

SharkFest'22 US
Kansas City, MO
July 9-14

#sf22us

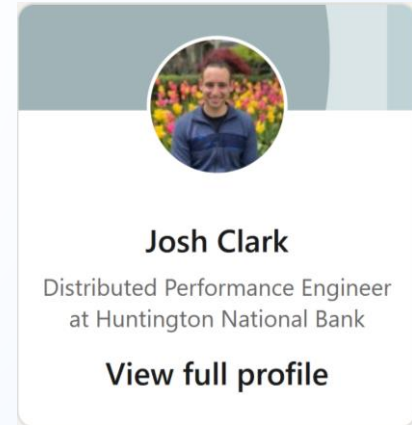
Troubleshoot Like a Doctor



Josh Clark
Huntington National
Bank

Hello!

I'm Josh



<https://www.linkedin.com/in/je-clark>

What is Differential Diagnosis?

A differential diagnosis (dDx) is an ordered list of potential diagnoses, ranked by both likelihood and severity.

Ask these questions:

- ⦿ What is most likely happening?
- ⦿ What's the worst thing that could be causing this?

● How do you use dDx?

Every diagnostic action is targeted to either confirm or rule out an item on the dDx list.

For each of the top items in the dDx list:

- ⦿ How can I prove this?
- or -
- ⦿ How can I rule this out?



What does this look like in medicine?

An otherwise healthy 45 year old male comes into the ED after a car crash. He is complaining of chest pain. What is the most appropriate next step in this patient's care?



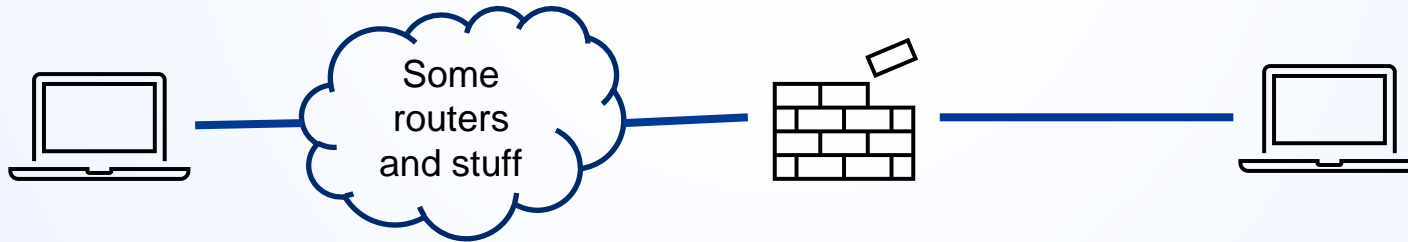
What does this look like in clinical practice?

Ordered 3-angle x-ray of the right foot to rule out possible stress fracture

- An actual note from my medical records

● What does this look like in packets?

An existing server is unable to ping a newly built server in a new network segment. The firewall in the path is configured to allow this traffic.



HOPS Methodology in Medicine

- History
 - *What is in the patient's background?*
- Observation
 - *What seems to be the problem?*
- Palpations
 - *What can I do right now?*
- Specific Tests
 - *What tests require external resources?*

dDx List Generated Here



HOSI Methodology in IT

- History
 - *What changes happened over the past week?*
 - *Are there any known issues?*
- Observation
 - *What does the problem look like?*
- Safe Tests
 - *What can I do that won't make things worse?*
- Impacting Tests
 - *What tests might cause further impact?*



How does all this help with really hard problems?

Type 1 thinking is rapid, often instinctive and based largely on recognising patterns and following rules of thumb. Type 2 thinking is slower, more cognitively demanding and works deductively to weigh a number of possibilities.

a sense of unease is often an indication that it might be time to switch from type 1 to type 2 thinking

- from Teaching Briefing: Clinical Reasoning, The University of Sheffield

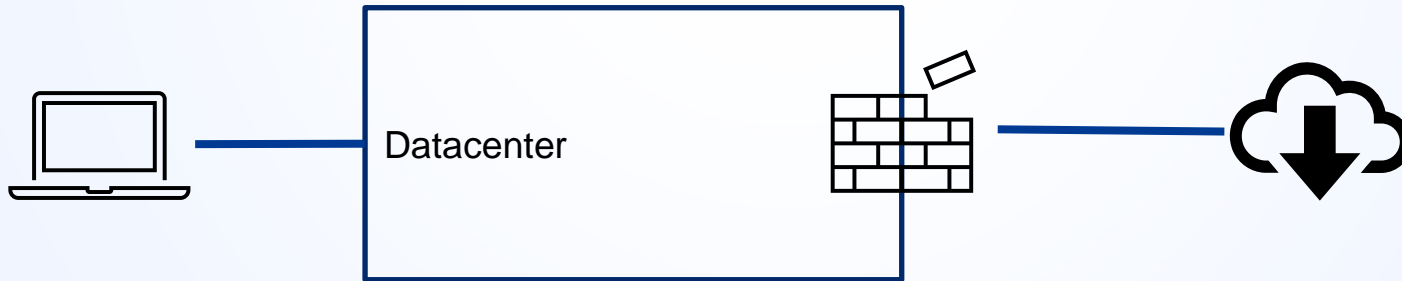
● How does all this help with really hard problems?

The goal is to reduce the number of experts that need to be woken up in the middle of the night.

1. Using HOSI, build a broad dDx and confirm a category. *Is this a client, network, or server problem?*
2. Build a new dDx for that category. *Given a network problem, is it load balancing, DNS, routing, or interface issue?*
3. Repeat for subsequent levels of depth, as needed.

Let's try a Type 2 Problem

Users at remote sites are receiving a “Failed Download” message from their browsers when attempting to download a vendor-hosted file.



Conclusions

- Use HOSI to gather information about the problem
- Formalize your thoughts in a dDx list
- Use HOSI to pick appropriate troubleshooting steps
- When in doubt, start broadly



Sources

#sf22us

- ⦿ Clinical Reasoning Notes -
https://www.sheffield.ac.uk/polopoly_fs/1.745387!/file/ClinicalReasoning_Notes.pdf