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PSLL MONTHLY NEWSLETTER

Patient Safety Learning Lab
Division of General Internal Medicine | Brigham and Women's Hospital

About PSLL

The Patient Safety Learning Lab, or "PSLL," at Brigham and Women's Hospital seeks to reduce preventable harm and improve the safety of diagnosis and therapy in the hospital setting.

Our multi-disciplinary team of researchers combine clinical expertise with systems engineering and human factors methods to develop and design reliable EHR-integrated systems to support safe, high quality care.

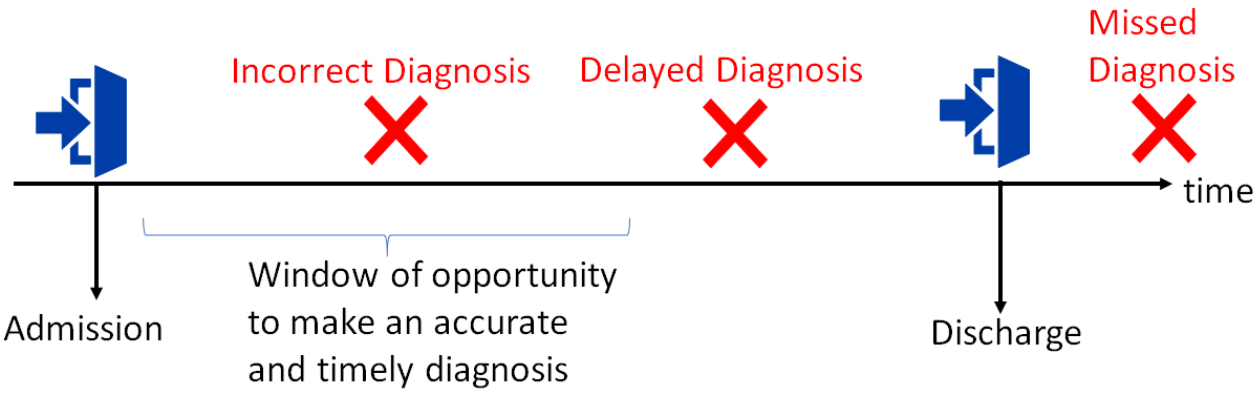
OVERVIEW:

What are Diagnostic Errors?

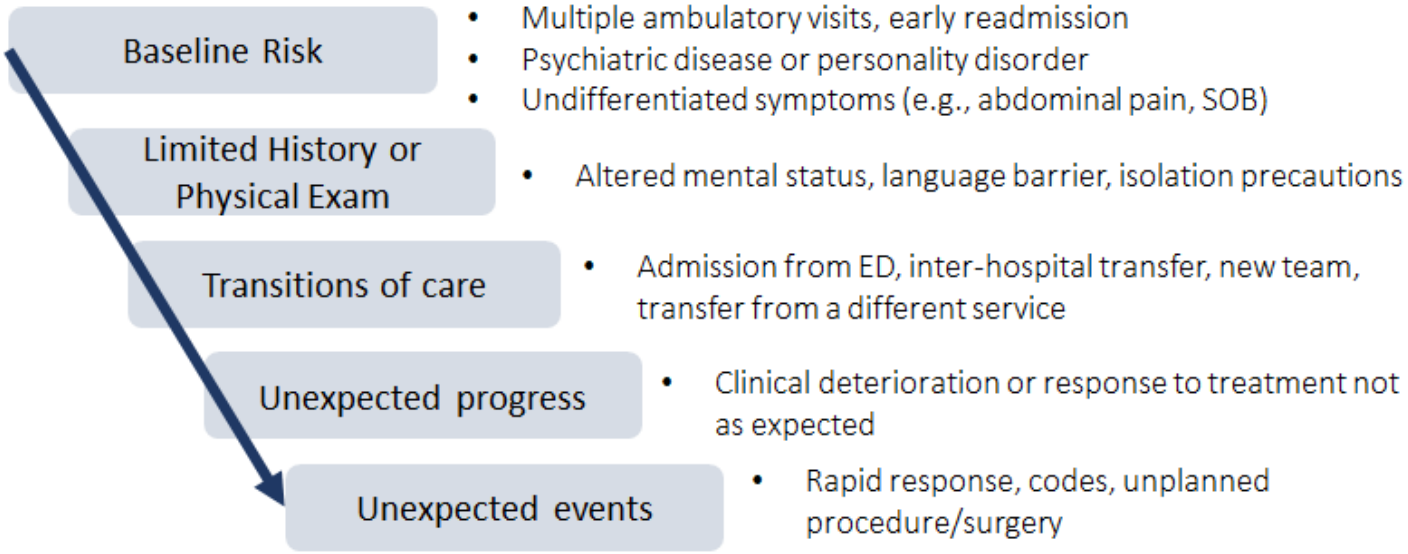
A diagnostic error is defined as any **incorrect**, **delayed** or **missed** diagnosis not made within the window of opportunity.

At least 1 in 20 Americans experiences these errors every year. Error rates in acute care settings may be as high as 50%.

When diagnostic errors occur, patients may not get appropriate treatment in a timely manner, which may lead to preventable harm.



Risk Factors for Diagnostic Error



Case of the Month

Case Summary

50-year-old female with h/o aplastic anemia secondary to dyskeratosis congenita, s/p allogenic bone marrow transplant complicated by graft-versus-host disease on daily prednisone, and h/o migraines (typically last 24 hours), presented with 4 days of 9/10 right-sided throbbing head pain, painful eye movements, nausea and vomiting. The day prior to admission, she was given IVF, reglan, & tylenol, and CT was negative. She was sent home on a regimen of reglan and sumatriptan, but re-presented with persistent symptoms.

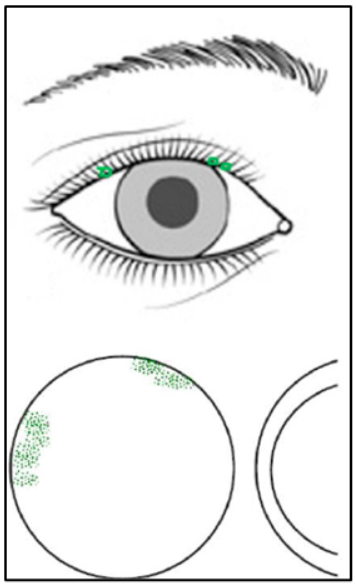


Figure 1. Ophtalmology consult physical exam findings

Physical exam was notable for right corneal injection with bilateral palpebral erythema, edema and crusting. Labs were significant for WBC 10.9K. MRI showed findings suspicious for leptomeningeal disease. Neurology consult initially considered the clinical picture was suggestive of trigeminal autonomic cephalgia.

Upon admission, symptoms persisted despite management with toradol, sphenopalatine block, compazine and benadryl. The team was considering malignancy versus atypical infection versus flare of graft versus host disease in their differential. There was concern for HSV encephalitis; a LP was ordered but later deferred.

On HD#2 she continued to have edematous conjunctiva with 1+ injection and crusting of the R upper and lower lids. Ophthalmology consult noted a well-demarcated vesicular rash in the V1 distribution with 3 lesions on the upper eyelid margin. Patient was started on IV acyclovir. A VZV PCR returned positive confirming the diagnosis of herpes zoster ophthalmicus and possible encephalitis.

Description of diagnostic error: delay in suspecting HSV encephalitis and diagnosing herpes zoster ophthalmicus for 2 days in a patient with risk factors for immunosuppression (chronic steroids) and suggestive findings on history, physical exam, imaging.

Outcome: Pain was better controlled with gabapentin. Symptoms improved with IV acyclovir. LP was deferred and patient was discharged.

Most significant failures in the diagnostic process:

- Delay in providing or eliciting a piece of history data: immunosuppressant medications, history of VZV vaccination, characteristics of facial pain and headache. Notably, patient had stopped taking acyclovir prophylaxis.
- Delay in eliciting critical physical examination finding: crusting and vesicles following a dermatomal distribution consistent with herpes zoster
- Delay in ordering needed test(s): VZV PCR, HSV PCR, LP.

Harm: Moderate (Increased length of stay).

Risk factors for diagnostic error:

- ED visit 1 day prior to hospitalization
- Response to treatment not as expected: headache did not improve despite multimodal analgesia including sphenopalatine block
- No clear exacerbation of chronic disease (GVHD)
- Multiple consultants with differing opinions

Lessons Learned

- A Diagnostic Time-Out triggered by above risk factors could help to identify what did and didn't fit with the initial primary working diagnosis of trigeminal autonomic cephalgia.
- Promptly re-confirming physical examination findings if no clinical improvement despite treatment. In this case, crusting and vesicles followed a dermatomal distribution consistent with herpes zoster.
- Leptomeningeal enhancement + concerning eye findings → think of HSV.

Download our Diagnostic Time-Out here:

Attend our Diagnostic Safety Workshops to learn more about diagnostic safety!

Interested in getting involved with our chart adjudication process? Feel free to reach out!

Contact Us!

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