



# ACUTE CARE SURGE TRIGGERS: SITE PLANNING GUIDE

*October 7, 2009*

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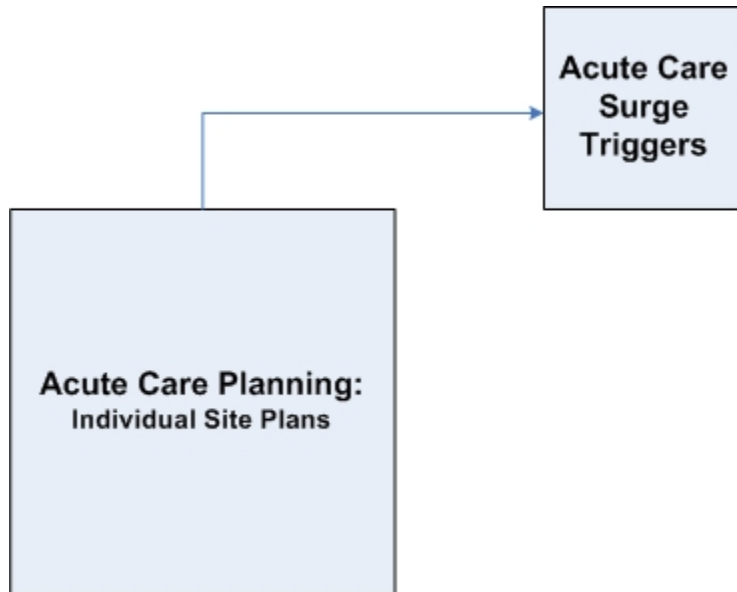
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# ACUTE CARE SURGE TRIGGERS

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- Purpose:** To provide guidance on when acute care sites should activate varying levels of pandemic response based on a practical, measureable set of triggers.
- Who:** Acute Care Directors, clinical leads, emergency response coordinators.
- What:** Planning guide.
- Where:** Acute care sites and facilities.
- Why:** To establish acute care surge triggers for activating actions in response to a significant wave of influenza illness.

**Document Map Reference:**



# 1. INTRODUCTION

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This planning framework has been prepared to assist site leads in the use of site-specific acute care surge triggers for pandemic influenza. Clearly defined triggers are essential to activate the necessary site responses so sufficient capacity is created for the efficient assessment, treatment, and discharge of persons with pandemic influenza.

These triggers are based on work completed by Abbotsford Regional Hospital. In order to

ensure these triggers are meaningful, they will need to be validated through the engagement and participation of individual site managers, program leaders and directors of clinical units and departments at each site. The participation of the site team in the planning process is integral to the successful understanding of the triggers and overall awareness of their purpose and activation.

# 2. ASSUMPTIONS

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The following assumptions form the basis for the development of the pandemic influenza surge triggers recommended in this document:

- All community cases of illness related to a pandemic virus that will require subsequent inpatient care will present first in the Emergency Department.
- Intensive Care Units at larger sites may receive a surge in ILI patients requiring ventilation from smaller sites before ILI triggers in their Emergency Departments are met.
- Once there is a sustained increase in patient with illness related to an influenza pandemic, individual units may no longer function in business as usual and standards may change (e.g., standards of care may become a “sufficiency of care” model).
- Preparation of health care workers and staff will be critical in order to be successful.

It is also assumed that acute care sites have standard protocols and procedures in place to manage a surge of additional patients, including those presenting with influenza-like illnesses (ILI). These protocols and procedures should include:

- Patient flow processes (please refer to the sample provided from Abbotsford Regional Hospital);
- Over-capacity protocols, or Code “Gridlock” (please refer to the sample provided from Abbotsford Regional Hospital);
- Disaster/mass casualty protocols, or Code “Orange” (please refer to the samples provided from Abbotsford Regional Hospital); and,
- Unit pandemic and business continuity plans to increase capacity and manage care with increases in staff absenteeism.

### 3. DEFINITION

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A trigger is the realization of a threshold, defined by a pre-determined set of criteria, which occurs in a readily observable event. The reaction to that trigger is the response. In the context of a pandemic, it is fundamental to understand that once triggered, the response could be expected to last for a period of up to 8 weeks. Thus, current protocols alone, such as hospital disaster protocol (e.g., Code “Orange” procedures), are not designed to address the sustained surge of patients who require treatment during a pandemic wave. As such,

other strategies, including site business continuity, pandemic response and service deferral plans (e.g., the health authority Business Continuity Map) must be integrated.

In this document, “other units and departments” is defined as all other acute and support services that fall outside of the emergency department and Intensive Care Unit (ICU) at an acute care site, such as operating rooms, post anaesthetic care unit, laboratory, day care, ambulatory care, etc.

### 4. ACUTE CARE TRIGGERS FRAMEWORK

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To ensure practicality, a real-time, measurable **system-wide** trigger is required to activate both sustained site-based and community-based responses. In addition, a secondary set of **unit-based** triggers are necessary to allow key units impacted by a pandemic, such as the Emergency Department, other units and departments, and the Intensive Care Units, to mobilize.

Based on what real-time data is available to most site leaders, the most accurate indicator of an external, system-wide trigger will be a sustained increase in the number of influenza-like illness (ILI) presenting to the Emergency Department over a 24- to 48-hour period.

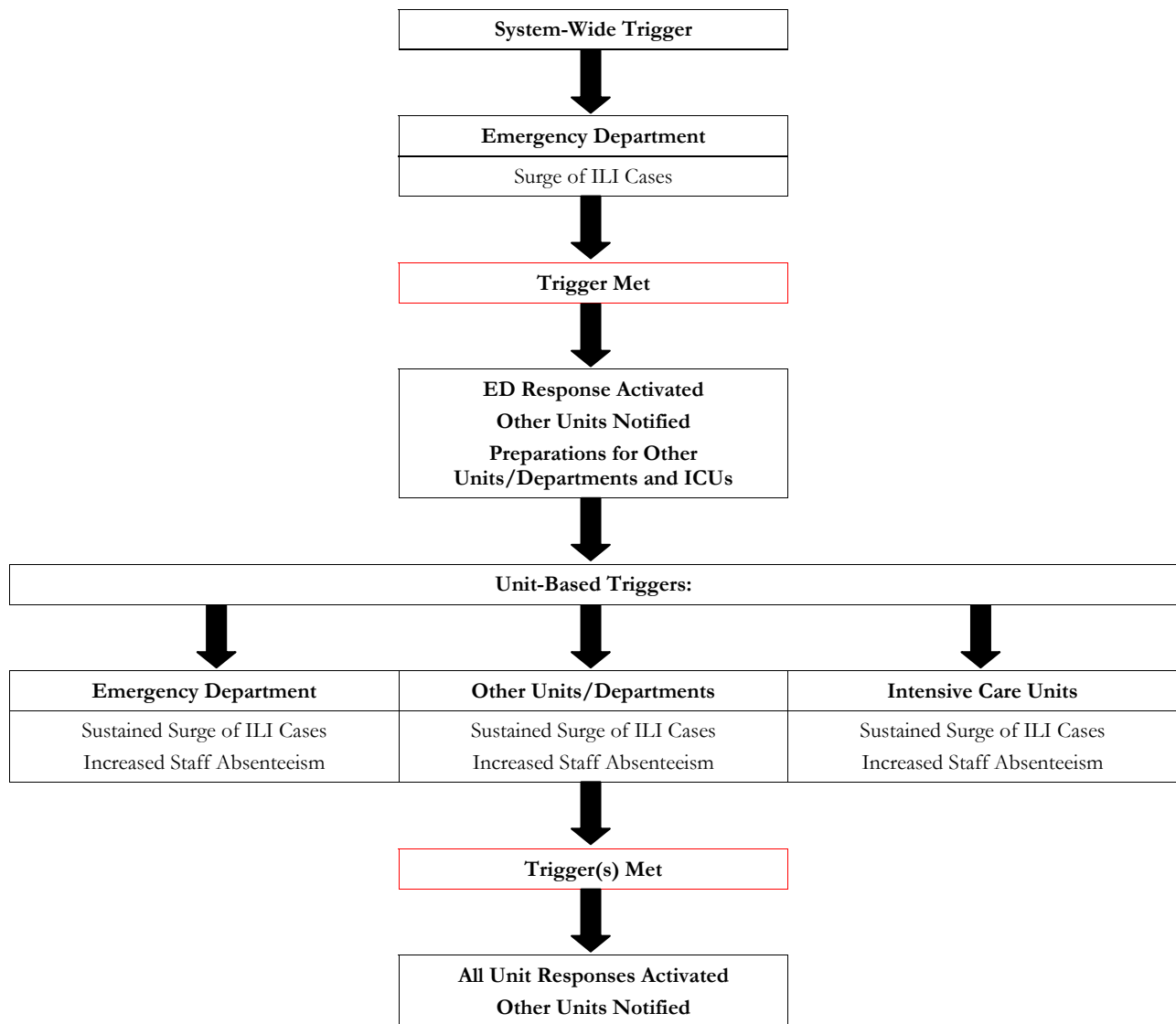
Internal, unit-based triggers (increases in the number of admitted cases) will activate capacity building processes for Emergency Departments, other units and departments, and Intensive Care Units that follow from this system-wide trigger.

The unit-based responses will need to consider not only the average caseload of patients due to surge but also the availability of staff as measured by the rate of absenteeism.

The need for certain resources such as beds, ventilators and other critical supplies and equipment, are important considerations for internal, unit-based responses that sites should consider tracking and using in developing their site pandemic response plans.

The recommended process for activation of the system-wide trigger and responses through the unit-based triggers and responses is demonstrated by the model shown in Figure 1.

**Figure 1**



## 5. SYSTEM-WIDE TRIGGER

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A system-wide trigger is meant to achieve the following objectives:

- The rapid activation of the appropriate response plans (e.g., over-capacity protocols) for the principle hospital unit which is managing the surge in cases; and
- The immediate notification to all other units within the entire hospital system that if the trigger criteria are sustained over a period of time (e.g., 48 hours), the implementation of their pandemic and business continuity plans for a potentially sustained surge event (e.g., pandemic wave) should begin.

In order to achieve these objectives, the system-wide trigger should be based on the single most measureable and accurate indicator of surge that is external to the hospital.

In the case of pandemic influenza, this is recommended to be the presentation of

patients with influenza-like illness (ILI) in the emergency department.

The following advantages are realized when the system-wide trigger is based on this principle:

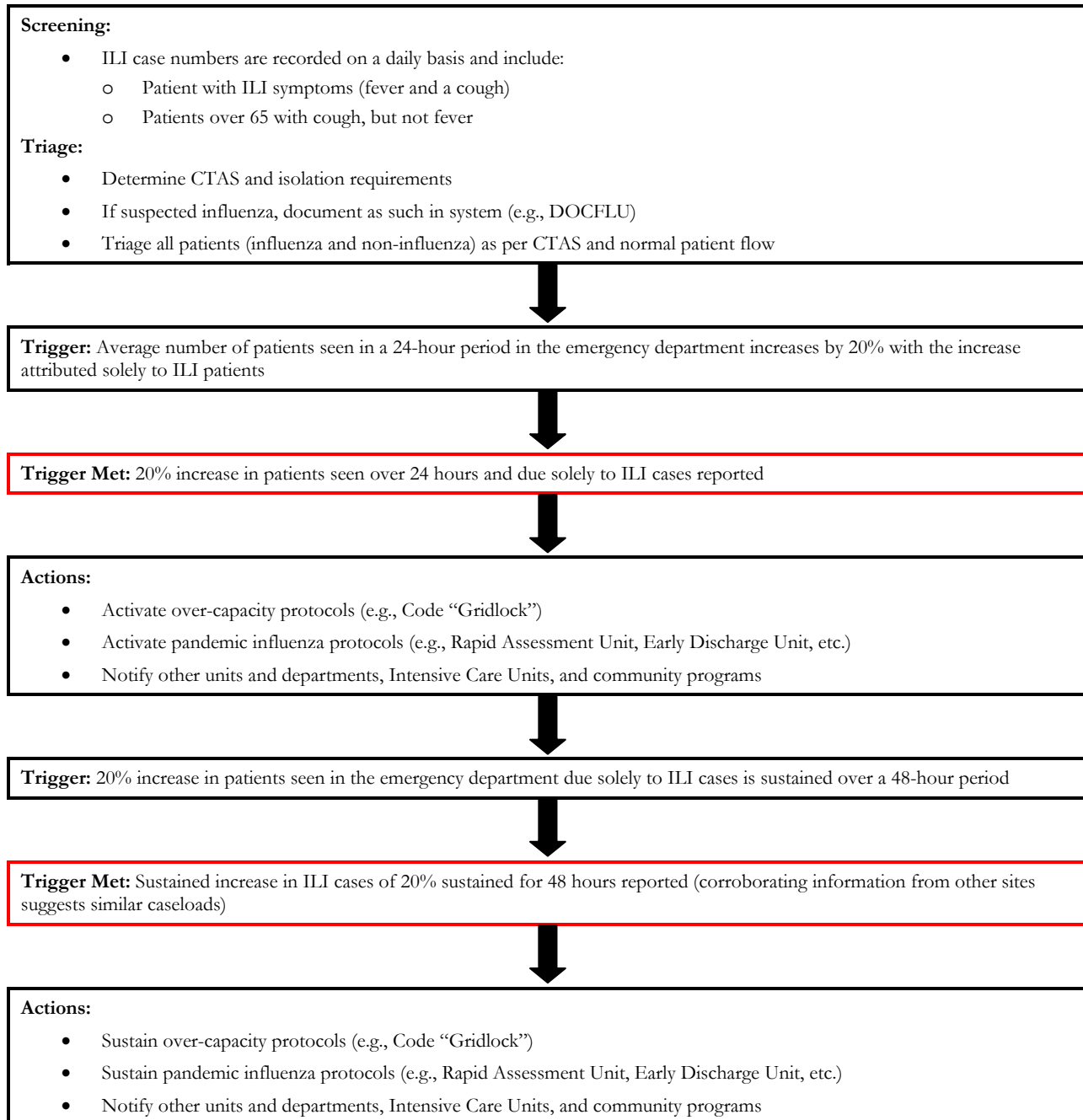
- The presentation of pandemic cases can be observed in real-time and are easily measureable using standard patient flow tracking systems;
- Using the real-time data collected, overall trending can also be quickly observed;
- The status of emergency departments have a direct impact on the ability to deliver care across the hospital;
- Real-time statistics can be quickly delivered to and from emergency departments at other acute care sites; and,
- Procedures for surge scenarios are already in place and used on a day-to-day basis (e.g., code gridlocks and associated actions).

## 5.1 System-wide Trigger Model

Figure 2 shows a recommended system-wide trigger model for pandemic surge based on

planning conducted at Abbotsford Regional Hospital.

**Figure 2**



## 5.2 Unit-based Trigger Models

Even once the external, system-wide trigger has been met, unit-based triggers that are internal to the hospital must be considered as caseloads increase, staff absenteeism increases, and the need to create additional surge capacity through the mobilization of critical resources (e.g., beds, ventilators and staff) is required.

The principle units concerned with these triggers are recommended to be the emergency department, Intensive Care Unit and all other units and departments.

The unit-based triggers are meant to achieve the following objective:

- Advanced preparation and execution of unit pandemic and business continuity plans for a potentially sustained surge event.

In order to achieve this objective, the unit-based triggers may also be based on the presentation of patients with influenza-like illness (ILI) in the emergency department.

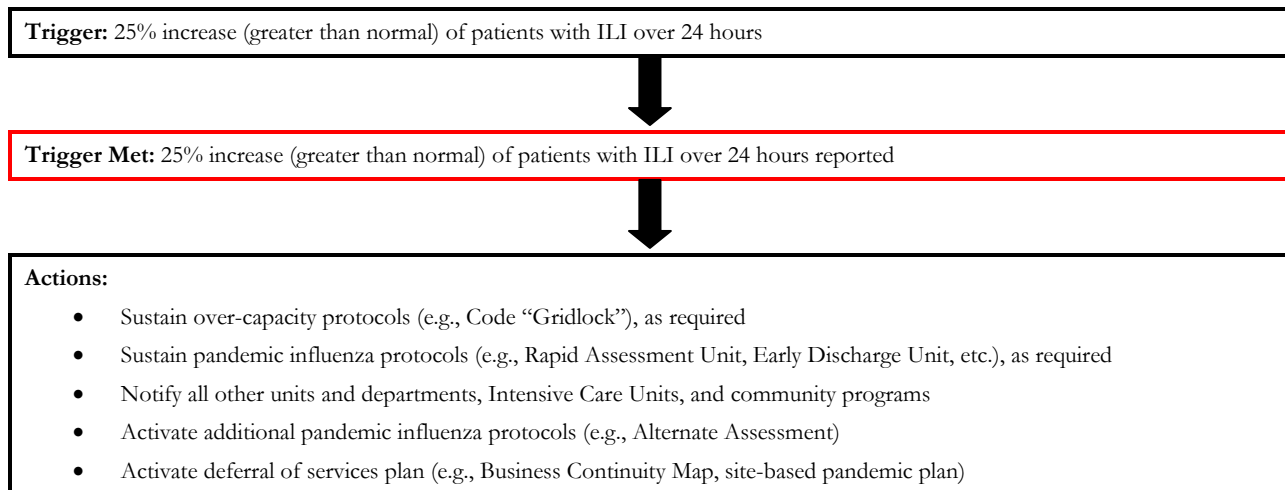
However, another important variable should also be considered at this level: the rate of staff absenteeism. In the models below, the trigger is based primarily on the surge of ILI cases.

## 5.3 Emergency Department Trigger Model

Figure 3 shows a recommended unit-based trigger model for emergency departments when

the emergency department capacity has been met.

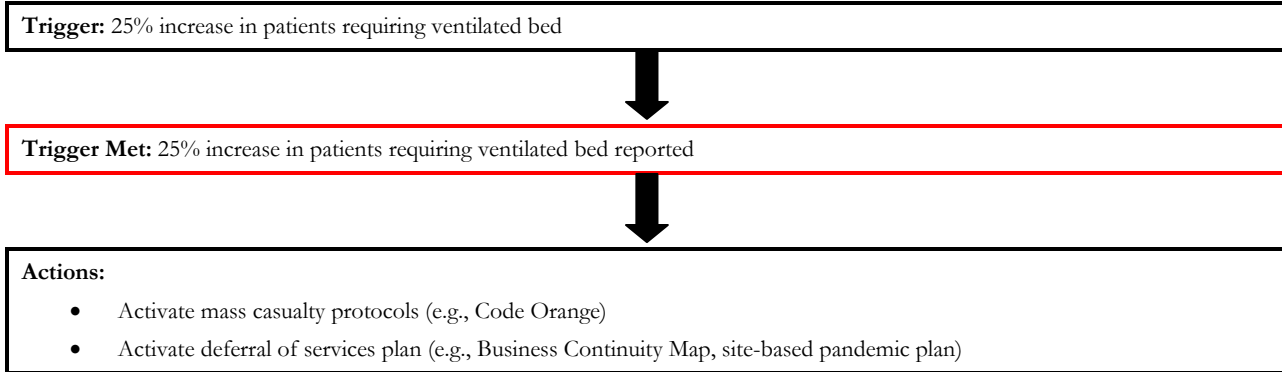
**Figure 3**



## 5.4 Intensive Care Units Trigger Model

Figure 4 shows a recommended unit-based trigger model for Intensive Care Units based on planning conducted at Abbotsford Regional Hospital.

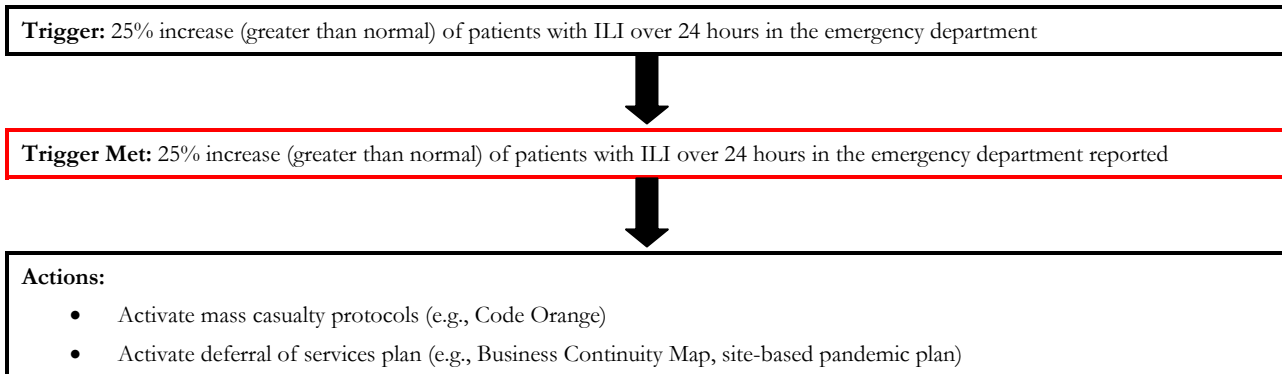
**Figure 4**



## 5.5 All Other Units/Departments Trigger Model

Figure 5 shows a recommended unit-based trigger model for all other units and departments at the acute care site.

**Figure 5**



## 6. SURGE TRIGGERS AND INTEGRATION OF THE BUSINESS CONTINUITY MAP

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The health authority Business Continuity Map depicts service re-prioritization at levels of 100 per cent, 65 per cent, 50 per cent, and 35 per cent of a regular staffing complement (see Figure 6).

In individual units, however, staffing requirements may be significantly more specialized or leaner that require the movement between these levels much sooner than the suggested thresholds (65 per cent, 50 per cent, etc.). In addition, the increase in average caseload of pandemic patients may also require the re-prioritization of services.

For example, over the immediate to short-term timeframe of a sustained surge event, the increased numbers of patients entering the hospital would be expected to cause a direct increase to the average caseload per health care worker. However, over an extended period of time, the increase in caseload may also be as a direct result of staff absenteeism (e.g., fewer

staff to manage the same or increasing caseload of pandemic patients).

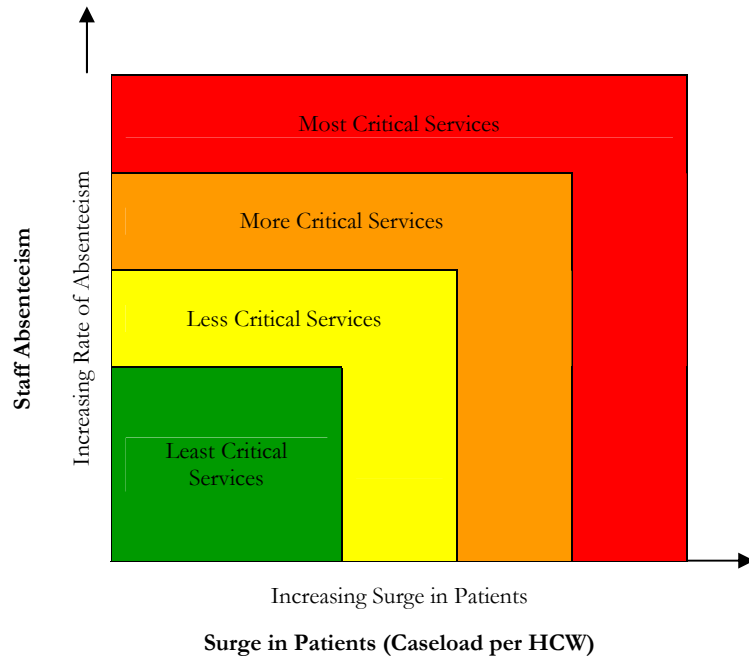
Therefore, the integration of these concepts with the health authority Business Continuity Map can assist sites to determine what services should be deferred when the number of pandemic patients (or caseload) and/or staff absenteeism reaches certain critical thresholds. Another way of interpreting the Map is to equate each level of service re-prioritization with the critical nature of those services within as per the following graph:

Level of Priority	Description
Green	Least critical services
Blue	Less critical services
Yellow	More critical services
Red	Most critical services

**Figure 6: Health Authority Business Continuity Map**

	Pre Admission Clinic*	EEG	Medical Imaging*	Nuclear Medicine	Cardiology	Infection Control	Speech Pathology <sup>†</sup>	Rehab Admin *	Occupational Therapy*	Audiology *	Physiotherapy*	Recreational Therapy
35%	<ul style="list-style-type: none"> <li>Clinic closed</li> </ul>	<ul style="list-style-type: none"> <li>Inpatient EEG, including ER</li> </ul>	<ul style="list-style-type: none"> <li>Ultrasound and biopsy</li> <li>CR and biopsy</li> <li>Emergency</li> <li>Urgent I/Ps</li> <li>Consults</li> </ul>	<ul style="list-style-type: none"> <li>Hot Lab</li> <li>Daily camera quality control</li> <li>Urgent inpatients</li> <li>Urgent outpatients</li> <li>Label WBCs</li> </ul>	<ul style="list-style-type: none"> <li>Emergency on-demand services</li> <li>Urgent procedures</li> <li>Routine procedures</li> <li>Tracking &amp; communication of test results</li> <li>ECG bookings</li> </ul>	<ul style="list-style-type: none"> <li>Consultation support for staff</li> <li>Outbreak management</li> </ul>	<ul style="list-style-type: none"> <li>Inpatient swallowing</li> <li>Assessment &amp; management of inpatients</li> </ul>	<ul style="list-style-type: none"> <li>Payroll</li> <li>Statistics entry</li> </ul>	<ul style="list-style-type: none"> <li>Discharge planning &amp; referral</li> <li>Positioning &amp; pressure reduction</li> </ul>	<ul style="list-style-type: none"> <li>Hearing testing</li> <li>Balance testing</li> <li>NICU screening</li> </ul>	<ul style="list-style-type: none"> <li>PIC 1:                             <ul style="list-style-type: none"> <li>Cardio &amp; Respiratory Patients (CPT)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>1:1 intervention</li> </ul>
50%		<ul style="list-style-type: none"> <li>EEF for OR</li> </ul>	<ul style="list-style-type: none"> <li>General X-rays</li> <li>Registration</li> <li>Dictation / consult</li> </ul>	<ul style="list-style-type: none"> <li>Bookings and reports</li> </ul>		<ul style="list-style-type: none"> <li>Surveillance – antibiotic resistance, surgical site infections, bacteremia</li> <li>Contact tracing:                             <ul style="list-style-type: none"> <li>Infectious and communicable diseases, data entry</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Inpatient assessment and management of cog. / comm. issues</li> <li>Swallowing assessment and management of:                             <ul style="list-style-type: none"> <li>Neuro outpatients</li> <li>Urgent home visits</li> <li>Urgent CAYA (regional contract)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Appointment booking</li> <li>Telephone</li> </ul>	<ul style="list-style-type: none"> <li>Self-care assessment &amp; intervention</li> <li>Essential home mgmt.</li> </ul>		<ul style="list-style-type: none"> <li>Immediate discharges</li> </ul>	<ul style="list-style-type: none"> <li>Small group programs</li> <li>Participation programs</li> </ul>
65%		<ul style="list-style-type: none"> <li>Admin.</li> </ul>	<ul style="list-style-type: none"> <li>Reduced OPs</li> </ul>	<ul style="list-style-type: none"> <li>MPI scans</li> </ul>		<ul style="list-style-type: none"> <li>Education – clinical support for staff</li> <li>Program support</li> </ul>	<ul style="list-style-type: none"> <li>Assessment and management of cog. / comm. issues for neuro outpatients</li> <li>Inpatient hearing screening</li> <li>Staff / physician education</li> <li>Staff hearing aid consult</li> </ul>	<ul style="list-style-type: none"> <li>Patient billing</li> <li>Database upkeep</li> </ul>	<ul style="list-style-type: none"> <li>Patient care statistics</li> </ul>		<ul style="list-style-type: none"> <li>1<sup>st</sup> time mobility assessment</li> </ul>	<ul style="list-style-type: none"> <li>Leisure assessment &amp; education</li> <li>Inventory upkeep</li> <li>Stats / records</li> </ul>
100%	<ul style="list-style-type: none"> <li>Admission &amp; prep of all of day's Emerg patients for OR</li> <li>Admission &amp; prep of booked surgical patients</li> </ul>	<ul style="list-style-type: none"> <li>Evoke potential tests</li> </ul>	<ul style="list-style-type: none"> <li>Bookings</li> </ul>	<ul style="list-style-type: none"> <li>Report distribution</li> <li>Inventory</li> <li>Payroll</li> </ul>	<ul style="list-style-type: none"> <li>Routine telephone calls</li> <li>Inventory ordering</li> <li>Other administrative tasks</li> </ul>	<ul style="list-style-type: none"> <li>Product consultation</li> <li>Policy development</li> </ul>	<ul style="list-style-type: none"> <li>Non-urgent home visits</li> <li>Non-neuro outpatient services</li> <li>Liaison / info services</li> <li>Student supervision</li> <li>Nursing staff orientation</li> <li>Volunteer orientation / training</li> </ul>	<ul style="list-style-type: none"> <li>General admin. duties</li> <li>Paper / referral processing</li> </ul>	<ul style="list-style-type: none"> <li>Inventory mgmt.</li> <li>Admin</li> </ul>	<ul style="list-style-type: none"> <li>Non-urgent referrals:                             <ul style="list-style-type: none"> <li>Torticollis</li> <li>Brachial plexus</li> <li>Cub foot</li> <li>Arthrogyposis</li> </ul> </li> <li>CPT 72 hr. deterioration</li> <li>Mobility assessments</li> </ul>	<ul style="list-style-type: none"> <li>Program planning</li> <li>Admin</li> </ul>	

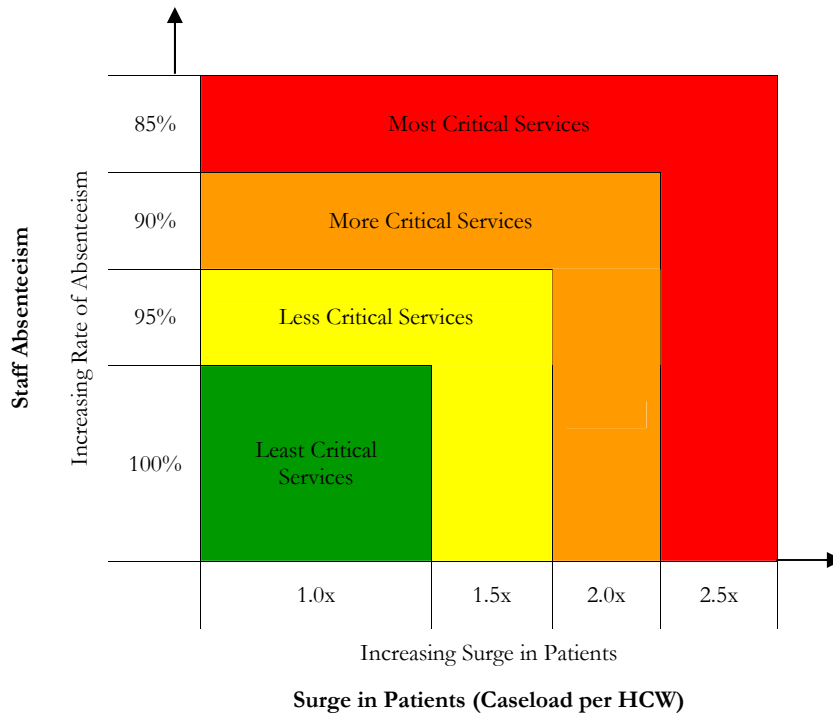
**Figure 7: Integration of Map, Surge Triggers and Staff Absenteeism**



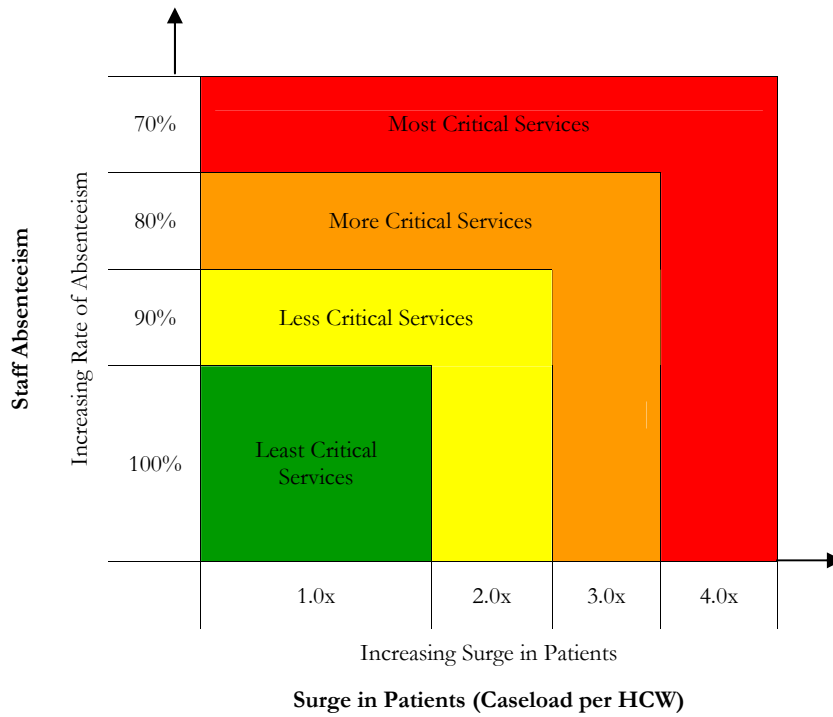
Recognizing that thresholds will be different for certain units, the following examples of an ICU

and Sub-Acute Medical Floor should be considered.

**Figure 8: Integration of Business Continuity Map, Surge Triggers and Staff Absenteeism for ICU**



**Figure 9: Integration of Business Continuity Map, Surge Triggers and Staff Absenteeism for Sub-Acute Medical Unit**



It is recommended that a site Emergency Operations Centre or Units Director use the rate of staff absenteeism and estimated caseloads to move between the levels of service re-prioritization as identified by the health authority Business Continuity Map. In doing so,

these decision-makers will be able to make more informed decisions around when to defer services, mobilize resources, or implement a pandemic-specific strategy.

## 7. CONCLUSION

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Hospitals in British Columbia will be affected by a pandemic, specifically by the effects of patients surging to a facility and the level of absenteeism within a facility. While hospitals have been preparing pandemic plans, what has been lacking has been the trigger that institutes these plans. That trigger must be both realistic and measurable if it is to provide hospitals with a tool to function and to measure.

The most measurable and available system-wide trigger will be the presence of patients with influenza-like illness symptoms presenting to emergency departments. For this reason, this

has been recommended as the primary trigger for the pandemic response. However, as most current hospital pandemic business continuity plans are based upon levels of staff absenteeism, this must also be considered a trigger, but one that is internal to the facility. The mobilization of beds, space and critical supplies may be traced on an individual site basis and through the activation of site-based pandemic response plans. Together with the system-wide and unit-based triggers, these concepts will help to provide the response that a facility requires to meet their pandemic challenge.