LymeMD News

LYME DISEASE RESEARCH FOUNDATION OF MARYLAND

Lyme Disease, alive and ticking . . .

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Popular Technology Benefits Medical Research...

tracking the Lyme season via Google Trends

New cases of Lyme disease arrive very predictably each year...starting in late spring, peaking in early summer, and dwindling with the coming of autumn.

We have recently shown that the Internet can be used reliably to track each year's Lyme outbreak as well as to help us learn how the appearance of other similar illnesses such as the flu may overlap with Lyme season. When flu season coincides with Lyme season, as happened in 2009, the result is even more misdiagnosis than usual. Lyme disease can more easily be mistaken for flu if the tell-tale rash has not yet appeared, as happens in 20% of patients, or if the rash is not observed.

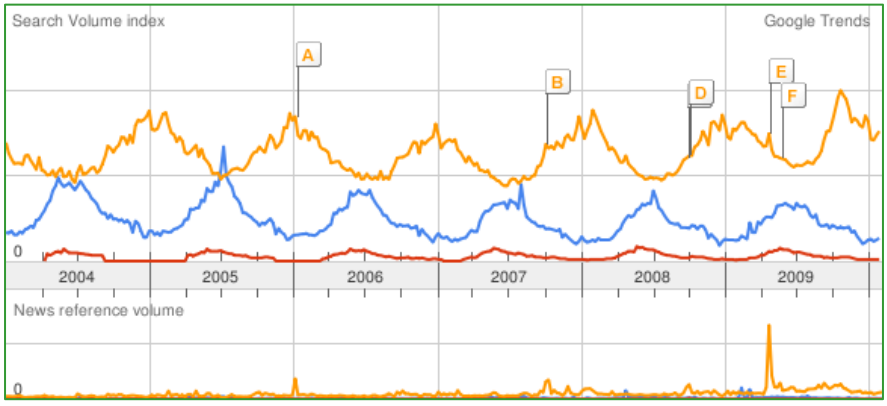
The Internet has become an increasingly important source of information for both patients and physicians. Patients often take advantage of search engines like Google before calling their doctors. Typically, the ***key words*** they use to power their searches express the individuals' most immediate concerns such as the symptoms they are experiencing or their initial efforts at self-diagnosis. Interestingly, the huge number of these searches (unintentionally) creates data that can then be collected and organized over time.

This information, now available online, is called **Google Trends**... data that can provide insights into the epidemiology of infectious diseases such as influenza. It may even have advantages over traditional surveillance methods in terms of early detection of outbreaks, geographic patterns of illness, or other trends.

In this chart, we demonstrate a Google search for Lyme disease and compare it with the *vector* of the illness – the tick bite - as well as to "flu" - a viral illness that normally peaks in the winter, the opposite time of year to the peak in Lyme cases. This season's flu outbreak occurred much earlier than expected, creating a significant overlap in time of these two usually seasonally separated infections.

Google Trends searched for three different key words: Lyme disease (blue), tick bite (red), and cough (orange)

Each line shows searches that individuals performed for different key words. The higher the peak is, the more search have been done. The horizontal axis shows the date of each individual search, in this example showing searches over the last six years.



It Takes a Team....

Using the scientific tools of the laboratory to address the medical needs and care of patients is the very essence of CLINICAL RESEARCH. And bringing these together in real time requires near-perfect coordination and cooperation.

At LymeMD, we bring together the best of both worlds as we work to solve the mysteries of Lyme disease. Our research patients receive the finest care, while we ensure that their participation in our research translates into invaluable new information.

Shown here, SLICE study coordinator Alison Schwarzwalder turns over new patient samples to Alycia Williams our scientific technician from Dr. Soloski's research team at Johns Hopkins Bayview Medical Center. These samples will be driven across town where they will be processed by two more members of the research team and then finally loaded into the high-tech laser flow cytometers to analyze our patients' immune responses to infection.

Without the skin lesion or rash, Lyme disease may feel and look like one of a number of infectious diseases, especially viral infections. Influenza, the classic viral infection, shares many symptoms with Lyme disease: fever, fatigue, and generalized achiness. What distinguishes them from Lyme disease is the presence of respiratory symptoms - runny nose, sore throat, and cough - which are usually present in viral infections like influenza and absent or minimal in Lyme disease.

In addition, the incidence of influenza and many other viral respiratory infections usually peaks in mid winter, a time of year when acute Lyme disease cases are very rare. But the situation can become quite complicated for patients and doctors alike when Lyme disease and influenza season overlap as they did in the fall of 2009. (See adjacent article.)

The best way to distinguish Lyme disease from viral infections, as always, is the tell - tale skin lesion or round red rash. If the rash is absent as it is in 20% of Lyme disease cases, patients and physicians must follow the symptoms and blood test results carefully so an accurate diagnosis can be made. It is especially important to note that Lyme tests may be negative in the first several week of illness. Thus, these tests must be repeated at 4 weeks rule out Lyme disease completely. With close observation, the diagnosis often becomes apparent: either the respiratory of gastrointestinal symptoms of a viral illness begin **or** the rash of Lyme disease eventually appears. ***Close observation is the key.*** Not All Lyme Lesions are easy to see! Can you see a oval, faintly red lesion on this person's leg?

Be On the Lookout: Warning Signs of Early Lyme Disease

- Unusual bite mark on the skin that persists and enlarges – not usually a spider bite!
- Unusual flu-like illness ***without*** the typical runny nose and bronchitis or diarrhea
- Stiff neck and fever where you feel so bad you go to bed

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