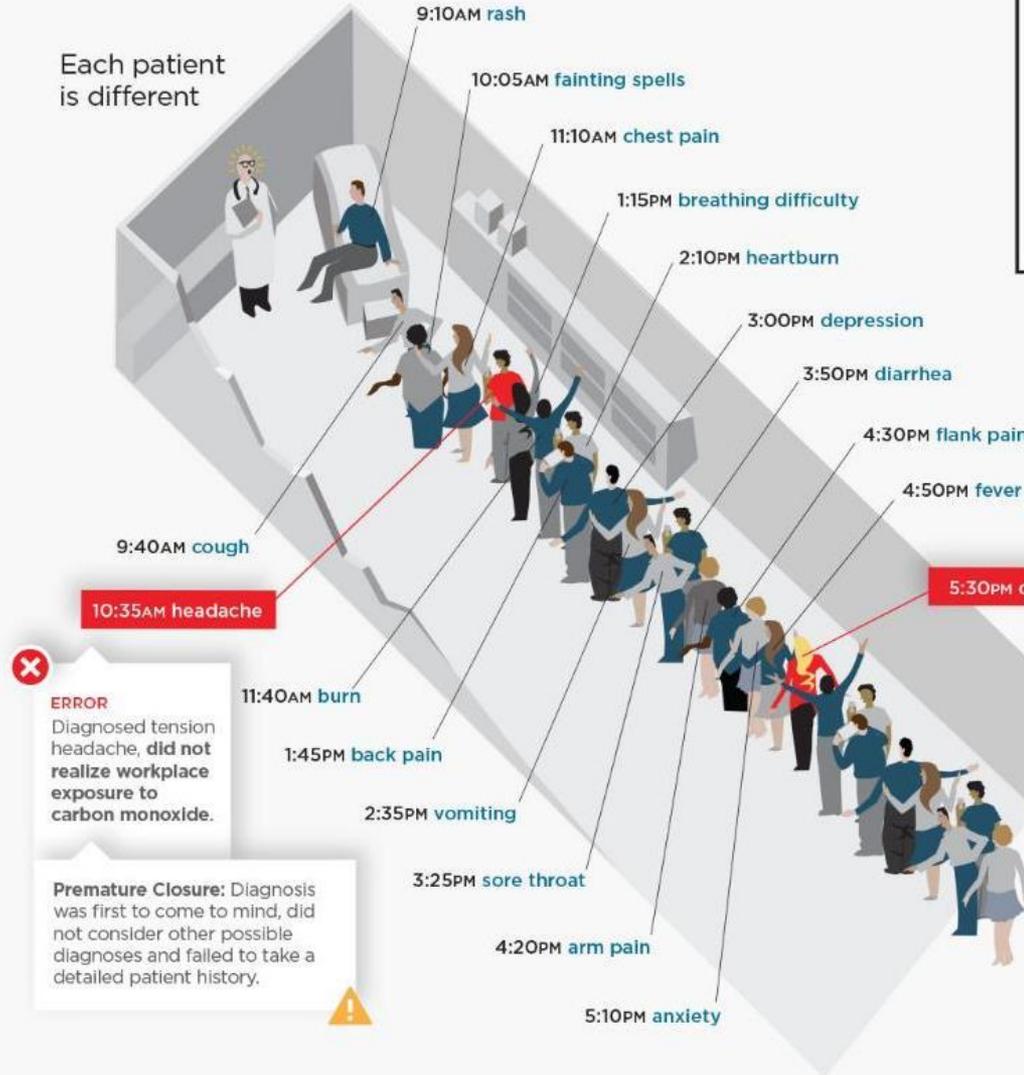


Diagnostic Error

AN EPIDEMIC IGNORED

A Physician's Typical Day

Each patient is different



20

Average number of patient visits per day

34%

Percentage of visits involving a diagnostic question

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

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 benign positional vertigo, **missed cerebellar stroke.**

Anchoring Error: Locked in on a diagnosis based on initial symptoms and failed to adjust.

What is Clinical Decision Support



Machine Learning



Artificial Intelligence



Rule Based Systems

Why do we need help?

3 Hospital Admissions in 6 Months

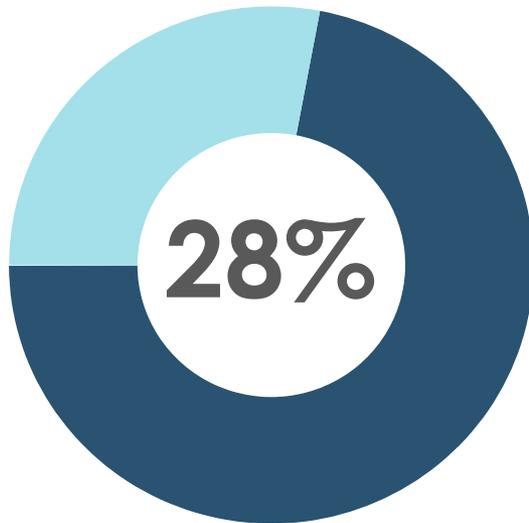


3 Hospital Admissions in 6 Months
...for the Wrong Diagnosis



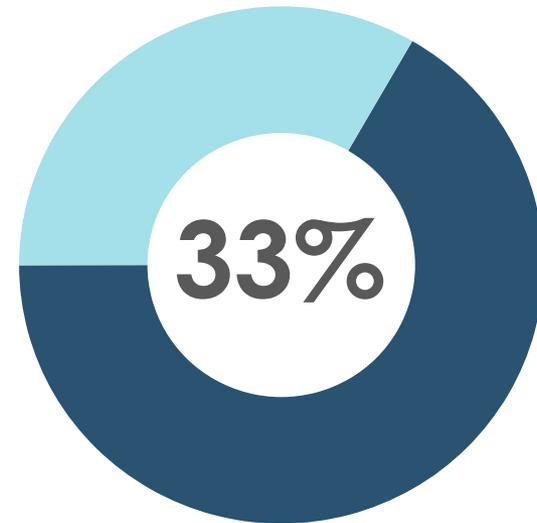
Cellulitis Diagnostic Error: Research

US Study



**of 145 cases 28%
were misdiagnosed¹**

UK Study



**of 635 cases 33%
were misdiagnosed²**

1. David C, Chira S, Eells S, Ladrigan M, Papier A, Miller L, Craft N. *Dermatology Online Journal*. March 2011;17(3):1. In the UK, consecutive admissions for cellulitis were studied –
2. Levell NJ, Wingfield CG, Garioch JJ. *British Journal of Dermatology*. Feb. 2011; [epub ahead of print].

Antimicrobial Stewardship Begins With An Accurate Diagnosis



Unnecessary
IV Antibiotics



Unnecessary
Lab Tests

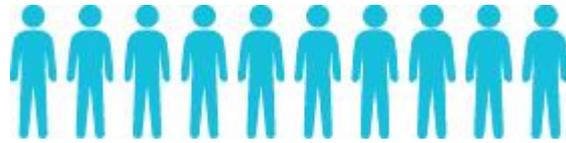


Unnecessary
Hospital Stay



C Difficile
and MRSA

Cellulitis Diagnostic Error: Dollars Wasted



557,000

inpatient admissions in the U.S.
for cellulitis each year

x



20%
error rate

=



114,000

unnecessary
admissions

114,000
unnecessary
admissions



x



\$12,000
average diagnosis-
related group

RESULTS IN

\$1,368,000,000

IN SAVINGS ANNUALLY

does not include outpatient
error or iatrogenic harm

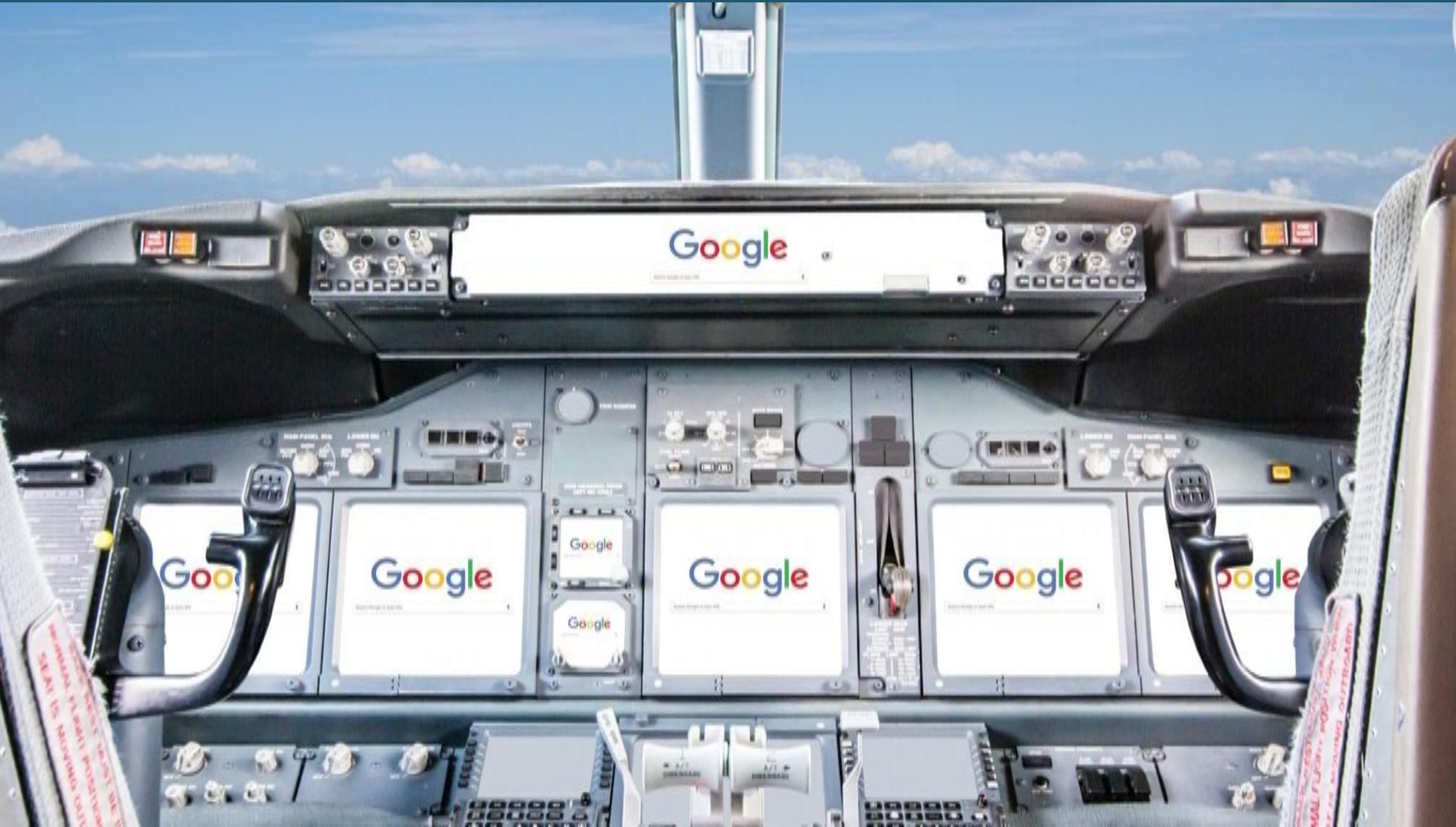
What do physicians frequently
use to support decisions?

Google

Google Search

I'm Feeling Lucky

Would you fly on this plane?



“Load to brain” works when
there are a few variables



Not the case for
complex systems





PATIENT
CURARISE

Modern “Medical Aviation”



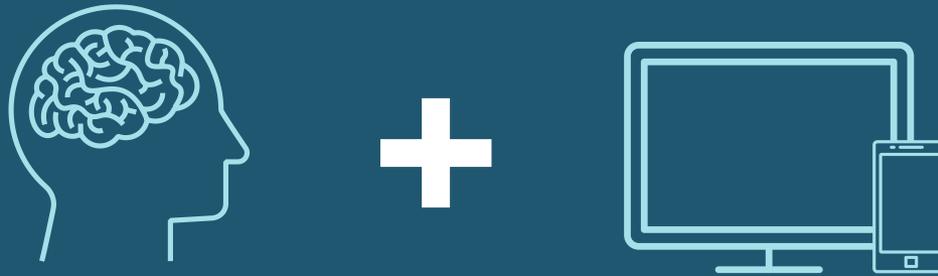
No standards,
Adhoc search,
Memory based,
Few feedback loops,
Crashes go unrecognized,
each pilot performs differently

Pilots do not use Google on final approach...why do clinicians?

Tools are designed for specific tasks



We Need a Cockpit for
Professionals and Patients

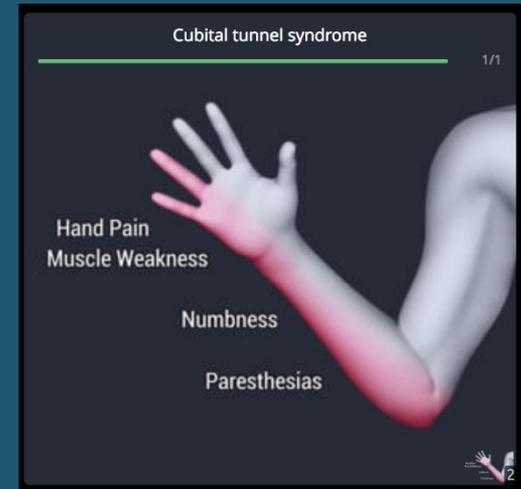
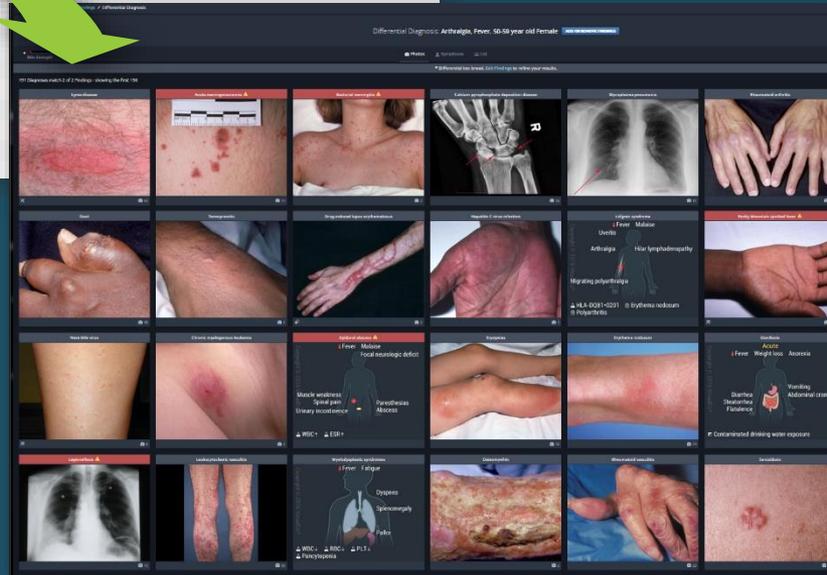


Problem-Oriented Contextual Visual

A Consistent Exam Room Digital Framework,
A Digital Roadmap For Medical Thinking

Chikungunya	3 matching findings: Arthralgia (Joint Pain, Articular Pain), Fever (Febrile), Bahamas
Dengue Fever	3 matching findings: Arthralgia (Joint Pain, Articular Pain), Fever (Febrile), Bahamas
Psittacosis	3 matching findings: Arthralgia (Joint Pain, Articular Pain), Fever (Febrile), Bahamas
Dengue Hemorrhagic Fever	
Leptospirosis	
Ebola	2 matching findings: Arthralgia (Joint Pain, Articular Pain), Fever (Febrile)
Erysipelas	2 matching findings: Arthralgia (Joint Pain, Articular Pain), Fever (Febrile)
Human Immunodeficiency Virus Primary Infection	2 matching findings: Arthralgia (Joint Pain, Articular Pain), Fever (Febrile)
Lyme Disease	2 matching findings: Arthralgia (Joint Pain, Articular Pain), Fever (Febrile)
Malaria	2 matching findings: Arthralgia (Joint Pain, Articular Pain), Fever (Febrile)
Meningococemia, Acute	2 matching findings: Arthralgia (Joint Pain, Articular Pain), Fever (Febrile)
Rocky Mountain Spotted Fever	2 matching findings: Arthralgia (Joint Pain, Articular Pain), Fever (Febrile)
Viral Exanthem	2 matching findings: Arthralgia (Joint Pain, Articular Pain), Fever (Febrile)
Coccidioidomycosis	2 matching findings: Arthralgia (Joint Pain, Articular Pain), Fever (Febrile)
Erythema Multiforme	2 matching findings: Arthralgia (Joint Pain, Articular Pain), Fever (Febrile)
Giardiasis	
Hand-Foot-and-Mouth Disease	
Hepatitis A Virus	
Syphilis, Secondary	
Toxocariasis	
West Nile Virus	
Bartonellosis	
Blastomycosis	
Cat-Scratch Disease	

2 matching findings: Arthralgia (Joint Pain, Articular Pain), Fever (Febrile)



Medicon

Searchable by condition, medication or unique patient factors delivering point of care differential diagnosis, testing and therapy.

Reduce Cognitive Burden: Visualization of complexity

Not an Image Atlas, but a Graphical Representation of Diagnostic Context

Workup for Facial palsy

Enter additional findings and/or use the workup questions below

Additional Findings

Onset of findings

- Developed rapidly in minutes or hours
- Developed acutely over days to weeks
- Developed steadily over weeks to months
- Developed chronically lasting months to years
- Recurring episodes or relapses
- None

Appearance of patient

Additional Findings

PATIENT INFO

50-59 year old

Female

FINDINGS

Facial palsy Arthralgia

Toggle the to make the finding required

Findings entered: facial palsy, arthralgia

Workup for Blanching patch

Enter additional findings and/or use the workup questions below

Additional Findings

Number of skin lesions

- Single skin lesion
- Multiple skin lesions
- None

Skin lesion type

- None

Location of skin finding

Distribution of skin

PATIENT INFO

50-59 year old

Female

FINDINGS

Blanching patch

Findings entered: blanching patch, targetoid

Differential Diagnosis

Facial palsy, Arthralgia, 50-59 year old Female

ADD OR REMOVE FINDINGS

CONSIDER 1st CONSIDER 2nd EMERGENCIES INFECTIOUS DRUG INDUCED VIEW ALL SYMPTOMS

Lyme disease 2/2

Early Disseminated

Photophobia Facial palsy

Low grade fever Headache Cranial nerve palsy

Arthralgia Joint swelling

Blanching patch Scattered few

Bell palsy 1/2

Excessive tearing

Cerebellar hemorrhage 1/2

Neck pain Dizziness Dysarthria Vertigo Loss of consciousness Headache Ataxia Nausea/vomiting

Cerebellar infarction 1/2

Hypotonia Gait disturbance Headache Ataxia

Cutaneous neuroma 1/2

Traumatic Pain at injury site Hyperesthesia Neuralgia

Smooth nodule Smooth papule Surgical incision Erythema

Differential shown in Symptoms

Differential Diagnosis

Blanching patch, Targetoid configuration, 50-59 year old Female

ADD OR REMOVE FINDINGS

CONSIDER 1st CONSIDER 2nd EMERGENCIES INFECTIOUS DRUG INDUCED VIEW ALL PHOTOS

Lyme disease 2/2

Fixed drug eruption 2/2

Erythema multiforme 2/2

Cellulitis 1/2

Lyme disease 2/2

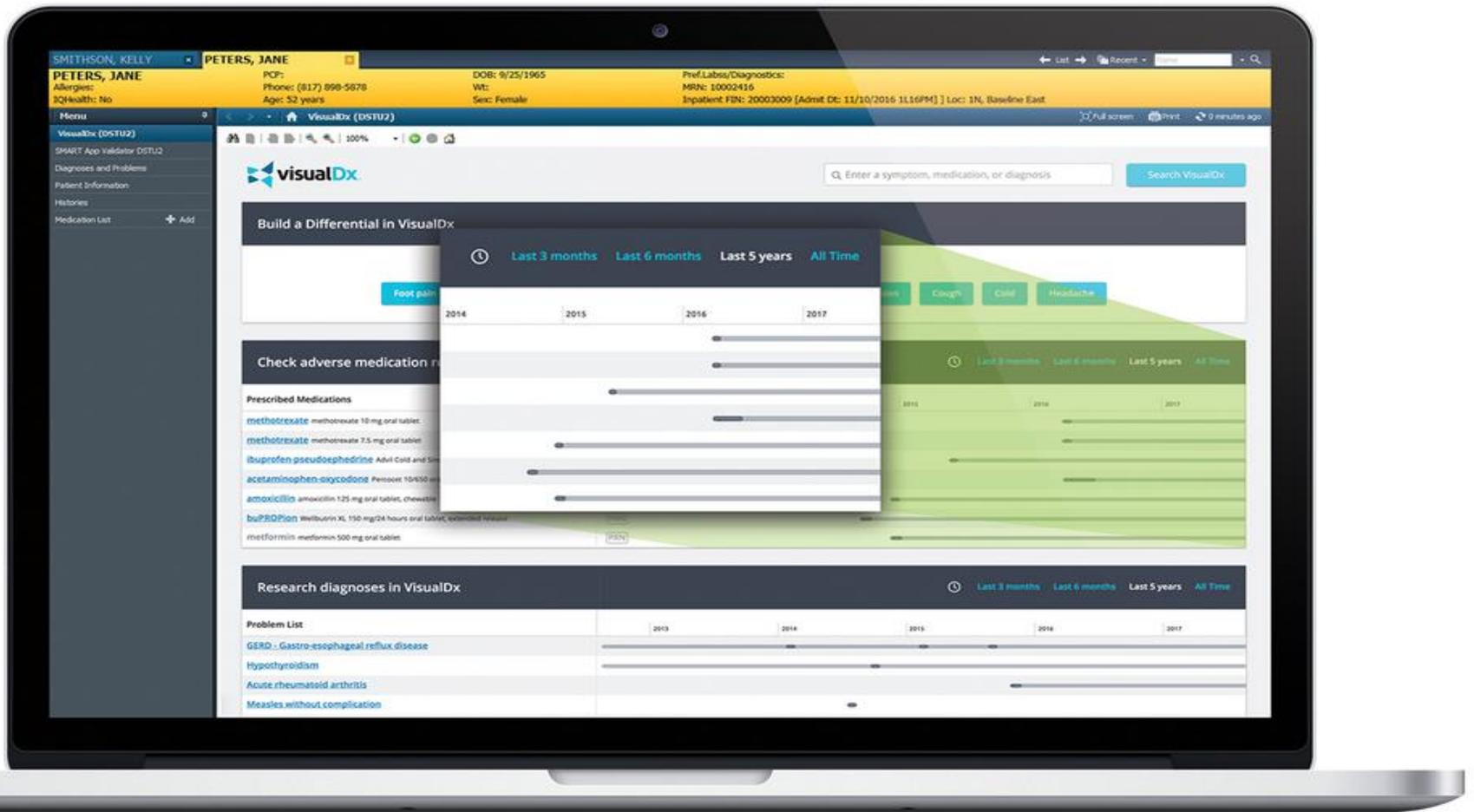
Livedo reticularis 1/2

Atopic dermatitis 1/2

Differential shown in photo view

Designed For Variation

Example: Phases of Lyme Disease



Diagnostic CDS FHIR Integration in EHR
 Click Problem List and Medications: Displayed as Timelines

SMOLIN, IVAN ROMANOVICH

SMOLIN, IVAN ROMANOVICH
 Allergies: Adhesive Bandage, amoxicillin
 Care Team: <No Primary Contact>

DOB: 2/13/1946
 Dose Weight:
 Loc:

Age: 71 years
 Isolation:
 CommonWell: Not Enrolled

Sex: Male
 Resuscitation Status:
 HealthLife: Yes

MRN: 00200108
 Clinical Trials:
 Advance Dir:

Menu - All

- Provider Workflow
- Orders + Add
- Documentation + Add
- Outside Records
- Activities
- Allergies + Add
- Clinical Media + Add
- Demographics
- Diagnoses and Problems
- DM Viewer
- Flowsheet
- Flowsheet and I&O
- Growth Chart
- Health Maintenance
- HealthRecord
- Histories
- Immunization Schedule
- MAR Summary
- Medication List + Add
- Notes
- Resonance Validator
- Results Review
- SMART App Validator
- SMART VisualDx
- CareDecisions Models
- CareDecisions Outcome Summary

SMART VisualDx

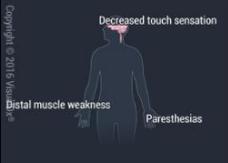
visualDx / SMART Data / Patient Findings / Differential Diagnosis

Differential Diagnosis DDx Strength: Good

Isoniazid, Vesicle, 70-79 year old Male ADD OR REMOVE FINDINGS

35 CONSIDER 1st 30 CONSIDER 2nd 9 EMERGENCIES 5 INFECTIOUS 81 DRUG INDUCED 63 VIEW ALL

PHOTOS

<p>Allergic contact dermatitis 2/2</p>  <p>1 325</p>	<p>Leukocytoclastic vasculitis 2/2</p>  <p>1 60</p>	<p>Pellagra 17</p>  <p>1 31</p>	<p>Stevens-Johnson syndrome 2/2</p>  <p>1 81</p>	<p>Systemic contact dermatitis 2/2</p>  <p>1 7</p>	<p>Gynecomastia 11</p>  <p>1 6</p>
<p>Drug-induced nausea or vomiting 1/2</p>  <p>8 1</p>	<p>Exanthematous drug eruption 1/2</p>  <p>7 48</p>	<p>Drug-induced polyneuropathy 1/2</p> <p>Decreased touch sensation</p> <p>Distal muscle weakness Paresthesias</p>  <p>3 1</p>	<p>Drug-induced abdominal pain 1/2</p> <p>Abdominal pain</p>  <p>2 1</p>	<p>Drug-induced ataxia 1/2</p> <p>Ataxia</p>  <p>2 1</p>	<p>Depressive disorders 1/2</p> <p>Personality changes Sleep disturbance Agitation Anhedonia</p> <p>Fatigue Malaise Headache Anorexia</p> <p>Emotional stress or trauma</p>  <p>1 1</p>

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

Medicine After the COVID Earthquake

- Societal shift and short-term fear of medical offices and hospitals
- Changing priorities
- Realignment of payment and shifting rules
 - Compensation for virtual visits
 - Temporary relaxation of HIPAA

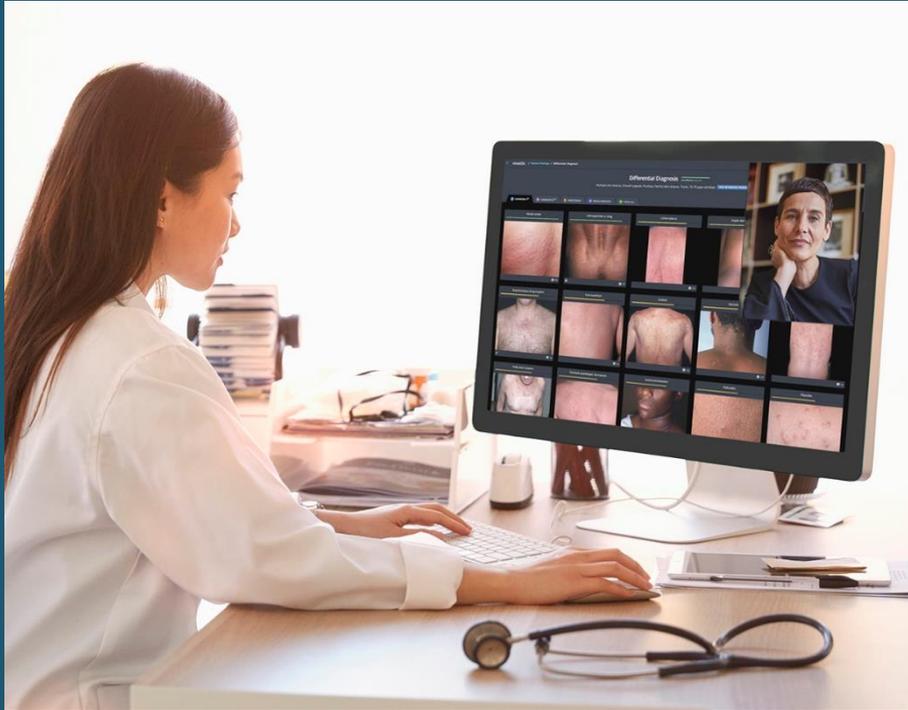
Essential Telemedicine Co-Pilot

Speeds Telemedicine Visit

- Used with any telemedicine platform driving efficiency and accuracy
- Images and information to make informed clinical decisions
- Quickly access synopsis, therapy, management, testing options and differential diagnosis
- Includes continually updated COVID-19 information



Telemedicine Patient Reassurance



Patient Anxiety is a Constant

- COVID-19 has created tremendous patient concern. Anxiety is eased by sharing images and information with patients in real time
- Email handouts at conclusion of televisit
- Share photo tips prior to telehealth appointment to improve the quality of the visit

Diagnostic Error Risk Reduction

Driving Diagnostic Accuracy in Times of Disease Presentation Variation is Paramount

- Tremendous variation in COVID-19 patient presentations and lack of testing means excellence in clinical diagnosis is critical
- VisualDx handles all the presentations of COVID-19 and drives accuracy and thus patient and healthcare personnel safety



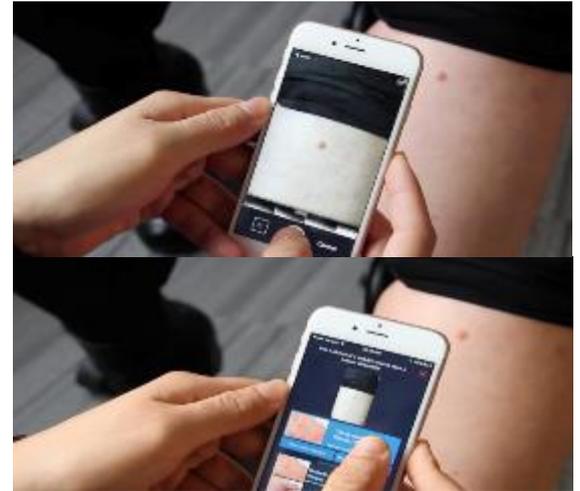
AI

What can machine learning
do to enhance skills, not de-skill?

Machine Learning in 2 Minutes

VisualDx Machine Learning Overview

- Models are trained to classify:
 - Skin lesion morphology
 - The diagnosis
 - The skin type (Fitzpatrick skin color 1-6)
 - Further research and work is being conducted on other classification parameters



Machine Learning to Enhance Skills: Training on Skin Examination Description



Smooth Papule

A discrete, solid, elevated body, usually less than 0.5 cm in diameter, without surface change.

[View Examples](#)



Skin Erosion

Localized loss of the epidermal or mucosal epithelium.

[View Examples](#)



Atrophy

A thinning of tissue defined by its location, such as epidermal atrophy, dermal atrophy, or subcutaneous atrophy.

[View Examples](#)



Vesicle

A fluid-filled cavity or elevation less than 0.5 cm in diameter. Fluid may be clear, serous, hemorrhagic, or pus filled.

[View Examples](#)



Hyperpigmented Macule

A flat, generally less than 0.5-cm area of skin or mucous membrane with a color different from that of surrounding tissue. Macules may have non-palpable fine scale.

[View Examples](#)



Smooth Plaque

A discrete, solid, elevated body usually broader than it is thick, measuring more than 0.5 cm in diameter, without surface change.

[View Examples](#)



Skin Ulcer

A circumscribed loss of the epidermis and at least the upper dermis. Ulcers are further classified by depth, border/shape, edge, and tissue at base.

[View Examples](#)



Atrophic Scar

Thin depressed fibrosis resulting from dermal injury, typically has a wrinkled appearance.

[View Examples](#)



Bullae

Fluid-filled blisters greater than 0.5 cm in diameter. Fluid can be clear, serous, hemorrhagic, or pus filled.

[View Examples](#)



Hyperpigmented Patch

A flat, generally greater than 0.5-cm area of skin or mucous membrane with a color different from that of surrounding tissue. Patches may have non-palpable fine scale.

[View Examples](#)



Cyst

A closed cavity or sac containing fluid or semisolid material. A cyst may have an epibulbar, subbulbar, or membranous lining.

[View Examples](#)



Poikilodermatous

An area of skin characterized by scaling with varied pigmentation changes, atrophy, and telangiectases.

[View Examples](#)



Striae

Stretch marks, or linear depressions due to thinning of dermis in areas of repeated or prolonged skin stretching.

[View Examples](#)



Abscess

An erythematous, warm, tender body with accumulation of pus.

[View Examples](#)



Hypopigmented Macule

A flat, generally less than 0.5-cm area of skin or mucous membrane with a color different from that of surrounding tissue. Macules may have non-palpable fine scale.

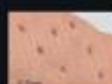
[View Examples](#)



Smooth Nodule

A dermal or subcutaneous firm, well-defined lesion usually greater than 0.5 cm in diameter.

[View Examples](#)



Pits

Small, less than 5mm, sharply demarcated depressions.

[View Examples](#)



Skin Erosion

Localized loss of the epidermal or mucosal epithelium.

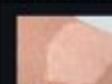
[View Examples](#)



Pustule

A circumscribed elevation that contains pus. Pustules are usually less than 0.5 cm in diameter.

[View Examples](#)



Hypopigmented Patch

A flat, generally greater than 0.5-cm area of skin or mucous membrane with a color different from that of surrounding tissue. Patches may have non-palpable fine scale.

[View Examples](#)



Skin Petechiae

Tiny 1-2 mm, initially purpuric, non-blanchable macules resulting from tiny hemorrhages.

[View Examples](#)



Eschar

A scab or dry crust that results from trauma, infection, or exfoliating skin disease.

[View Examples](#)



Blanching Macule

A flat, generally less than 0.5-cm area of skin or mucous membrane with a color different from that of surrounding tissue. Macules may have non-palpable fine scale.

[View Examples](#)



Scaly Plaque

A discrete, solid, elevated body, generally measuring more than 0.5 cm in diameter, with surface changes.

[View Examples](#)



Sclerotic Skin Lesion

Skin is hard or firm to touch due to dermal fibrosis.

[View Examples](#)



Palpable Purpura

Raised, palpable discoloration of skin or mucous membrane due to vascular inflammation in the skin and extravasation of blood.

[View Examples](#)



Gangrene

Necrotic, usually black, tissue due to obstruction, diminution, or loss of blood supply. Gangrene may be wet or dry.

[View Examples](#)



Blanching Patch

A flat, generally greater than 0.5-cm area of skin or mucous membrane with a color different from that of surrounding tissue. Patches may have non-palpable fine scale.

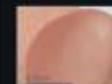
[View Examples](#)



Desquamation

The corneal layer of the epidermis is sloughed in fine scales.

[View Examples](#)



Tumor

Discrete mass, generally larger than 2 cm that may be soft or firm, fixed or freely movable.

[View Examples](#)



Ecchymosis

Extravasation of blood into the skin or mucous membranes. Area of flat color change may progress over time from blue-black to brown-yellow or green.

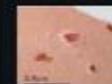
[View Examples](#)



Erythroderma

A generalized, blanchable redness of the skin that may be associated with desquamation. Desquamation is a normal process in which the corneal (outermost) layer of the epidermis is sloughed in fine scales or sheets.

[View Examples](#)



Excoriated Skin Lesion

Epidermal surface loss produced by scratching or picking.

[View Examples](#)



Multicolored Plaque

A discrete, solid, elevated body with multiple colors, generally measuring more than 0.5 cm.

[View Examples](#)



Reticular - Netlike

Netlike shape

[View Examples](#)



Crust

A hardened layer that results when serum, blood, or purulent exudate dries on the skin surface. Crusts may be thin or thick and can have varying color.

[View Examples](#)

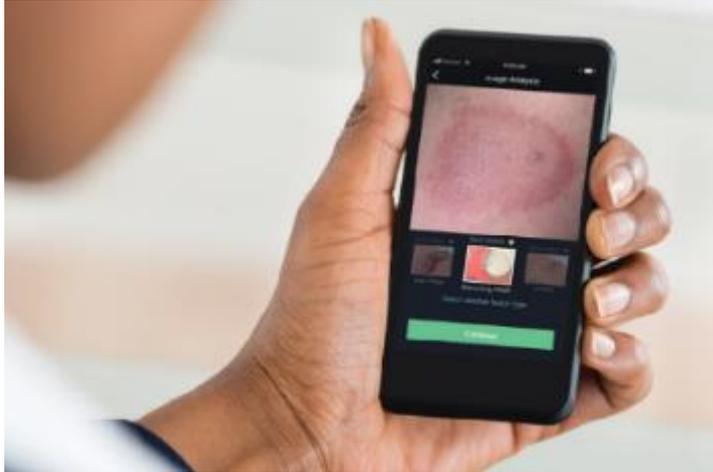


Plaque with Ulcer

A discrete, solid, elevated body, generally measuring more than 0.5 cm in diameter, with an ulceration.

[View Examples](#)

The Basis For Machine Learning and AI: Good Data



Human Phenome

From genome to transcriptome to proteome to microbiome, the importance of these efforts ultimately hinges on connecting the genetic and molecular data to the clinical manifestations of disease.



Machine Learning

The goal of our research is to merge image recognition with knowledge databases to improve diagnosis.



International network of dedicated contributors has participated in building good data.



Images and case data are submitted by experts from around the world. Diseases of regional and geographic importance are captured, uploaded and labeled

ML Trained on skin of all colors

visualDx / Varicella

Varicella in Adult -

43 of 81 Images

Filter Images

2 active filters | reset

Hide Gynral Images | Hide Sensitive Images

Skin Presentation

- Type I
- Type II
- Type III
- Type V
- Type VI

+ Image Type

+ Study Location

AI in Clinical Practice





Recent Case Study

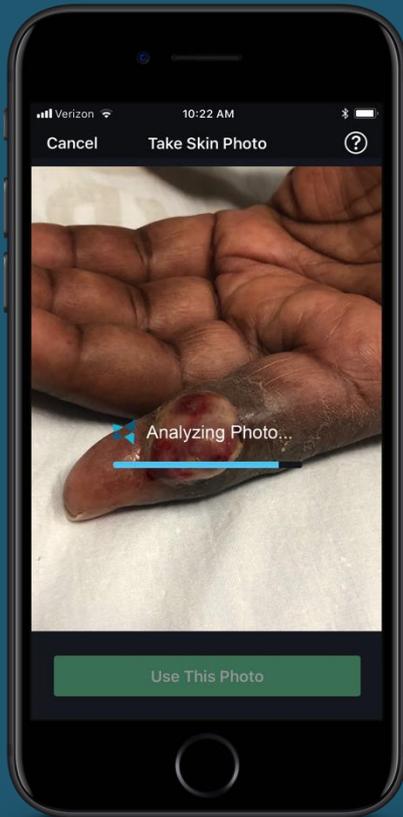
- Presents to ED on April 10, 2018
- Female, 66 years old
- Two week history of enlarging lesion on finger. Patient removed lesion herself. Lesion recurred larger.



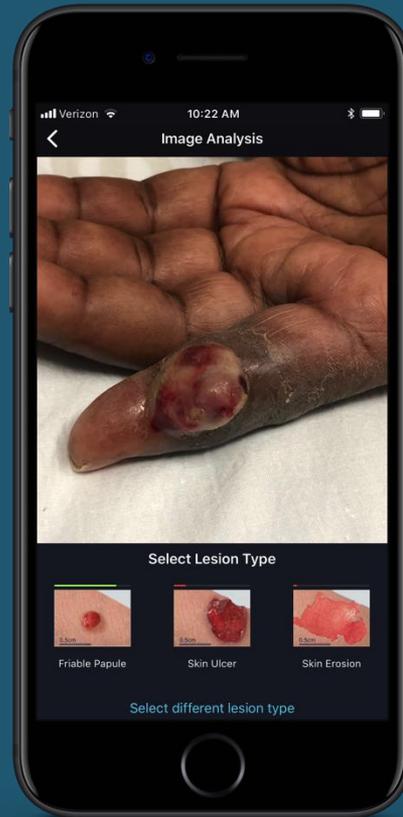
Brian Browne, MD

Machine Learning

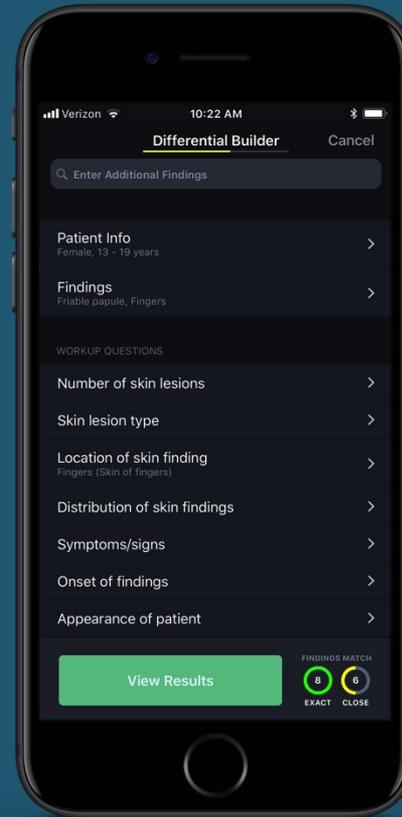
Snap a picture.



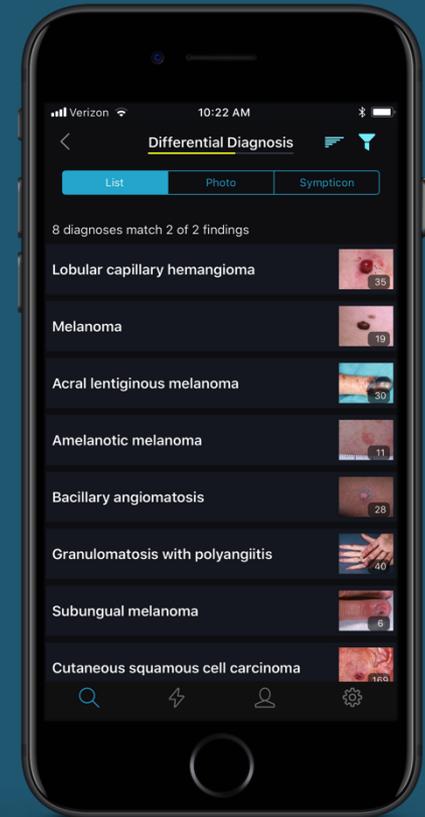
Confirm lesion type.



Add other symptoms.



Review diagnostic possibilities.



Process



Patient Reaction

“Patient loved the attention.”

“I also explained what I was doing, a running commentary – thinking out loud.”

— Brian Browne, MD
Chair, Emergency Medicine
University of Maryland

What's next?

Aysa

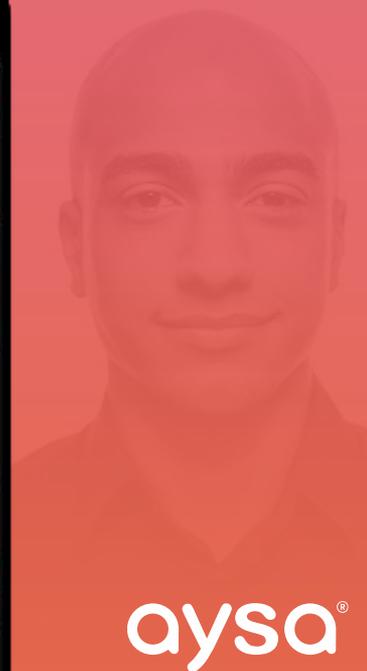
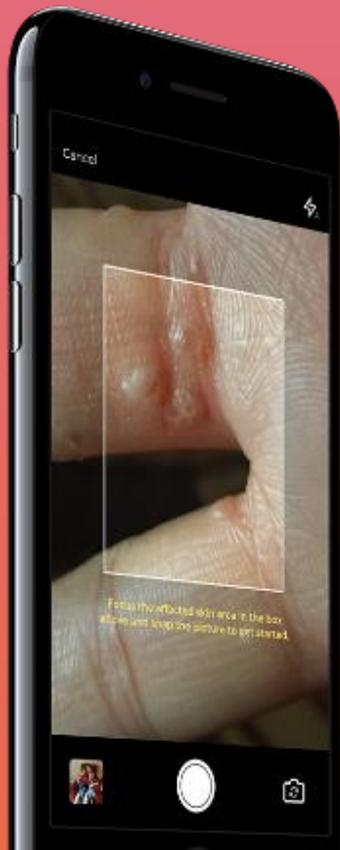
- Aysa gives people personalized guidance about what to do for a set of 200 common skin conditions.
- Aysa is focused on skin conditions because this is an area of real need and a place where we have the expertise to help.

Take a photo.

Answer questions.

Review information.

See results.



aysa®



What is Aysa?

Aysa is a guide to help you answer questions about common skin conditions. While Aysa covers over 200 conditions, this is only a small part of medicine.

Aysa doesn't diagnose. Only trained practitioners can do that. When in doubt, have your healthcare provider check it out.

If you are feeling ill or have rapidly changing symptoms, please seek medical care.

[I understand. Let's get started](#)

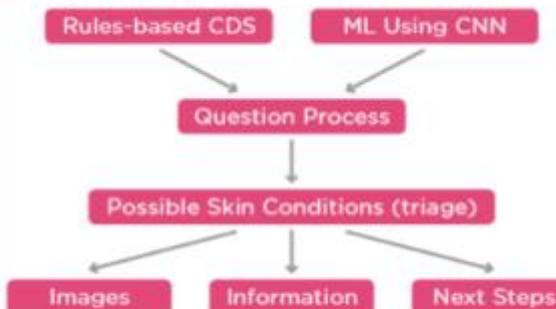
An approach to self-triage of routine skin conditions using machine learning and curated medical knowledge

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Abstract

Aysa is a patient-focused application that helps do first-line triage of common dermatological conditions. The intent is not to provide a specific diagnosis, but provide appropriate next steps for the condition. A user takes a photo of the lesion with a phone camera and answers questions about timing, body location, itch, etc. The system uses multiple CNN models to analyze the image and sends the result vectors and the results of the questions to the VisualDx expert system server, which returns an ordered set of probable diagnoses. The content includes images of different presentations of the diagnoses, so the user can find an image that best matches their condition. The text discusses the next steps the user can take to resolve their condition, up to and including seeking immediate medical help. There are three main components in the Aysa system. First are the CNN models that analyze the image. These models are trained using a curated and annotated set of dermatological images that cover 81 different lesion types and 188 common skin conditions. Using multiple models, each trained for different categories, allows the system to achieve higher accuracy than using a single model. Second, the expert system server takes the model results and user input and, using a database developed with medical knowledge derived from the literature, creates and weights the relationships with the diagnoses and returns a probability-sorted list. Third is the consumer-oriented information on each of the diagnoses returned in the list. The content for each diagnosis contains images for better identification, a synopsis of the condition, tips for self-care, treatments that a physician may prescribe, when to see a doctor, and possible alternatives to this diagnosis. This allows the consumer to make an informed decision about when to seek professional care and what they can do for self-care. Although category top 3 accuracy for the individual models is in the low 70s, limited preliminary system testing shows the correct diagnosis being returned 67% of the time as the first diagnosis and 79% in the top 3 diagnoses.

How Aysa Works

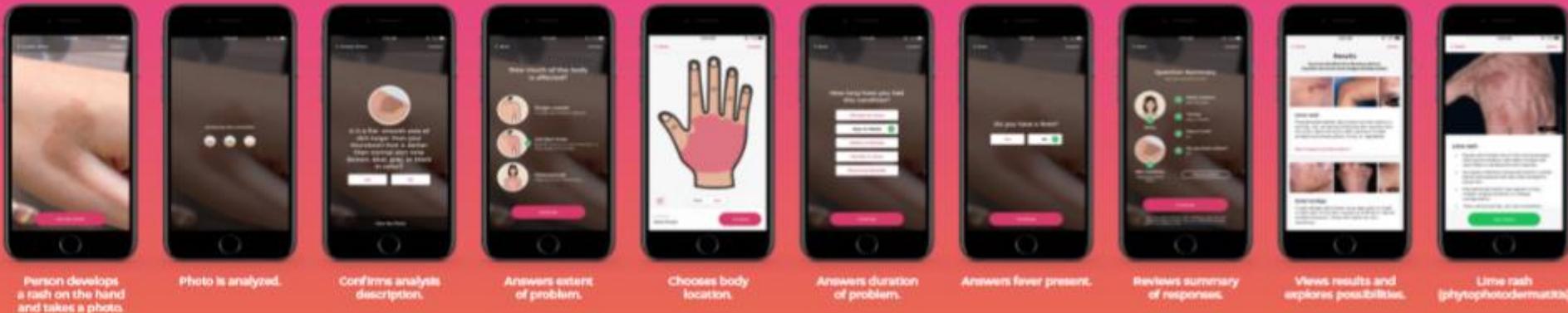


Problem Statement

A global shortage of dermatologists means that people do not receive timely diagnosis and management of their skin problems. In some countries in Africa, for example, there are just a handful of dermatologists for millions of people (J Glob Infect Dis. 2013;5[5]:275-280).

The advent of the smartphone, and its widespread availability even within the poorest of countries, presents an opportunity to bring timely and accurate dermatologic information directly to less skilled health providers, or even patients themselves.

Rapid advances in machine learning recognition of image content are pushing forward in the visual medical specialties. A majority of efforts within dermatology have focused on automated detection of skin cancer. Here we focus on broad recognition and education of common skin conditions for patients. It is widely recognized that people use Google and tools like WebMD for their personal medical information. We envision an app that serves a similar need but provides more accurate and useful information.



Solution

A smartphone-based application combining rules-based clinical decision support with machine learning image recognition using a deep convoluted neural network (CNN). CNNs are a state-of-the-art machine learning architecture that automatically learn visual features from a set of training data. Designed for both the Android and iOS operating systems, the application takes an individual through a question process with the goal of providing them a better understanding of skin disorders with adequate caution regarding serious skin disorders.

Machine Learning Results

Images are processed by a set of CNN models that have been trained using VisualDx's curated collection of dermatology images including a range of pigmentary types. The application runs two CNN models, one analyzing lesion morphology (trained on 81 distinct skin morphologies) and the other analyzing the image for diagnosis (trained on 188 diagnoses). When an image is passed through the network, the models give predictions in the form of probabilities that this image exhibits features of a known diagnosis or morphology.

Lesion model Top 1	47%
Lesion model Top 3	72%
Diagnosis model Top 1	49%
Diagnosis model Top 3	69%

Overall Results

The CNN probability results are then incorporated with additional findings and processed by our expert system to aid in producing a differential diagnosis. In laboratory testing, the correct diagnosis is in the differential 88% of the time.



of the time the correct diagnosis is in the differential

Summary

Preliminary results show a high degree of acceptability by people trialing the app, with correct results occurring a majority of the time. Providing high-quality actionable information for patients and less trained healthcare workers via a smartphone will require constant refinement, and feedback at scale. Field testing is currently in the process of being planned at a major medical institution.

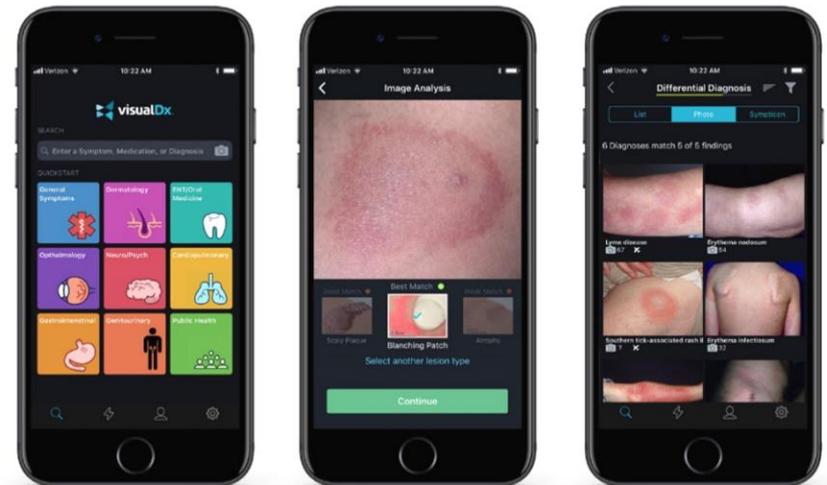
Apple's Core ML: Privacy & Speed

BUSINESS INSIDER

Apple CEO Tim Cook gave a shout-out to a \$100-per-year app for doctors — here's what it does

Kif Leswing
Nov. 19, 2017, 8:30 AM

- Advances in machine learning now mean that doctors can take a photo and identify the disease or condition depicted.
- Apple is a fan of one specific app, VisualDx, that uses new machine learning software to assist with diagnosis on an iPhone.
- VisualDx has built a database of 32,000 high-quality medical images.



Apple CEO Tim Cook isn't a doctor, but he talked about a piece of medical software, VisualDx, during Apple's most recent earnings call.

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