**E**nding hallway medicine and improving health outcomes are priorities of Ontario's Ministries of Health and Long-Term Care. There is no easy solution, but situational awareness of hospital surge status—that is, monitoring the volumes of patients at all Ontario hospitals in real-time and in one dashboard—is a first step towards addressing the challenge.

The **Ontario Acute Care Surge Monitor** displays ED visits and inpatient admissions data collected by the Acute Care Enhanced Surveillance system (ACES, see box below) system. Patient volumes are displayed, overall and for each hospital, and updated at the top of the hour. Estimates of surge status are made by comparing each hospitals current volume to historic data. Estimates of other important metrics are also shown: relative amount of visits/admissions by age cohorts, acuity of visits, or arrival by ambulance.

Access to the Ontario Acute Care Surge Monitor is an open web-based tool available to public health, healthcare professionals, and other interested stakeholders. The application and the metrics provided therein are not intended to provide oversight or evaluation of hospital systems of practices, but rather offer real-time situational awareness of patient volumes experienced at facilities across the province.

These data are available for decision-making regarding resource allocation, such as during an emergency event.

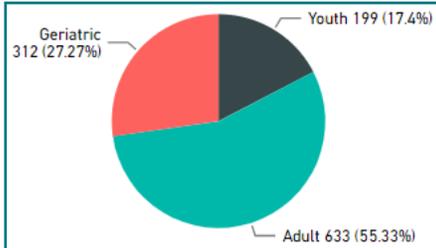**kflaphi.ca/ontario-acute-care-surge-monitor**

## What is ACES?

ACES, or Acute Care Enhanced Surveillance, provides syndromic surveillance for the Province of Ontario. ACES collects patient information recorded at triage or inpatient registration at acute care centres nearly all across Ontario (157 hospitals). When patients register at triage, their information is sent to ACES, including time/date, age, sex, residential postal code, and symptoms. No personal identifiers are collected. Syndromic surveillance requires no added work for nurses, as it collects information already required at registration.
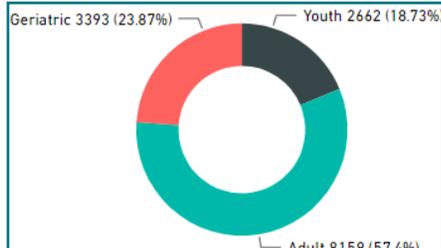
Using the words in the symptoms, each patient visit to an ED or admission to hospital is classified into one of 80+ syndromes using algorithms derived from Natural Language Processing and trained by medical professionals. Syndromes include several that are of concern for the safety of public health and are continuously monitored, such as ILI, Asthma, Gastrointestinal, and Respiratory.

**ACES monitors the health status of communities to enable faster public health response.**
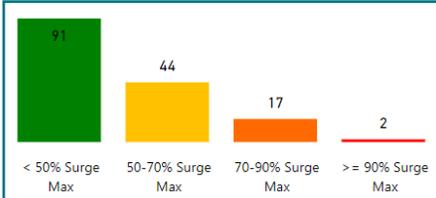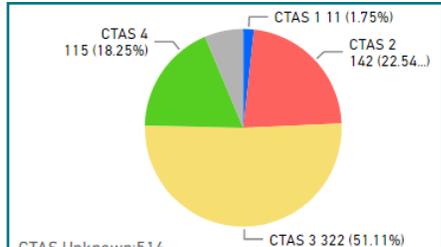
## SAMPLE METRICS INCLUDED:
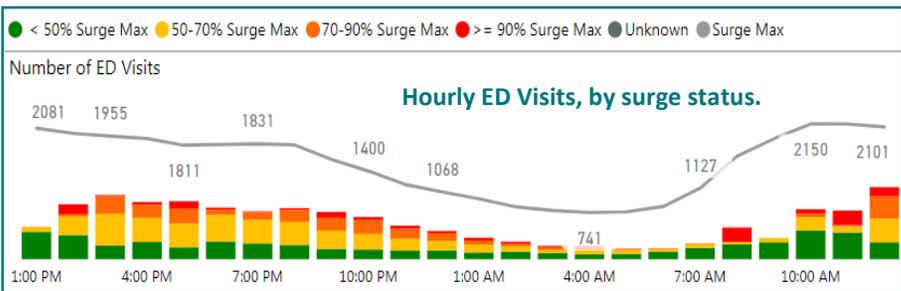


**Number of visits, by age last hour.**

Geriatric 312 (27.27%)
Youth 199 (17.4%)
Adult 633 (55.33%)



**Number of visits, by age last 24 hours.**

Geriatric 3393 (23.87%)
Youth 2662 (18.73%)
Adult 8159 (57.4%)



**Number of hospitals by surge status, last hour.**

91 — < 50% Surge Max
44 — 50-70% Surge Max
17 — 70-90% Surge Max
2 — >= 90% Surge Max



**Number of visits, by CTAS last hour.**

CTAS 4 115 (18.25%)
CTAS 1 11 (1.75%)
CTAS 2 142 (22.54...)
CTAS 3 322 (51.11%)
CTAS Unknown:514



● < 50% Surge Max  ● 50-70% Surge Max  ● 70-90% Surge Max  ● >= 90% Surge Max  ● Unknown  ● Surge Max

**Hourly ED Visits, by surge status.**

Number of ED Visits

2081  1955  1831  1400  1068  1127  2150  2101
1811  741

1:00 PM   4:00 PM   7:00 PM   10:00 PM   1:00 AM   4:00 AM   7:00 AM   10:00 AM

A running tally of the number of hospitals reporting since midnight, and the number of patients in the last hour and in the last 24 hours, are shown and updated in real time. Metrics are available for ED visit and inpatient admissions (emergent and elective), by hospital, local public health agency, or larger geography, such as health authority or province (left). The hospitals *surge status*, indicated by colour, is displayed on a map updated hourly (below).
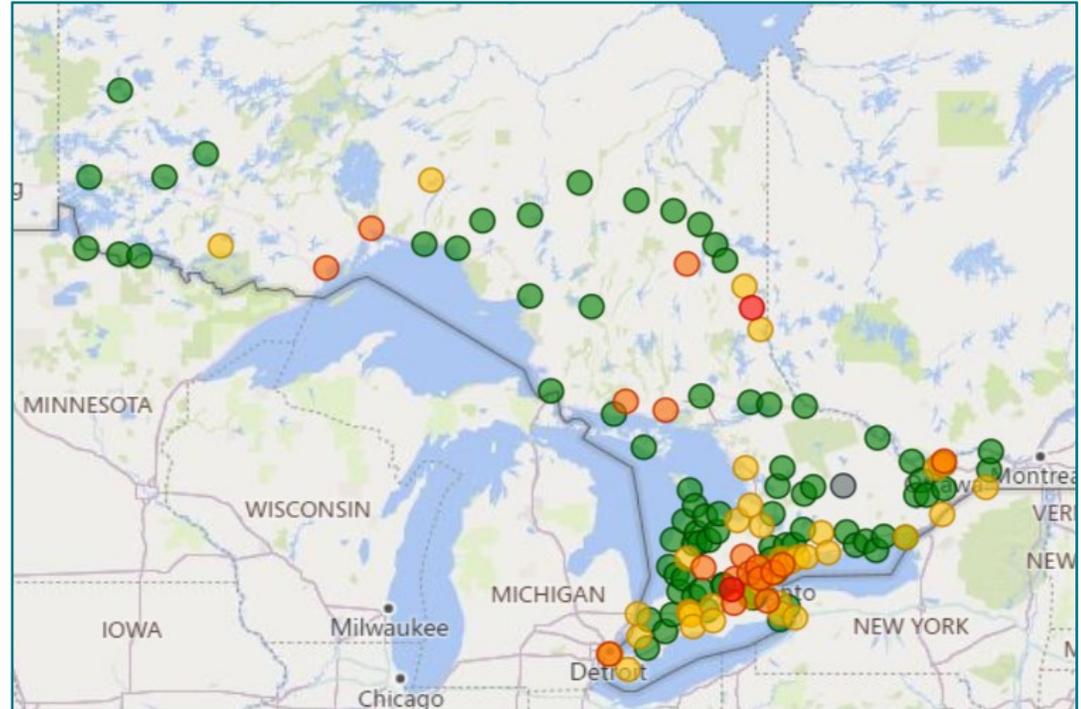


**W**hat is Surge Max? Surge Max estimates a hospital's surge status according to the volume of patients that are registered at the ED or admitted to hospital. Surge Max is based on historic data from each hospital: data from the past 365 days is analyzed on an hourly scale. The current Surge Max value is defined as the 99th percentile of the highest hourly count—the 99th percentile is used to account for counts not representative of typical conditions (for example, a motor vehicle accident may account to very high counts within an hour). Surge Max does not take into account the number of hospital beds, staff, or other input from each hospital—it is based solely on relative volumes for the past year and needs to be interpreted with caution.

## Contact Us

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*NOTE: Numbers and metrics shown in graphics are simulated and are included for representational purposes only.*

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**Ontario**

**KFL&A** Public Health