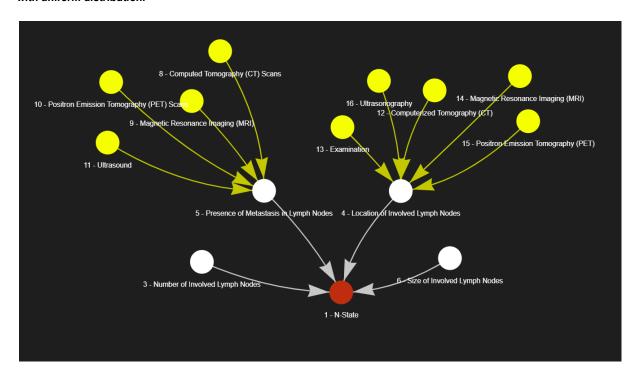
N-Stage-Mathus

Inputs to this were only the node identifiers and their states and the edges. CPTs also however are just placeholders with uniform distribution.



Nodes Informations (extracted using the tool):

1. **Id:** N_State_1__patient

States: ['nx', 'n3', 'n2c', 'n2b', 'n2a', 'n2', 'n1', 'n0']

Type: Decision Node

Observability: Needs to be Predicted

Label: State of Nearby Lymph Nodes with Cancer in Patient

Description: This node represents the state of involvement of nearby lymph nodes in a patient with cancer. It is a decision node used to predict the extent of lymph node metastasis, which is crucial for cancer staging and treatment planning. The states range from no involvement (n0) to extensive involvement (n3), with intermediate states indicating varying degrees of lymph node cancer presence.

Node States:

State Name	State Description	
nx	The regional lymph nodes cannot be assessed.	
n3	Metastasis in lymph node(s) along the course of a major blood vessel or in a lymph node that is more than 6 cm in greatest dimension.	
n2c	Metastasis in bilateral or contralateral lymph nodes, each 6 cm or less in greatest dimension.	
n2b	Metastasis in multiple ipsilateral lymph nodes, each 6 cm or less in greatest dimension.	
n2a	Metastasis in a single ipsilateral lymph node, more than 3 cm but not more than 6 cm in greatest dimension.	
n2	Metastasis in a single ipsilateral lymph node, more than 3 cm but not more than 6 cm in greatest dimension, or in multiple ipsilateral lymph nodes, none more than 6 cm in greatest dimension.	
n1	Metastasis in a single ipsilateral lymph node, 3 cm or less in greatest dimension.	
n0	No regional lymph node metastasis.	

Entities Information:

Ontology Name	Label	Description
MeSH	Lymph Nodes	Small, bean-shaped organs located throughout the lymphatic system that filter lymph and store white blood cells.
MeSH	Laryngeal Neoplasms	Tumors or cancer of the LARYNX.
SNOMED-CT	Lymph node structure	Anatomical structure that is part of the lymphatic system, involved in the filtration of lymph and immune response.
SNOMED-CT	Malignant neoplasm	A cancerous growth that has the potential to invade and destroy nearby tissue and spread to other parts of the body.
Wikidata	Lymph node	An organ of the lymphatic system and the adaptive immune system that is widely present throughout the body.
Wikidata	Laryngeal cancer	Cancer that occurs in the larynx, the voice box.

2. **Id:** Number_of_Involved_Lymph_Nodes_3

States: ['zero_involved_lymph_nodes', 'one_three_involved_lymph_nodes', 'four_or_more_involved_lymph_nodes']

Type: Patient Situation
Observability: Unobserved

Label: Number of Involved Lymph Nodes

Description:This node represents the number of lymph nodes that are involved with cancer in a patient's situation. It is a critical factor in determining the stage and prognosis of cancer, as the involvement of lymph nodes often indicates the spread of cancer beyond the primary site.

Node States:

1040 0141001		
State Name	State Description	
zero_involved_lymph_nodes	No lymph nodes are involved with cancer, indicating that the cancer has not spread to nearby lymph nodes.	
one_three_involved_lymph_nodes	Between one and three lymph nodes are involved with cancer, suggesting limited regional spread of the disease.	
four_or_more_involved_lymph_nodes	Four or more lymph nodes are involved with cancer, indicating a more extensive spread of the disease and potentially a more advanced stage.	

Entities Information:

Ontology Name	Label	Description
MeSH	Lymph Nodes	Small, bean-shaped organs located throughout the lymphatic system that filter lymph and store white blood cells.
SNOMED-CT	Lymph node structure	Anatomical structure that is part of the lymphatic system, involved in the filtration of lymph and immune response.
Wikidata	Lymph node	An organ of the lymphatic system and the adaptive immune system that is widely present throughout the body.

Id: Location_of_Involved_Lymph_Nodes_4
 States: ['ipsilateral', 'bilateral', 'contralateral']

Type: Patient Situation
Observability: Unobserved

Label: Position of Affected Lymph Nodes in Patient

Description: This node represents the location of lymph nodes that are involved or affected in a patient's condition. Understanding whether the lymph nodes are ipsilateral, bilateral, or contralateral is crucial for determining the extent of disease spread and planning appropriate treatment strategies.

Node States:

State Name	State Description	
ipsilateral	The involved lymph nodes are on the same side of the body as the primary tumor or reference point. This can indicate localized spread of disease.	
bilateral	The involved lymph nodes are on both sides of the body. This may suggest a more extensive spread of disease and can impact treatment decisions.	
contralateral	The involved lymph nodes are on the opposite side of the body from the primary tumor or reference point. This can indicate metastatic spread and may affect staging and treatment planning.	

Entities Information:

Ontology Name	Label	Description
MeSH	Lymph Nodes	Small, bean-shaped organs located throughout the lymphatic system that filter lymph and store white blood cells.
MeSH	Ipsilateral	Located on or affecting the same side of the body.
MeSH	Bilateral	Having or relating to two sides; affecting both sides.
MeSH	Contralateral	Relating to or denoting the side of the body opposite to that on which a particular structure or condition occurs.
SNOMED-CT	Lymph node structure	Anatomical structure that is part of the lymphatic system, involved in the filtration of lymph and immune response.
SNOMED-CT	Ipsilateral	Pertaining to or situated on the same side of the body.
SNOMED-CT	Bilateral	Relating to or having two sides; affecting both sides of the body.
SNOMED-CT	Contralateral	Pertaining to or situated on the opposite side of the body.
Wikidata	Lymph node	An organ of the lymphatic system and the adaptive immune system that is widely present throughout the body.
Wikidata	Ipsilateral	On the same side of the body.
Wikidata	Bilateral	Having or relating to two sides; affecting both sides.
Wikidata	Contralateral	On the opposite side of the body.

4. **Id:** Presence_of_Metastasis_in_Lymph_Nodes_5

States: ['unknown', 'present', 'absent']

Type: Patient Situation
Observability: Unobserved

Label: Metastasis in Nearby Lymph Nodes

Description: This node represents the clinical situation regarding whether metastasis is present in the nearby lymph nodes of a patient. It is a critical factor in determining the stage and prognosis of cancer, as the spread of cancer to lymph nodes often indicates a more advanced disease and may influence treatment decisions.

Node States:

1040 0141001		
State Name	State Description	
unknown	The status of metastasis in the lymph nodes is not determined. It is unclear whether cancer has spread to these nodes.	
present	Metastasis is confirmed in the lymph nodes, indicating that cancer has spread to these nodes.	
absent	There is no metastasis in the lymph nodes, indicating that cancer has not spread to these nodes.	

Entities Information:

Ontology Name	Label	Description
MeSH	Lymphatic Metastasis	The transfer of a neoplasm from one organ or part of the body to another remote from the primary site, involving lymph nodes.
MeSH	Lymph Nodes	Small, bean-shaped organs located throughout the lymphatic system that filter lymph and store white blood cells.
SNOMED-CT	Metastasis	The spread of a disease from one organ or part to another non-adjacent organ or part.
SNOMED-CT	Lymph node structure	Anatomical structure that is part of the lymphatic system, involved in the filtration of lymph and immune response.
Wikidata	Metastasis	The spread of a cancer or other disease from one organ or part to another not directly connected with it.
Wikidata	Lymph node	An organ of the lymphatic system and the adaptive immune system that is widely present throughout the body.

5. Id:Size_of_Involved_Lymph_Nodes_6

States: ['more_than_6_cm', 'three_cm_to_six_cm', 'smaller_than_three_cm', 'absent']

Type: Patient Situation
Observability: Unobserved

Label: Size of Involved Lymph Nodes

Description: This node represents the size of lymph nodes that are involved, potentially indicating the extent of lymphatic spread in a cancerous process. The size of involved lymph nodes is a critical factor in staging cancer, assessing prognosis, and determining treatment strategies. Larger lymph nodes may suggest more extensive disease and could influence clinical decisions.

Node States:

State Name	State Description	
more_than_6_cm	The lymph nodes involved are larger than 6 centimeters, indicating significant enlargement, which may suggest advanced disease or extensive lymphatic involvement.	
three_cm_to_six_cm	The lymph nodes involved are between 3 and 6 centimeters in size, indicating moderate enlargement, which may suggest a moderate level of disease involvement.	
smaller_than_three_cm	The lymph nodes involved are smaller than 3 centimeters, indicating mild enlargemen which may suggest early or limited disease involvement.	
absent	No lymph nodes are involved, indicating no detectable lymphatic spread of the disease.	

Entities Information:

Ontology Name	Label	Description
MeSH	Lymph Nodes	Small, bean-shaped organs located throughout the lymphatic system that filter lymph and store white blood cells.
SNOMED-CT	Lymph node structure	Anatomical structure that is part of the lymphatic system, involved in the filtration of lymph and immune response.
Wikidata	Lymph node	An organ of the lymphatic system and the adaptive immune system that is widely present throughout the body.

6. **Id:** Computed_Tomography_CT_Scans_8

States: ['present', 'absent']
Type: Examination Result
Observability: Observed

Label: Computed Tomography (CT) Scans Examination Result

Description: This node represents the result of a Computed Tomography (CT) scan, which is a diagnostic imaging procedure used to detect abnormalities or confirm the absence of disease in the body. The node indicates whether significant findings are present or absent based on the CT scan results.

Node States:

State Name	State Description	
present	The CT scan has detected significant findings, such as lesions, tumors, or other abnormalities.	
absent The CT scan did not detect any abnormalities or significant findings.		

Entities Information:

Ontology Name	Label	Description
MeSH	Tomography, X-Ray Computed	A method of body imaging in which a thin X-ray beam rotates around the patient, producing signals that are processed by the machine's computer to generate cross-sectional images, or 'slices'.
SNOMED-CT	Computed Tomography	A diagnostic imaging procedure that uses a combination of X-rays and computer technology to produce cross-sectional images of the body.
Wikidata	Computed tomography	A medical imaging technique used in radiology to obtain detailed internal images of the body.

7. Id: Magnetic_Resonance_Imaging_MRI_9

States: ['present', 'absent']
Type: Examination Result
Observability: Observed

Label: Magnetic Resonance Imaging (MRI) Examination Result

Description: This node represents the result of a Magnetic Resonance Imaging (MRI) examination, which is a diagnostic tool used to create detailed images of organs and tissues in the body. The MRI can help in diagnosing various conditions, including the presence of tumors, metastasis, or other abnormalities.

Node States:

State Name	State Description	
present	The 'present' state indicates that the MRI examination has detected an abnormality or finding of interest, such as a tumor or lesion.	
absent	The 'absent' state indicates that the MRI examination did not detect any abnormalities or findings of interest.	

Entities Information:

Ontology Name	Label	Description
MeSH	Magnetic Resonance Imaging	A noninvasive diagnostic technique that uses magnetic fields and radio waves to produce a detailed image of the body's soft tissue and bones.
SNOMED-CT	Magnetic Resonance Imaging	A medical imaging technique used in radiology to form pictures of the anatomy and the physiological processes of the body.
Wikidata	Magnetic Resonance Imaging	A medical imaging technique used in radiology to form pictures of the anatomy and the physiological processes of the body.

8. **Id:** Positron_Emission_Tomography_PET_Scans_10

States: ['present', 'absent']
Type: Examination Result
Observability: Observed

Label: Positron Emission Tomography (PET) Scan Result

Description: This node represents the result of a Positron Emission Tomography (PET) scan, which is an imaging test used to observe metabolic processes in the body. It is often used in oncology to detect cancerous tissues, assess the spread of cancer, and evaluate the effectiveness of treatment.

Node States:

State Name	State Description	
present	The 'present' state indicates that the PET scan has detected abnormal metabolic activity, which may suggest the presence of cancerous tissues or other pathological conditions.	
absent	The 'absent' state indicates that the PET scan did not detect any abnormal metabolic activity, suggesting the absence of cancerous tissues or other significant pathological conditions.	

Entities Information:

Ontology Name	Label	Description
MeSH	Positron-Emission Tomography	An imaging technique that uses radioactive substances to visualize and measure changes in metabolic processes.
SNOMED-CT	Positron-Emission Tomography	A nuclear medicine functional imaging technique used to observe metabolic processes in the body.
Wikidata	Positron-Emission Tomography	A type of nuclear medicine procedure that measures metabolic activity of the cells of body tissues.

9. Id: Ultrasound_11

States: ['present', 'absent']
Type: Examination Result
Observability: Observed

Label: Ultrasound Examination Result

Description: This node represents the result of an ultrasound examination, which is a diagnostic imaging technique used to visualize internal organs and structures. The result can indicate whether certain features or abnormalities are present or absent.

Node States:

State Name	State Description	
present	The ultrasound examination detected the presence of a feature or abnormality of interest.	
absent	The ultrasound examination did not detect any features or abnormalities of interest.	

Entities Information:

Ontology Name	Label	Description
MeSH	Ultrasonography	A non-invasive diagnostic technique that uses ultrasound to visualize internal organs.
MeSH	Physical Examination	Systematic and thorough inspection or testing of a patient for signs of disease.
SNOMED-CT	Ultrasonography	A procedure that uses high-frequency sound waves to create an image of the inside of the body.
SNOMED-CT	Examination - action	The act of inspecting or testing something, typically as part of a medical assessment.
Wikidata	Ultrasound	Sound waves with frequencies higher than the upper audible limit of human hearing, used in medical imaging.
Wikidata	Medical examination	A process by which a medical professional investigates the body of a patient for signs of disease.

10. **Id:** Computerized_Tomography_CT_12

States: ['bilateral_lymph_node_metastasis', 'ipsilateral_lymph_node_metastasis',

'contralateral_lymph_node_metastasis']

Type: Examination Result Observability: Observed

Label: CT Scan Examination Result for Lymph Node Metastasis

Description:This node represents the results of a CT scan examination, specifically focusing on the detection of lymph node metastasis. It provides information on whether the metastasis is bilateral, ipsilateral, or contralateral, which is crucial for staging cancer and planning treatment.

Node States:

State Name	State Description
bilateral_lymph_node_metastasis	The CT scan shows metastasis in lymph nodes on both sides of the body, indicating a more advanced spread of cancer.
ipsilateral_lymph_node_metastasis	The CT scan shows metastasis in lymph nodes on the same side of the body as the primary tumor, suggesting localized spread.
contralateral_lymph_node_metastasis	The CT scan shows metastasis in lymph nodes on the opposite side of the body from the primary tumor, indicating cross-body spread.

Entities Information:

Ontology Name	Label	Description
MeSH	Tomography, X-Ray Computed	A method of body imaging in which a thin X-ray beam rotates around the patient, producing signals that are processed by the machine's computer to generate cross-sectional images, or 'slices'.
MeSH	Lymph Nodes	Small, bean-shaped organs located throughout the lymphatic system that filter lymph and store white blood cells.
MeSH	Neoplasm Metastasis	The transfer of a neoplasm from one organ or part of the body to another remote from the primary site.
SNOMED-CT	CT scan of lymph node	A computed tomography (CT) scan specifically focused on imaging the lymph nodes.
SNOMED-CT	Lymph node structure	Anatomical structure that is part of the lymphatic system, involved in the filtration of lymph and immune response.
SNOMED-CT	Metastasis	The spread of a disease from one organ or part to another non-adjacent organ or part.
Wikidata	CT scan	A CT scan, or computed tomography scan, is a medical imaging technique used in radiology to obtain detailed internal images of the body noninvasively for diagnostic purposes.
Wikidata	Lymph node	An organ of the lymphatic system and the adaptive immune system that is widely present throughout the body.
Wikidata	Metastasis	The spread of a cancer or other disease from one organ or part to another not directly connected with it.

11. Id: Examination 13

States: ['bilateral_lymph_node_metastasis', 'ipsilateral_lymph_node_metastasis',

'contralateral_lymph_node_metastasis']

Type: Examination Result Observability: Observed

Label: Diagnostic Examination Result

Description:This node represents the result of a diagnostic examination focused on identifying patterns of lymph node metastasis, which is crucial for cancer staging and determining the appropriate treatment strategy.

Node States:

State Name	State Description
bilateral_lymph_node_metastasis	Metastasis is present in lymph nodes on both sides of the body, indicating a more advanced spread of cancer.
ipsilateral_lymph_node_metastasis	Metastasis is present in lymph nodes on the same side of the body as the primary tumor, suggesting a localized spread.

contralateral_lymph_node_metastasis Metastasis is present in lymph nodes on the opposite side of the body from the primary tumor, indicating a more extensive spread of cancer.
--

Entities Information:

Ontology Name	Label	Description
MeSH	Diagnostic Tests, Routine	Tests performed to diagnose disease or to assess the health status of an individual.
MeSH	Lymphatic Metastasis	The transfer of a neoplasm from one organ or part of the body to another remote from the primary site, involving lymph nodes.
SNOMED-CT	Diagnostic procedure	A procedure performed to identify the cause of a health problem.
SNOMED-CT	Metastasis to lymph node	The spread of cancer cells to lymph nodes.
Wikidata	Medical test	A medical procedure performed to detect, diagnose, or monitor diseases, disease processes, susceptibility, or to determine a course of treatment.
Wikidata	Lymph node metastasis	The spread of cancer to the lymph nodes.

12. **Id:** Magnetic_Resonance_Imaging_MRI_14

States: ['bilateral_lymph_node_metastasis', 'ipsilateral_lymph_node_metastasis',

'contralateral_lymph_node_metastasis']

Type: Examination Result Observability: Observed

Label: Magnetic Resonance Imaging

Description:This node represents the results of an MRI examination focused on detecting lymph node metastasis. It indicates whether metastasis is present in lymph nodes and specifies the pattern of metastasis (bilateral, ipsilateral, or contralateral) as observed through MRI.

Node States:

State Name	State Description
bilateral_lymph_node_metastasis	Metastasis is present in lymph nodes on both sides of the body as detected by MRI.
ipsilateral_lymph_node_metastasis	Metastasis is present in lymph nodes on the same side as the primary tumor as detected by MRI.
contralateral_lymph_node_metastasis	Metastasis is present in lymph nodes on the opposite side of the primary tumor as detected by MRI.

Entities Information:

Ontology Name	Label	Description
MeSH	Magnetic Resonance Imaging	A noninvasive diagnostic technique that uses magnetic fields and radio waves to produce a detailed image of the body's soft tissue and bones.
MeSH	Lymphatic Metastasis	The transfer of a neoplasm from one organ or part of the body to another remote from the primary site, involving lymph nodes.
SNOMED-CT	Magnetic Resonance Imaging	A medical imaging technique used in radiology to form pictures of the anatomy and the physiological processes of the body.
SNOMED-CT	Lymph node metastasis	The spread of cancer cells to lymph nodes.
Wikidata	Magnetic Resonance	A medical imaging technique used in radiology to form pictures of the

	Imaging	anatomy and the physiological processes of the body.
Wikidata	Lymph node metastasis	The spread of cancer to the lymph nodes.

13. **Id:** Positron_Emission_Tomography_PET_15

States: ['bilateral_lymph_node_metastasis', 'ipsilateral_lymph_node_metastasis',

'contralateral_lymph_node_metastasis']

Type: Examination Result **Observability:** Observed

Label: Positron Emission Tomography (PET) Examination Result

Description: This node represents the result of a Positron Emission Tomography (PET) scan, which is used to detect the presence and extent of lymph node metastasis in cancer patients. The PET scan provides critical information about whether cancer has spread to lymph nodes and the pattern of such metastasis, which is crucial for staging and treatment planning.

Node States:

State Name	State Description
bilateral_lymph_node_metastasis	The PET scan shows metastasis in lymph nodes on both sides of the body, indicating a more widespread dissemination of cancer.
ipsilateral_lymph_node_metastasis	The PET scan shows metastasis in lymph nodes on the same side of the body as the primary tumor, suggesting localized spread.
contralateral_lymph_node_metastasis	The PET scan shows metastasis in lymph nodes on the opposite side of the body from the primary tumor, indicating cross-body spread of cancer.

Entities Information:

Ontology Name	Label	Description
MeSH	Positron-Emission Tomography	An imaging technique that uses radioactive substances to visualize and measure changes in metabolic processes.
MeSH	Lymphatic Metastasis	The transfer of a neoplasm from one organ or part of the body to another remote from the primary site, involving lymph nodes.
MeSH	Bilateral	Having or relating to two sides; affecting both sides.
MeSH	Ipsilateral	Located on or affecting the same side of the body.
MeSH	Contralateral	Relating to or denoting the side of the body opposite to that on which a particular structure or condition occurs.
SNOMED-CT	Positron emission tomography (procedure)	A diagnostic imaging procedure that uses positron-emitting radionuclides to produce a three-dimensional image of functional processes in the body.
SNOMED-CT	Metastasis to lymph node	The spread of cancer cells to lymph nodes.
Wikidata	Positron emission tomography	A type of nuclear medicine procedure that measures metabolic activity of the cells of body tissues.
Wikidata	Lymph node metastasis	The spread of cancer to the lymph nodes.

14. **Id:** Ultrasonography_16

States: ['bilateral_lymph_node_metastasis', 'ipsilateral_lymph_node_metastasis',

'contralateral_lymph_node_metastasis']

Type: Examination Result

Observability: Observed

Label: Ultrasound Examination Result

Description:This node represents the results of an ultrasound examination aimed at detecting lymph node metastasis. It provides information on whether metastasis is present in lymph nodes and specifies the location relative to the primary tumor site.

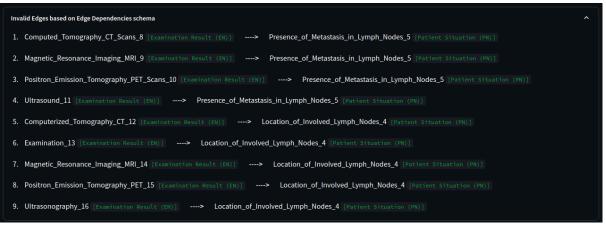
Node States:

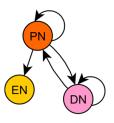
State Name	State Description
bilateral_lymph_node_metastasis	Metastasis is present in lymph nodes on both sides of the body relative to the primary tumor site.
ipsilateral_lymph_node_metastasis	Metastasis is present in lymph nodes on the same side of the body as the primary tumor site.
contralateral_lymph_node_metastasis	Metastasis is present in lymph nodes on the opposite side of the body from the primary tumor site.

Entities Information:

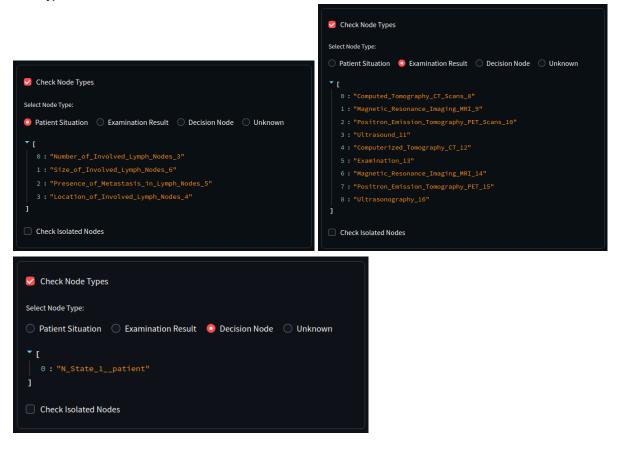
Ontology Name	Label	Description
MeSH	Ultrasonography	A non-invasive diagnostic technique that uses ultrasound to visualize internal organs.
MeSH	Lymph Nodes	Small, bean-shaped organs located throughout the lymphatic system that filter lymph and store white blood cells.
MeSH	Neoplasm Metastasis	The transfer of a neoplasm from one organ or part of the body to another remote from the primary site.
SNOMED-CT	Ultrasonography	A procedure that uses high-frequency sound waves to create an image of the inside of the body.
SNOMED-CT	Lymph node structure	Anatomical structure that is part of the lymphatic system, involved in the filtration of lymph and immune response.
SNOMED-CT	Metastasis	The spread of a disease from one organ or part to another non-adjacent organ or part.
Wikidata	Ultrasound	Sound waves with frequencies higher than the upper audible limit of human hearing, used in medical imaging.
Wikidata	Lymph node	An organ of the lymphatic system and the adaptive immune system that is widely present throughout the body.
Wikidata	Metastasis	The spread of a cancer or other disease from one organ or part to another not directly connected with it.

Invalid Edges:





Node Types:



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Multiple Paths

No Multiple Paths detected.
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