



Using DXplain

DXplain is an online clinical decision support tool that evaluates signs, symptoms, and laboratory findings to assist you in the differential diagnosis process. You enter known information about a case and are prompted to answer “yes or no” questions to reach a probable or possible diseases list. Disease descriptions and likely laboratory findings provide additional guidance toward a correct diagnosis.

To access DXplain, visit the Norris Medical Library website at <http://www.usc.edu/nml/> select Electronic Resources, then enter DXplain in the search box. Users are required to provide an email address and indicate their professional status each time they enter the system.

Patient Diagnosis

The patient, a 20 year-old college student, is brought into the emergency room by his friends. He was at a party on Friday night where beer and hard alcohol were served. He has had a headache and been vomiting since late Friday night and first assumed he had had too much to drink. On Saturday, in addition to the vomiting, the patient began to experience blurred vision. The vomiting and blurred vision persisted through the night and his friends became worried on Sunday morning and have brought him into the hospital. Upon examination, you discover that the patient has normal vital signs and non-reactive pupils. Since being admitted, he has also begun experiencing intermittent vision loss.

The screenshot shows the DXplain interface with a yellow header "Please select an option:". Below the header are four buttons: "Enter a Case for Analysis", "Disease / Finding Information", "Retrieve Previously Saved Case", and "Suggestions for how to use DXplain". To the right is a red box titled "Chest Pain: the First 60 Minutes" with the text "Click below to practice and evaluate your skill at diagnosing and managing patients with acute MI." and a button "Run acute MI program".

Provide patient-specific information to lead to a list of possible diagnoses.

Research a specific disease. Provides descriptions and symptoms.

New tool specifically designed to diagnose cardiac disease.

1. Enter symptoms:

Start New Case

Are you going to enter findings from an actual patient case?
 Yes No

Select the most appropriate item from each of the three categories.

Age	Gender	Duration
Newborn (< 2 MO)	Female	Very Brief (< 6 hours)
Infant (2 MO TO < 1 YR)	Male	Brief (6-48 hours)
Child (1 to < 12 YRS)		Few Days (2-7 days)
Adolescent (12 TO < 18 YRS)		Prolonged (1-4 weeks)
Adult, Young (18 TO 40 YRS)		Chronic (> 4 weeks)
Middle Age (41 TO 65 YRS)		
Elderly (> 65 YRS)		

Enter findings separated by "," or ";".
vomiting, headache, blurred vision

Submit **Reset**

Enter clinical manifestations (signs, symptoms, lab findings) in the box to the left. Separate the findings with a comma or semicolon. When finished entering, click the "Submit" button to proceed.

Select known information about the patient and type in major symptoms (separated by commas).

2. Choose more appropriate/specific symptoms if necessary:

DXplain matched to **"VOMITING"**:
You may change to a more specific finding.

- VOMITING
- VOMITING, BILIOUS
- VOMITING, PROJECTILE
- VOMITUS, MUCOUS MEMBRANE

The general term is most appropriate.

DXplain matched to **"VISION BLURRING"**:
You may change to a more specific finding.

- VISION BLURRING
- ACCOMMODATION DECREASE
- ACCOMMODATION ABSENCE
- ASTHENOPIA, ACCOMMODATIVE ***
- VISION BLURRING, UNILATERAL

*** Info available. Select item; click here

If needed, a description of this condition is provided.

3. Look at the potential matches:

Current DXplain Disease List

COMMON Diseases:

Evidence for Dx	Dx Description	References
+ Acute anterior uveitis		
Salicylate toxicity		
Lithium toxicity		
Transient ischemic attacks, differing symptoms		
-- Conjunctivitis, inclusion		
-- Retina, hemorrhage		
-- Transient ischemic attacks, stereotypic symptoms		
-- Diabetic retinopathy		
-- Migraine syndrome		
-- Motion sickness		

RARE Diseases:

Evidence for Dx	Dx Description	References
+ Glaucoma, narrow angle		
Methyl alcohol poisoning		
-- Nitrobenzene poisoning		
-- Conjunctivitis, gonorrheal, adult		
-- Conjunctivitis, diphtheritic		
-- Conjunctivitis, hemorrhagic, acute		
-- Conjunctivitis, tularemic		
-- Hyperviscosity syndrome		
-- Neuromyelitis optica		
-- Retinoblastoma		

+ sufficient information to suggest this DX
-- insufficient information to support this DX

Each potential disease match includes an estimate of how likely that match is. Potential matches are divided into common and rare. Plus signs indicate higher possibility. To find out more about a particular disease, select the disease and choose "Dx Description."

"Evidence for Dx" will provide information on which symptoms are specific to that disease and also provide other symptoms to watch for and any laboratory findings that would support or rule out the disease.

Before settling on a particular disease, walk through Case Findings screens to narrow in on the diagnosis.

4. Refine your case by answering the Case Findings questions and including more symptoms if appropriate:

Case Findings

Enter findings separated by "," or ";".

Submit

OPTIONAL - Are these findings present? ?

<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> Unk	lithium use	?
<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> Unk	intraocular pressure increase	?
<input checked="" type="radio"/> Y <input type="radio"/> N <input type="radio"/> Unk	pupillary areflexia	?

MORE-Findings Present? **Reset**

Case Findings

Enter findings separated by "," or ";".

vision loss

Submit

OPTIONAL - Are these findings present? ?

<input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> Unk	methyl alcohol ingestion	?
<input type="radio"/> Y <input type="radio"/> N <input checked="" type="radio"/> Unk	optic nerve atrophy	?
<input type="radio"/> Y <input checked="" type="radio"/> N <input type="radio"/> Unk	vision impairment, progressive	?

MORE-Findings Present? **Reset**

5. Review the diagnosis list to see which diagnoses are most likely.
6. To differentiate between the possible diagnoses, highlight each disease individually, then choose "Evidence for Dx." This will provide useful information such as other clinical manifestations and laboratory values that would support that particular diagnosis.

Return to Case Analysis pageDx DescriptionReferences

Discussion of disease "METHYL ALCOHOL POISONING". This is a rare disease.

The following findings strongly support this disease:

VISION BLURRING
PUPILLARY AREFLEXIA
VISION LOSS

The following findings support this disease:

VOMITING
HEADACHE

The following clinical manifestations (if present) would also support this disease:

CEREBRAL EDEMA
ALCOHOL DEPENDENCE
OPTIC NERVE ATROPHY
METHYL ALCOHOL INGESTION

The following lab data (if present) would be useful in establishing the presence of the disease:

ANION GAP, ELEVATED
METABOLIC ACIDOSIS

After viewing the most likely diagnoses, and performing appropriate lab tests, it is determined that the patient has metabolic acidosis and is probably suffering from Methyl Alcohol Poisoning.

7. View the Dx Description to read more about the condition.

METHYL ALCOHOL POISONING (RARE)

----- OTHER NAMES -----

Wood alcohol, toxicity; Methanol, toxicity.

----- ETIOLOGY -----

Inhalation of vapor, ingestion, percutaneous absorption of flammable liquid widely used in industry; effect of oxidation in body to formaldehyde and formic acid, with depressant action on CNS. Occupational exposure: dry cleaning, organic synthesis; manufacture of antifreeze, dyes, explosives, fuel, leather, plastics.

----- ASSOCIATED TERMS AND CONDITIONS -----

USUALLY: methyl alcohol ingestion; toxin exposure.
SOMETIMES: alcohol dependence; cerebral edema; respiratory infection; tracheitis; bronchitis.

----- SYMPTOMS -----

USUALLY: vision blurring; vision impairment.
SOMETIMES: anorexia; nausea; photophobia; concentration impairment; confusion; attention impairment; sudden onset of symptoms; brief (6-48 hours); vomiting; abdominal pain, upper; abdominal pain; headache; sweating increase; coma; consciousness disturbance; delirium; ataxic gait; gait disturbance; equilibrium disorder; fatigue; vertigo; dizziness; lightheadedness; cough; dyspnea; very brief (< 6 hours).
RARELY: extremity pain, lower; extremity pain; back pain.

----- PHYSICAL FINDINGS -----

USUALLY: mydriasis.
SOMETIMES: optic nerve atrophy; vision loss; pupillary areflexia; papilledema; apathy; unresponsiveness; tachypnea; hypotension; conjunctivitis; seizure; emotional instability; euphoria; hypoventilation; cyanosis; eczematous skin lesions; skin temperature decrease; temperature decrease.
RARELY: bradycardia.
ADDITIONAL NOTES: Acute poisoning: with ingestion, onset within 6-48 hours; Ophthalmoscopy: in acute poisoning, dilatation of pupils, contraction of visual fields, hyperemia of optic disk, retinal edema; blind white discs,

8. Each description also links to a list of references to provide further information about each condition.

----- REFERENCES -----

1. Methanol inhalation toxicity. Ann Emerg Med 1993 Dec;22(12):1919-23
2. Methanol intoxication. How to help patients who have been exposed to toxic solvents. Postgrad Med 1993 Jun;93(8):183-4, 189-91, 194
3. Methanol poisoning. How to recognize and treat a deadly intoxication. Postgrad Med 1987 Dec;82(8):149-51