National Library of Medicine

# Developing Disaster Health Search Hedges and Pre-formulated PubMed Searches

Final Report

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## Abstract

**Objective:** The purpose of this project was to develop search strategies that could be used to create pre-formulated or “canned” PubMed searches for the Disaster Information Management Research Center (DIMRC) website.

**Methods:** Evaluated the existing canned searches on the Chemical Warfare, and Fires and Wildfires topic pages for consistency in results, and relevancy of search terms used. After completing the evaluation exercises, new canned searches were created for the Typhoon Haiyan page. In the final phase of the project, two broad search hedges were developed to be used as a starting point for creating various canned searches for other topic pages.

**Results:** On the Chemical Warfare page, edits were made to the “last five years” canned searches to correct the date tag. The Typhoon Haiyan canned searches were not implemented on the website, as a decision was made by DIMRC staff to archive the page due to low usage. Two search hedges were completed – one on public health emergencies and the other on non-disease disasters – and are ready to be evaluated by DIMRC staff.

**Conclusions:** The search hedges will be helpful for the DIMRC staff as they develop future canned PubMed searches. The Associate has gained experience in creating search strategies for both narrow and broad topics.

## Background

The Disaster Information Management Research Center (DIMRC) develops health information resources for disaster preparedness, response, and recovery. Among the resources are topic pages on disaster health. These topic pages include links to authoritative sources of information geared towards health professionals and emergency personnel.

Some of the topic pages include pre-formulated or canned searches to PubMed and other National Library of Medicine databases, however many of the pages do not. DIMRC would like to enhance the topic pages by adding more canned searches. The canned searches highlight different aspects of the topics that are of high importance to users, and enable the users to quickly access PubMed results without having to create their own searches from scratch.

## Methods

The Associate reviewed the PubMed and MeSH tutorials, practiced using PubMed, and reviewed existing canned searches that were used as a standard for successful strategies. Then she developed new search strategies using a combination of MeSH and keywords. The searches were tested against the PubMed database. After running a search, the Associate would measure relevancy by looking at the title, abstract, or MeSH terms of the citations resulting from these searches. The results of different strategies, or combinations of strategies were examined and compared to determine the most accurate approach. After this preliminary test, the search strategies were further examined by subject matter experts and experienced searchers.

## Results

During the evaluation of the Chemical Warfare canned searches, the Associate identified ten searches that needed to be edited. All of these searches were retrieving articles published in the last five years. However, the [edat] date tag was being used, which indicates the date that the article citation is added to the PubMed database. The Associate edited the searches to replace the [edat] tag with the [dp] tag instead, which indicates the date that an article is published. The change in results was minimal, but after discussion with the project sponsors, it was determined that this edit would enable the search results to more accurately match the user’s expectations. The Associate created new links for this set of canned searches, and Elizabeth Norton added them to the website (see Appendix 1).

For the Typhoon Haiyan canned searches, the Associate created eight search strategies (see Appendix 2). Three of the searches retrieve articles related to natural disasters in Southeast Asia. Five of the searches retrieve articles related to malaria, dengue, leptospirosis, and tetanus in the aftermath of a typhoon or flood. Due to the plans for the Typhoon Haiyan page to be archived, these searches will not be used.

The Associate developed two broad search hedges on public health emergencies and non-disease emergencies (see Appendix 3). The search hedges are currently being evaluated and tested by the project sponsors, and the goal is for the search hedges to be used by DIMRC staff in creating some of the future canned searches for the DIMRC website.

## Discussion

The search hedges will enable the DIMRC staff to efficiently create new canned searches in order to enhance the disaster health topic pages. The hedges cover a broad range of different types of disasters, and can be reused in multiple ways to meet various information needs. Implementing additional canned searches to the topic pages will encourage more use of NLM databases, and enable users to quickly access relevant journal articles.

This project was beneficial to the Associate in that she learned how to evaluate and develop different types of search strategies. She now has more experience with creating PubMed searches for both narrow and broad areas of research. She also gained experience with the Typhoon Haiyan searches in delivering time-sensitive resources, and having to adjust when a department or institution’s priorities change during a project.

## Recommendations

It is recommended that the DIMRC staff maintain the disaster health search hedges by updating the keywords and MeSH terms at least once a year. Additional diseases or chemical and biological warfare agents may need to be added to the hedges as they are identified in the health care community. Also, edits may be needed to accommodate new MeSH headings. For example, one of the hedges currently includes the emerging disease “Middle East respiratory syndrome coronavirus” as a keyword because there is currently no MeSH heading available.

## References

National Library of Medicine. (2008, January 28). *Disaster Information Management Research Center Fact Sheet*. Retrieved from <https://www.nlm.nih.gov/pubs/factsheets/dimrcfs.html>

## Acknowledgements

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## Appendix 1: Edited Chemical Warfare Canned Searches

These are the edited links for the “Articles from last 5 years” canned searches on the Chemical Warfare topic page. The [edat] tag was replaced with the [dp] tag.

**Chemical Warfare**

[http://www.ncbi.nlm.nih.gov/pubmed?term=%28chemical+warfare+OR+chemical+warfare+agents[mh]+OR+chemical+warfare+agents[pharmacological+action]+OR+chemical+terrorism%29+AND+english[la]+AND+human[mh]+AND+%22last+5+years%22[dp](http://www.ncbi.nlm.nih.gov/pubmed?term=%28chemical+warfare+OR+chemical+warfare+agents%5bmh%5d+OR+chemical+warfare+agents%5bpharmacological+action%5d+OR+chemical+terrorism%29+AND+english%5bla%5d+AND+human%5bmh%5d+AND+%22last+5+years%22%5bdp)]

**Hydroxocobalamin as a cyanide antidote**

[http://www.ncbi.nlm.nih.gov/pubmed?term=hydroxocobalamin[mh]+AND+cyanides[mh]+AND+English[la]+AND+human[mh]+AND+%22last+5+years%22[dp](http://www.ncbi.nlm.nih.gov/pubmed?term=hydroxocobalamin%5bmh%5d+AND+cyanides%5bmh%5d+AND+English%5bla%5d+AND+human%5bmh%5d+AND+%22last+5+years%22%5bdp)]

**Hydrogen cyanide**

[http://www.ncbi.nlm.nih.gov/pubmed?term=(hydrogen+cyanide[majr])+AND+English[la]+AND+human[mh]+AND+%22last+5+years%22[dp](http://www.ncbi.nlm.nih.gov/pubmed?term=(hydrogen+cyanide%5bmajr%5d)+AND+English%5bla%5d+AND+human%5bmh%5d+AND+%22last+5+years%22%5bdp)]

**Lewisite**

[http://www.ncbi.nlm.nih.gov/pubmed?term=lewisite+AND+English[la]+AND+human[mh]+AND+%22last+5+years%22[dp](http://www.ncbi.nlm.nih.gov/pubmed?term=lewisite+AND+English%5bla%5d+AND+human%5bmh%5d+AND+%22last+5+years%22%5bdp)]

**Mustard Gas**

[http://www.ncbi.nlm.nih.gov/pubmed?term=mustard+gas+AND+English[la]+AND+human[mh]+AND+%22last+5+years%22[dp](http://www.ncbi.nlm.nih.gov/pubmed?term=mustard+gas+AND+English%5bla%5d+AND+human%5bmh%5d+AND+%22last+5+years%22%5bdp)]

**Phosgene**

[http://www.ncbi.nlm.nih.gov/pubmed?term=phosgene+AND+English[la]+AND+human[mh]+AND+%22last+5+years%22[dp](http://www.ncbi.nlm.nih.gov/pubmed?term=phosgene+AND+English%5bla%5d+AND+human%5bmh%5d+AND+%22last+5+years%22%5bdp)]

**Ricin**

[http://www.ncbi.nlm.nih.gov/pubmed?term=ricin+AND+English[la]+AND+human[mh]+AND+%22last+5+years%22[dp](http://www.ncbi.nlm.nih.gov/pubmed?term=ricin+AND+English%5bla%5d+AND+human%5bmh%5d+AND+%22last+5+years%22%5bdp)]

**Sarin**

[http://www.ncbi.nlm.nih.gov/pubmed?term=soman[tw]+AND+English[la]+AND+human[mh]+AND+%22last+5+years%22[dp](http://www.ncbi.nlm.nih.gov/pubmed?term=soman%5btw%5d+AND+English%5bla%5d+AND+human%5bmh%5d+AND+%22last+5+years%22%5bdp)]

**Soman**

[http://www.ncbi.nlm.nih.gov/pubmed?term=soman[tw]+AND+English[la]+AND+human[mh]+AND+%22last+5+years%22[dp](http://www.ncbi.nlm.nih.gov/pubmed?term=soman%5btw%5d+AND+English%5bla%5d+AND+human%5bmh%5d+AND+%22last+5+years%22%5bdp)]

**Tabun**

[http://www.ncbi.nlm.nih.gov/pubmed?term=tabun[tw]+AND+English[la]+AND+human[mh]+AND+%22last+5+years%22[dp](http://www.ncbi.nlm.nih.gov/pubmed?term=tabun%5btw%5d+AND+English%5bla%5d+AND+human%5bmh%5d+AND+%22last+5+years%22%5bdp)]

## Appendix 2: Typhoon Haiyan Search Strategies

**Are there good general overviews written about past disasters specific to Philippines or similar Island nations?**

Philippines and Natural Disasters (4 results)

[http://www.ncbi.nlm.nih.gov/pubmed/?term=philippines+%5Bmh%5D+AND+(disasters+%5Bmh%5D+OR+disaster+planning%5Bmh%5D+OR+%22natural+disasters%22)+AND+(floods%5Bmh%5D+OR+cyclonic+storms%5Bmh%5D+OR+typhoon%5Btiab%5D+OR+tsunamis%5Bmh%5D+OR+earthquakes%5Bmh%5D)+AND+humans%5Bmh%5D+AND+English%5Bla%5D](http://www.ncbi.nlm.nih.gov/pubmed/?term=philippines+%5Bmh%5D+AND+(disasters+%5Bmh%5D+OR+disaster+planning%5Bmh%5D+OR+)

Southeastern Asia and Natural Disasters (97 results)

[http://www.ncbi.nlm.nih.gov/pubmed/?term=Asia%2C+Southeastern+[mh]+AND+%28disasters+[mh]+OR+disaster+planning[mh]%29+AND+%28%22natural+disasters%22+OR+%22natural+disaster%22+OR+floods[mh]+OR+cyclonic+storms[mh]+OR+typhoon[tiab]+OR+tsunami[mh]+OR+earthquakes[mh]%29+AND+humans[mh]+AND+English[la](http://www.ncbi.nlm.nih.gov/pubmed/?term=Asia%2C+Southeastern+%5bmh%5d+AND+%28disasters+%5bmh%5d+OR+disaster+planning%5bmh%5d%29+AND+%28%22natural+disasters%22+OR+%22natural+disaster%22+OR+floods%5bmh%5d+OR+cyclonic+storms%5bmh%5d+OR+typhoon%5btiab%5d+OR+tsunami%5bmh%5d+OR+earthquakes%5bmh%5d%29+AND+humans%5bmh%5d+AND+English%5bla)]

Southeastern Asia and Flood/Typhoon (30 results)

[http://www.ncbi.nlm.nih.gov/pubmed/?term=Asia%2C+Southeastern+[mh]+AND+%28disasters+[mh]+OR+disaster+planning[mh]%29+AND+%28floods[mh]+OR+flooding[tiab]+OR+cyclonic+storms[mh]+OR+typhoon[tiab]%29+AND+humans[mh]+AND+English[la](http://www.ncbi.nlm.nih.gov/pubmed/?term=Asia%2C+Southeastern+%5bmh%5d+AND+%28disasters+%5bmh%5d+OR+disaster+planning%5bmh%5d%29+AND+%28floods%5bmh%5d+OR+flooding%5btiab%5d+OR+cyclonic+storms%5bmh%5d+OR+typhoon%5btiab%5d%29+AND+humans%5bmh%5d+AND+English%5bla)]

**Articles on malaria, dengue, leptospirosis, and tetanus following a flood or typhoon.**

Malaria (34 results)

[http://www.ncbi.nlm.nih.gov/pubmed/?term=malaria+AND+%28floods[mh]+OR+flooding[tiab]+OR+cyclonic+storms[mh]+OR+typhoon[tiab]%29+AND+humans[mh]+AND+English[la](http://www.ncbi.nlm.nih.gov/pubmed/?term=malaria+AND+%28floods%5bmh%5d+OR+flooding%5btiab%5d+OR+cyclonic+storms%5bmh%5d+OR+typhoon%5btiab%5d%29+AND+humans%5bmh%5d+AND+English%5bla)]

Dengue (15 results)

<http://www.ncbi.nlm.nih.gov/pubmed/?term=dengue+AND+(floods%5Bmh%5D+OR+flooding+%5Btiab%5D+OR+cyclonic+storms%5Bmh%5D+OR+typhoons%5Btiab%5D)+AND+humans%5Bmh%5D+AND+English%5Bla%5D>

Leptospirosis (41 results)

<http://www.ncbi.nlm.nih.gov/pubmed/?term=leptospirosis+%5Bmh%5D+AND+(floods%5Bmh%5D+OR+flooding%5Btiab%5D+OR+cyclonic+storms%5Bmh%5D+OR+typhoon%5Btiab%5D)+AND+humans%5Bmh%5D+AND+English%5Bla%5D>

Tetanus (3 results)

<http://www.ncbi.nlm.nih.gov/pubmed/?term=tetanus+AND+(floods%5Bmh%5D+OR+flooding+OR+cyclonic+storms%5Bmh%5D+OR+typhoon)>

Flood/Typhoon & Communicable Diseases (65 results)

(Focuses on communicable diseases in general that occur after floods or typhoons.)

[http://www.ncbi.nlm.nih.gov/pubmed/?term=%28floods[mh]+OR+cyclonic+storms[mh]+OR+typhoon[tiab]%29+AND+%28communicable+diseases[mh]+OR+communicable+disease+control[mh]+OR+disease+outbreaks[mh]%29+AND+humans[mh]+AND+English[la](http://www.ncbi.nlm.nih.gov/pubmed/?term=%28floods%5bmh%5d+OR+cyclonic+storms%5bmh%5d+OR+typhoon%5btiab%5d%29+AND+%28communicable+diseases%5bmh%5d+OR+communicable+disease+control%5bmh%5d+OR+disease+outbreaks%5bmh%5d%29+AND+humans%5bmh%5d+AND+English%5bla)]

## Appendix 3: Disaster Health PubMed Hedges

Public Health Emergencies Hedge **(disaster-like illnesses that are infectious)**

Color-coded:

Green = General terms & vaccine-preventable diseases

Blue = Biological warfare agents

Purple = Waterborne diseases

Burgundy = Foodborne diseases

Orange = Emerging diseases

(Waterborne, foodborne & emerging diseases can be biological warfare agents too.)

(Disease outbreaks [mh] OR Communicable Diseases [mh] OR Disease Transmission, Infectious [mh:noexp] OR Influenza A Virus [mh] OR (meningitis, meningococcal [mh] OR neisseria meningitidis [mh]) OR hepatitis, viral, human [mh] (Tuberculosis [mh] OR mycobacterium tuberculosis [mh]) OR (Measles [mh] OR measles virus [mh]) OR (Mumps [mh] OR mumps virus [mh]) OR (Whooping cough [mh] OR bordetella pertussis [mh]) OR (Rubella [mh] OR rubella virus [mh]) OR Poliomyelitis [mh] OR (Pneumococcal infections [mh] OR streptococcus pneumoniae [mh]) OR (Chickenpox [mh] OR herpesvirus 3, human [mh]) OR (Diphtheria [mh] OR corynebacterium diphtheriae [mh]) OR Biological Warfare [mh] OR Biological Warfare Agents [mh] OR (anthrax [mh] OR bacillus anthracis [mh]) OR (botulism [mh] OR Clostridium botulinum [mh]) OR (plague [mh] OR yersinia pestis[mh]) OR (smallpox [mh] OR variola virus [mh]) OR (tularemia [mh] OR francisella tularensis [mh]) OR hemorrhagic fevers, viral [mh] OR (brucellosis [mh] OR brucella[mh]) OR Clostridium perfringensepsilon-toxin [nm] OR (glanders[mh] OR burkholderia mallei [mh]) OR (melioidosis[mh] OR burkholderia pseudomallei [mh]) OR (psittacosis[mh] OR chlamydophila psittaci [mh]) OR (q fever[mh] OR coxiella burnetii [mh]) OR (ricin[mh] OR ricinus communis[mh]) OR enterotoxin B, Staphylococcal [nm] OR (typhus, epidemic louse-borne[mh] OR rickettsia prowazekii [mh]) OR encephalitis, viral[mh] OR waterborne diseases [ALL] OR (cholera [mh] OR vibrio cholera [mh]) OR (cryptosporidiosis [mh] OR Cryptosporidium parvum [mh]) OR (leptospirosis [mh] OR leptospira [mh]) OR (amebiasis [mh] OR entamoeba histolytica [mh]) OR (buruli ulcer [mh] OR mycobacterium ulcerans [mh]) OR (campylobacter infections [mh] OR campylobacter [mh]) OR (cyclosporiasis [mh] OR cyclospora [mh]) OR (dracunculiasis [mh] OR dracunculus medinensis [mh]) OR (fascioliasis [mh] OR fasciola hepatica [mh]) OR (giardiasis [mh] OR giardia lamblia [mh]) OR norovirus [mh] OR rotavirus [mh] OR schistosomiasis [mh] OR Onchocerciasis [mh] OR elephantiasis, filarial [mh] OR Food Contamination [mh] OR (salmonella typhi [mh] OR typhoid fever[mh]) OR escherichia coli [mh] OR salmonella food poisoning [mh] OR (shigella [mh] OR dysentery, bacillary [mh]) OR Severe Acute Respiratory Syndrome [mh] OR (nipah virus [mh] OR henipavirus [mh]) OR (hantavirus [mh] OR hantaan virus [mh]) OR (middle east respiratory syndrome [ALL] OR middle east respiratory syndrome coronavirus[ALL] OR mers-cov [ALL]) OR (monkeypox [mh] OR monkeypox virus[mh] OR human monkeypox [ALL]) OR (nodding syndrome [mh] or nodding syndrome [ALL]) OR hendra virus [mh] AND (humans [mh] AND English [la]))

## Non-Disease Disasters/Emergencies Hedge

Color-coded:

Red = Chemical warfare agents

Blue = Biological warfare agents (includes some waterborne, foodborne & emerging diseases)

Green = everything else

(abrin [mh] OR brevetoxin [nm] OR colchicine [mh] OR digitalis [mh] OR nicotine [mh] OR (ricin [mh] OR ricinus communis[mh]) OR saxitoxin [mh] OR strychnine [mh] OR tetrodotoxin [mh] OR trichothecenes [mh] OR mustard compounds [mh] OR lewisite [nm] OR arsine [nm] OR carbon monoxide [mh] OR potassium cyanide [mh] OR fluoroacetic acid [nm] OR Hydrogen Cyanide [mh] OR cyanogen chloride [nm] OR hydrofluoric acid [mh] OR hydrochloric acid [mh] OR ammonia [mh] OR bromine [mh] OR chlorine [mh] OR methyl bromide [nm] OR Methyl isocyanate [nm] OR Osmium tetroxide [mh] OR phosgene [mh] OR diphosgene [nm] OR phosphine [nm] OR phosphorus [mh] OR sulfuryl fluoride [nm] OR 3-quinuclidinyl benzilate [ALL] OR fentanyl [mh] OR etorphine [mh] OR analgesics, opioid [mh] OR warfarin [mh] OR arsenic [mh] OR barium [mh] OR mercury [mh] OR thallium [mh] OR sarin [mh] OR soman [mh] OR tabun [nm] OR VX[nm] OR benzene [mh] OR riot control agents, chemical [mh] OR omega-Chloroacetophenone [mh] OR chloropicrin [nm] OR Dibenzoxazepine [mh] OR ethylene glycol [mh] OR adamsite [ALL] OR phenarsazine chloride [nm] OR (anthrax [mh] OR bacillus anthracis [mh]) OR (botulism [mh] OR clostridium botulinum [mh]) OR (plague [mh] OR yersinia pestis[mh]) OR (variola virus [mh] OR smallpox [mh]) OR (tularemia [mh] OR francisella tularensis [mh]) OR hemorrhagic fevers, viral [mh] OR (brucellosis [mh] OR brucella[mh]) OR Clostridium perfringens epsilon-toxin [nm] OR (glanders[mh] OR burkholderia mallei [mh]) OR (melioidosis[mh] OR burkholderia pseudomallei [mh]) OR (psittacosis[mh] OR chlamydophila psittaci [mh]) OR (q fever[mh] OR coxiella burnetii [mh]) OR enterotoxin B, Staphylococcal [nm] OR (typhus, epidemic louse-borne[mh] OR rickettsia prowazekii [mh]) OR encephalitis, viral[mh] OR waterborne diseases [ALL] OR (cholera [mh] OR vibrio cholera [mh]) OR Cryptosporidium parvum [mh] OR food contamination [mh] OR (salmonella typhi [mh] OR typhoid fever[mh]) OR escherichia coli [mh] OR salmonella food poisoning [mh] OR (shigella [mh] OR dysentery, bacillary [mh]) OR (nipah virus [mh] OR henipavirus [mh]) OR (hantavirus [mh] OR hantaan virus [mh]) OR Weather [mh] OR Climatic processes [mh] OR Geological processes [mh] NOT evolution, planetary NOT water cycle OR Weapons [mh] OR War [mh] OR Biohazard release [mh] OR Chemical Hazard Release [mh] OR Radioactive hazard release [mh] OR terrorism [mh] OR Accidents, Aviation [mh] OR Accidents, Traffic [mh] OR (Transportation [mh] AND accidents [mh]) OR Fires [mh:noexp] OR Structure collapse [mh] OR Explosions [mh] AND (humans [mh] AND English [la]))

## Appendix 4: Disaster Health PubMed Hedges – Resources

Sources for finding search terms and keywords:

* CDC Bioterrorism Agents/Diseases <http://emergency.cdc.gov/agent/agentlist-category.asp>
* CDC: Chemical Categories <http://emergency.cdc.gov/agent/agentlistchem-category.asp>
* CDC: Waterborne Diseases <http://www.cdc.gov/healthywater/wash_diseases.html>
* CDC: Vaccines & Preventable Diseases <http://www.cdc.gov/vaccines/vpd-vac/default.htm>
* DIMRC Disaster Types & Topics <http://sis.nlm.nih.gov/dimrc/disasters.html>
* DIMRC MeSH Terms <http://sis.nlm.nih.gov/dimrc/mesh_disaster.html>
* MeSH Browser <http://www.nlm.nih.gov/mesh/MBrowser.html>
* WHO Pandemic & Epidemic Diseases <http://www.who.int/csr/disease/en/>