

## **GLOBAL RAPID IDENTIFICATION TOOL SET**

A biosurveillance application that enables infectious disease analysts to monitor non-traditional information sources for infectious disease threats.

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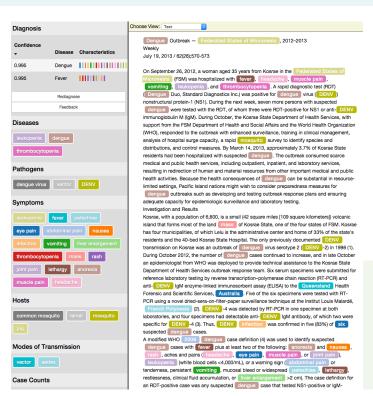


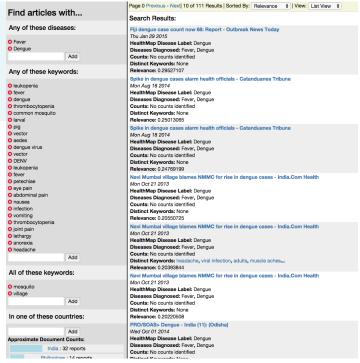
**Partners:** International Society for Infectious Disease, Kitware, ProMED, Epidemico

Project sponsor: Defense Threat Reduction Agency

GRITS analyzes textual data sources (e.g., online news outlets, ProMED reports, and blogs) by identifying, extracting and succinctly visualizing critical public health information and suggesting possible associated infectious diseases. Via the web-interface, infectious disease analysts can examine dynamic visualizations of GRITS' analyses, perform powerful queries of an index of over 250,000 infectious disease reports, and explore related historical infectious disease emergence events. The GRITS API can be used to continuously analyze information feeds and large collections of data and enables GRITS technology to be easily incorporated into larger surveillance systems. GRITS is a flexible and pluripotent tool that contains robust Natural Language Processing (NLP) and machine learning algorithms that can be modified to conduct sophisticated report triaging, expanded to include customized alert systems, or tailored to address other surveillance needs. In conjunction with human expertise, GRITS is a valuable tool for infectious disease surveillance.

Diagnostic dashboard view (below) showing the GRITS analysis of a report on an outbreak of Dengue Fever. The results of the GRITS disease classification are displayed in the top left. Here, Dengue fever has been identified as the disease the article is most like.





GRITS search (above). Keywords identified in the submitted text are displayed in the left column. Histograms of the countries and dates associated with the search results are displayed below the keywords.

Detailed diagnosis report (below) showing the relative contributions of different keywords to a disease classification. The disease being classified in this example is Crimean-Congo Hemorrhagic Fever.

Disease ^	^ animal bite		bleeding	contact with infected	crimean congo hemorrhagic fever	endemic	exposure	hemorrhagic fever	infected animal	rash	risk	surveillance	tick	tickborne	ticks	turkey	veterinarians	viral	virus
Crimean-Congo Hemorrhagic Fever	0.059	0.168	0.179	0.032	0.44	0.161	0.035	0.046	0.293	0.037	0.074	0.034	0.427	0.022	0.194	0.057	0.063	0.2110	.009