

## Medical Ontology Views

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**Abstract:** Ontology Views allow user groups (e.g. patients, physicians, specialists, academics) and constituencies within these groups (e.g. heart disease, diabetes, cancer, oncology) to create views of medical ontologies suited to their need while maintaining the structure and relationships of the ontology. The study demonstrated the mapping of the Merck Medical Library to the Disease Ontology. Thumbnail disease images are added to the navigation of Ontology Views and diseases are represented in "image walls" to give a visual image representation of disease classifications.

**Keywords:** Medical Ontology views, ontology navigation, medical image walls

### 1. Introduction

Different user groups (e.g. healthcare consumers, patients, physicians, healthcare professionals, academics, students) and different constituencies within these groups (e.g. cancer, heart disease, musculoskeletal disease, oncology, etc.) require view and navigation tools of the Medical Ontology that are adapted to their needs. The study takes into consideration disease and patient data representations and requirements so that specific Ontology Views can be defined and created to address these needs. Domain experts should be able to define Ontology Views for health care professionals that range from family medicine to specialists. Ontology Views should also be created and adapted to patients from well-being or casual patients to high risk chronically ill patients

Using the underlying Medical Ontology structure to create these "views" maintains the structure and relationships of the ontology.

## 2. Methodology

The study compared the mappings of two diseases, abdominal aortic aneurysm and basal cell carcinoma between the Disease Ontology and the Merck Medical Library. The following tables illustrate the two mappings.

**Abdominal aortic aneurysm**

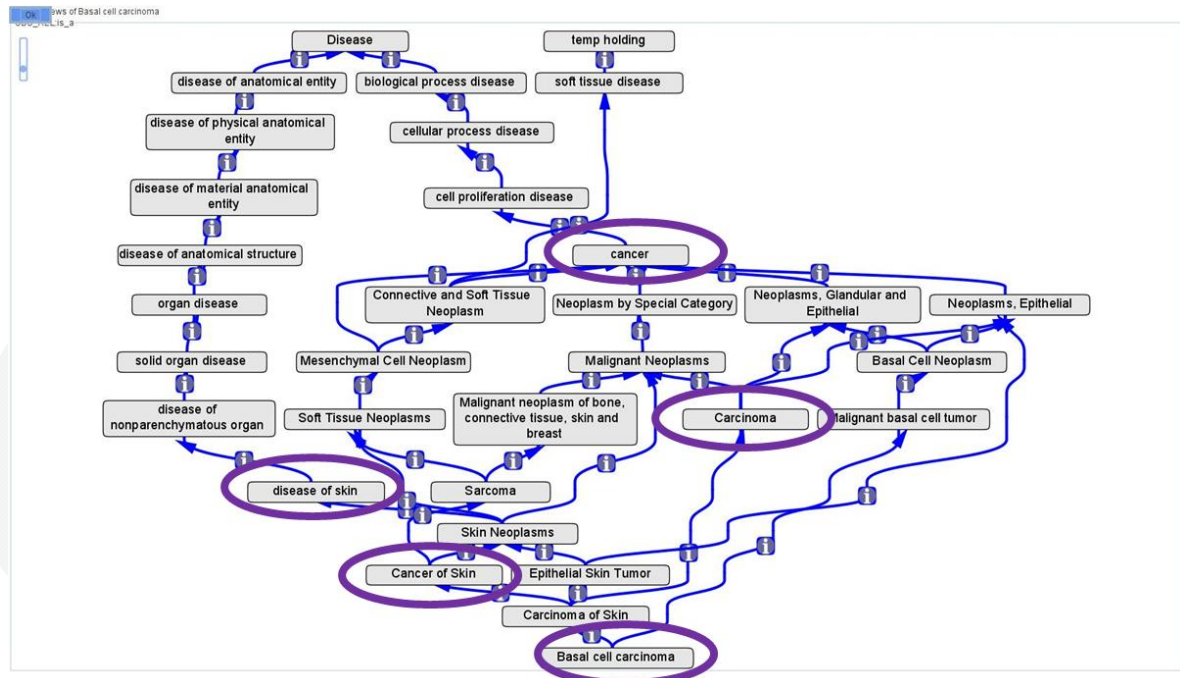
	<b>Disease Ontology</b>		<b>Merck Medical Library</b>
1	Anatomical Entity Disease		
2	Disease of organ system		
3	Cardiovascular system disease	1	Cardiovascular disorders
4	Vascular diseases		
5	Arteriopathy		
6	Aortic disease	2	Diseases of the aorta
7	Aortic aneurysm	3	Aneurysms
8	Abdominal aortic aneurysm	4	Abdominal aortic aneurysm

**Basal cell carcinoma**

	<b>Disease Ontology</b>		<b>Merck Medical Library</b>
1	Anatomical Entity Disease		
2	Organ disease		
3	Solid organ disease		
4	Disease of nonparenchymatous organ		
5	Disease of skin	1	Dermatologic disorders
6	Skin neoplasm		
7	Cancer of skin	2	Cancer of the skin
8	Carcinoma of skin		
9	Basal Cell Carcinoma	3	Basal cell carcinoma

### 3. Medical Ontology View Study

The following diagram demonstrates how the Merck Medical Library view of basal cell carcinoma is mapped to the Disease Ontology.



#### 4. Ontology View study conclusions

The study demonstrated the methodology and mechanism to identify “thumb nail” images of diseases on the World Wide Web to enable the navigation and browsing of diseases with attached images. The following example gives the Merck Medical Library view of dermatologic disorders.



Disease classes can be displayed in “Image Walls” assisting the user to navigate through complex disease classifications, structures, and relationships.

