

Lead Horse Technologies



- *Innovative capabilities*
- *High performance*
- *Rapid development*

A Breakthrough in Patient Safety From Lead Horse Technologies, Created With InterSystems Caché®

Lead Horse Technologies is a healthcare application vendor focused on personalized medicine solutions, with a mission to reduce the costs and severity of complex adverse drug reactions. Its Medloom software is a break-

through in rapid determination of adverse drug reaction sources, and in delivering this decision support information to the point-of-care.

more complicated cases, involving multiple drugs and adverse reactions, these ADE systems may fail. There are too many possible drug interactions, too many ways to describe even a single symptom, and only one way symptoms are described in the information source. Instead of using a computer, today's best practice in these high-risk situations is an educated guess as to which drug is the problem, and a call to its maker's medical affairs office. Typical response time is 1-4 weeks.

“The pharmacovigilance and responsiveness provided by Medloom can make the difference between life and death,” Armstrong observes. “Our use of InterSystems technology has made it possible.”

A challenge for the doctor, and software developers

In a hospital or doctor's office, quickly determining the cause of a patient's adverse drug reaction can make the difference between life and death. In simple cases, a doctor can use most computerized adverse drug event (ADE) references to help pinpoint the cause. But in

Advanced InterSystems technology for a new type of solution

Clearly, the old way of addressing complex adverse drug events isn't good enough. John Armstrong, CEO of Lead Horse Technologies, had worked in medical affairs and bioinformatics, and knew there had to be a better way. “We formed Lead Horse Technologies in 2006 to

develop a solution,” says Armstrong. “We were advised that if we wanted our system to have the capacity and speed to be useful as a real-time point-of-care reference, we needed to build it on the Caché database.”

The result of the company’s work is the Medloom decision support system. “Within Medloom we used Caché to build a new kind of search engine,” explains Armstrong. “It uses a search term expansion rationale that converts one clinical term, such as “liver failure,” into potentially hundreds of related clinical terms. Then Medloom processes each one in parallel to find cryptically buried but medically significant drug safety information.”

For example, with access to Medloom a rheumatologist could search using any number of drug names and “liver failure.” Given this input, Medloom’s response could include information from a drug label stating, “If a patient develops jaundice or marked elevations of hepatic enzymes, you should discontinue use of the drug immediately.”

Even though the doctor’s query didn’t include the drug label’s liver-related key words ‘jaundice’ or ‘hepatic’, he would have had this answer from Medloom while he was still with the patient.

“Caché has made Medloom fast and useful and much more efficient than anything else on

the market,” explains Armstrong. “Medloom is fast because we make use of Caché’s ability to index (before the query is made) all the relationships that may be associated and discoverable between all the rows and columns in a relational database. Medloom is useful because it can return all of the results from a complex request back to the doctor in seconds.” A doctor using Medloom can easily address even the very complex adverse reaction profiles typical of a cancer patient taking many medications.

Real-time drug safety surveillance means life, not death

The high performance and highly efficient storage capability of Caché enables Medloom to deliver more value to the medical community by integrating its own “pharmacovigilance” into the results it delivers. Medloom provides this real-time surveillance, evaluation, and signaling of adverse drug events based on the queries made by Medloom users worldwide. So a Medloom report may include, for example, the fact that there were 16 queries in the last 24 hours that have associated liver failure with one of the drugs in question in patients with diabetes and high blood pressure. This type of information, which is specific to each patient’s health profile, is helping doctors save lives.

InterSystems Corporation

World Headquarters

One Memorial Drive

Cambridge, MA 02142-1356

Tel: +1.617.621.0600

Fax: +1.617.494.1631

InterSystems.com

