Understanding the Cost of an Outbreak

Summer of 2011

This past summer, 10 Ontario hospitals experienced a C. Difficile outbreak of various levels. Regardless of the type of outbreak, the response from the hospital is the same. Heavy cleaning using a sodium hypochlorite solution is the industry standard for cleaning and disinfecting during an outbreak. This cleaning solution can create a significant amount of unpleasant odour, causing another challenge for the hospital, the staff, and patients.

To combat the odours, hospitals often run continuous fresh air through their facility 24 hours a day. For this most recent outbreak, it happened during the peak of the summer heat, this significantly increases the demand on the chiller units to maintain a consistent temperature.
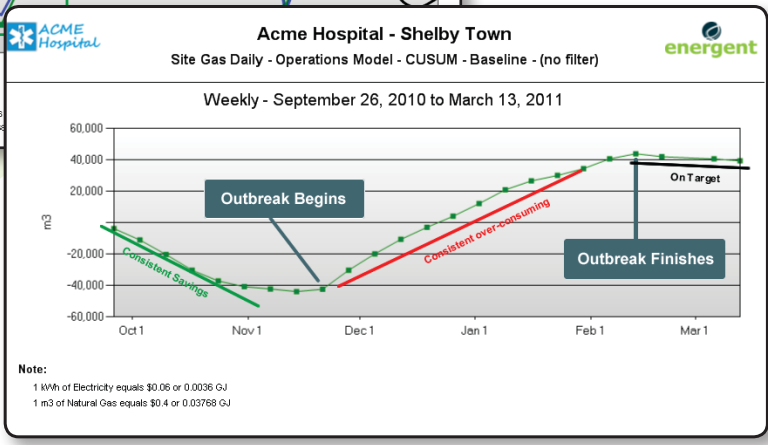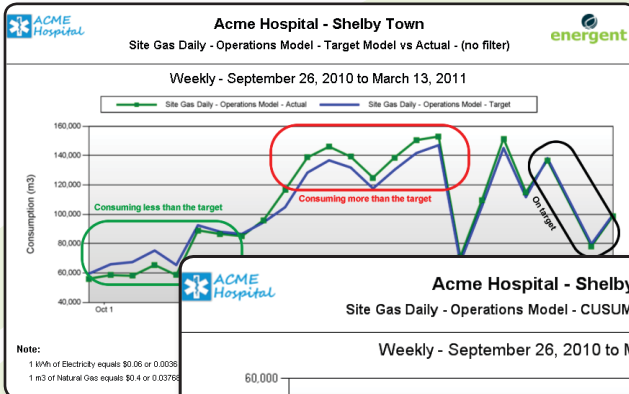
Energy included in the cost?

Hospitals account for costs for a C. Difficile outbreak using antibiotic cost, nursing costs, cleaning costs, laboratory costs, and even public relations. Energy consumption has not been considered in the cost of these outbreaks, but as the data shows, it can become a significant percentage of the overall cost.

In a study done in the UK, the cost was calculated for an outbreak over 6 months in 3 hospitals, with 175 cases, to cost approximately $250,000 , but did not include energy as part of the calculation. Using Energent M & T software, hospitals in Canada are able to accurately calculate the energy portion of the outbreak and report that as part of the calculated costs.
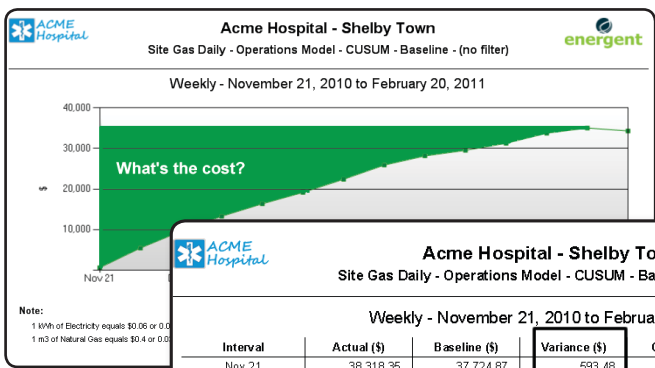
Energent supports Hospital Engineers

In many instances, Facility Directors and Managers are responsible and accountable for the energy expenditure of the hospital. Abnormal events, such as a bacterial outbreak, have caused changes in operations for the facilities team, but these changes have been difficult to document. With **Energent**, the energy consumption directly related to these abnormal events can be **captured and quantified** at a level of detail not previously available. The example below show how this happens.

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Acme Hospital - Shelby Town
Site Gas Daily - Operations Model - Target Model vs Actual - (no filter)

Acme Hospital - Shelby Town
Site Gas Daily - Operations Model - CUSUM - Baseline - (no filter)

Using Energent's real-time M & T software, hospitals are able to monitor how they perform against a target. The two charts show the relationship between gas consumption, a **baseline**, and the **CUSUM** (cumulative sum of savings). Visibility to this relationship gives context to consumption values

Acme Hospital - Shelby Town
Site Gas Daily - Operations Model - CUSUM - Baseline - (no filter)

Acme Hospital - Shelby Town
Site Gas Daily - Operations Model - CUSUM - Baseline - (no filter)

Energent is then able to take this information, segment the period of the outbreak, and measure the cost of the over-consumption. This valuable information is available in graph form and in chart form. Energy Managers can now show the energy costs of an outbreak in real-time. In this example, a 3 month outbreak cost the hospital an **extra $35,000 in natural gas!**

The Energent Platform gives unprecedented insight into the energy costs of any unusual events that occur at the hospital. The key is to this information is to have the real-time information available BEFORE the event occurs to provide the most complete picture of energy consumption.

1 Calman, Dr. K., Moores, Y. Clostridium Difficile Infection: Prevention and Management. A Report by a Department of Health/Public Health Laboratory Service Joint Working Group. 1994. 3-4.