Systemic Treatment Emergency Preparedness

Guidance Document

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August 2025

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Definitions

Downtime Computer: Designated computers which are configured to retain access to key systems and data in the event of an IT downtime/emergency scenario. Downtime computers are generally separated from an organization's main network and connected to backup power.

Downtime Electronic Medical Record (EMR): An EMR implementation that enables continued access to historical information/data from the EMR in the event of an IT downtime

Information Technology (IT) Downtime: A period of time (either planned or unplanned) in which electronic systems are unavailable

Offline Electronic: Versions of electronic forms and systems that are configured to remain available in the event of an IT downtime (as determined by organizational staff with expertise in this area)

Introduction

Objective

The purpose of this document is to provide guidance to inform systemic treatment clinicians and administrators as they prepare for and respond to future emergency scenarios at systemic treatment facilities.

This document is primarily focused on systemic treatment operations in situations where information technology (IT) systems are unavailable for a significant duration of time (i.e., multiple days to weeks, or longer). However, some considerations in this document are also applicable to other emergency circumstances (e.g., fires, floods, critical staffing shortages) and/or non-systemic treatment cancer programs.

Through the implementation of the guidance outlined within this document, systemic treatment facilities can increase their readiness for a potential IT downtime and improve their resiliency should such an event occur.

Background

Systemic treatment facilities may experience extended IT system downtimes due to several emergency scenarios including cyber attacks, natural disasters, fires, or failed IT system upgrades (1–3). The impact of an IT system downtime varies but may result in the partial or complete unavailability of key systems required for typical patient care including (but not limited to): electronic medical records (EMRs), imaging systems, laboratory or pathology services, pharmacy systems, radiation treatment, email, and internet access (1,2,4,5).

An extended IT system downtime often results in a significant reduction in the number of patients able to be treated (i.e., treatment capacity) as patient care processes are shifted in the interim to manual or paper-based alternatives (2,4). In situations where systemic treatment capacity is decreased, facilities may need to implement significantly altered processes related to patient care, referrals, staffing, communication, and patient prioritization/ethical decision-making.

Recent examples from Ontario (1,6), other provinces (7), and internationally (2,4,5) illustrate the substantial effects extended IT system downtimes can have on patients, health care providers, health care facilities, and the broader health system. These examples highlight the need for advanced planning and preparation at multiple levels of the health care system, including within systemic treatment facilities.

Document Layout and Format

The guidance outlined within this document includes practices, processes, and strategies which are shared as considerations for systemic treatment facilities to reflect on and implement where applicable.

This approach recognizes the variability in systemic treatment emergency preparedness both in terms of emergency events themselves (e.g., the type and cause of an emergency event, level of impact to systemic treatment systems and operations), and systemic treatment facilities (e.g., current state of emergency preparedness, geography, resource availability, technological expertise/systems available).

We acknowledge that the preparations for an extended IT system downtime outlined in this document are time and labour intensive. We recommend implementing applicable measures over time in a stepwise approach.

This document is divided into subject areas (e.g., Internal Communications, Staffing, Training and Downtime Exercises, etc.) with subject areas being further divided into *Organizational Considerations* and *Systemic Treatment Considerations*, where applicable.

Organizational Considerations represent general good practices or overall points for consideration. These include items that systemic treatment teams should be aware of to inform their planning/response to an emergency scenario, and which systemic treatment teams may contribute to, but are not necessarily within the direct responsibility or control of systemic treatment teams.

Systemic Treatment Considerations are specific guidance points for systemic treatment teams.

Methods

Literature Search Strategy

A literature search was conducted to identify relevant recommendations, principles, best practices, and overall items for consideration when preparing for and responding to IT system outages at health care facilities, with a focus on cancer care and systemic treatment delivery.

This search was conducted through Ovid Embase and Ovid MEDLINE. The search strategies used a combination of key words and free text terms related to health care, systemic treatment, emergency preparedness, contingency or disaster planning, and downtimes in information technology systems. Searches were limited to English language results only and articles published within the previous 10 years (2014-2024). A single reviewer screened the search results by title and abstract for relevance to the topic of interest.

In addition, a grey literature search was conducted between August 16, 2024, to August 23, 2024, to identify guidelines and other relevant publications utilizing a targeted internet search with similar search terms to those outlined above. The first ten pages of results from an advanced Google search were reviewed for potentially relevant publications.

Appendix #2 outlines the detailed search strategy.

Focus Group Interview and Emergency Preparedness Working Group

As an initial step, Ontario Health (Cancer Care Ontario) conducted a focus group with hospital staff who had recently gone through an extended IT downtime to understand the challenges and learnings they experienced.

Subsequently, we convened the Systemic Treatment Emergency Preparedness Working Group to further inform the development and validation of the considerations proposed within this guidance document.

This multidisciplinary group was composed of physicians (medical oncologists/hematologists), pharmacists, nurses, administrators and IT professionals from systemic treatment facilities in Ontario, as well as Patient and Family Advisors (PFAs). The working group included multiple individuals with experience providing or supporting systemic treatment and broader patient care delivery during IT downtimes, including from clinical, administrative, and technical perspectives. Membership included representation from all 14 Regional Cancer Programs (RCPs) within the province.

Working group members were presented with proposed considerations, best practices, and principles related to systemic treatment emergency preparedness derived from the literature and previous discussions on this topic. Members shared their perspectives on the utility and breadth of the presented information, including applicability within the context of systemic treatment delivery in Ontario.

The considerations presented below adapt information from literature guidelines and case reports (including case reports from non-systemic treatment clinical areas) in addition to expert opinion from the working group members.

Systemic Treatment Emergency Preparedness Considerations

Planning, Policies and Procedures

Background

It is recognized that hospitals often already have IT downtime plans, policies, and procedures in place at the organizational level. IT downtime planning conducted by systemic treatment teams should aim to build upon existing organizational plans and fill in potential gaps, including the specific application of organizational plans, policies and procedures to the specialized context of systemic treatment delivery.

Organizational Considerations

- Downtime plans developed by individual departments or teams should be communicated to and endorsed by organizational leadership to ensure alignment and integration with existing downtime plans at the organizational or department level (8)
- Individual departments/teams should adhere to organizational procedures regarding downtime declaration/activation to ensure a coordinated initial response (9–11)
- Downtime policies/procedures that rely on backup electronic processes or systems should be developed in consultation with, and validated by an organization's IT department to ensure technical feasibility (12)
- An organization's building services/facilities team should be consulted to validate aspects of downtime plans within this team's area of expertise (e.g., location, labelling and testing of backup power/outlets, etc.)

Systemic Treatment Considerations

CONSIDERATION 1:

Systemic treatment facilities should maintain IT downtime plans, policies and/or procedures which include specific guidance for systemic treatment operations. Systemic treatment downtime plans should:

- Incorporate planning for potential downtimes of differing lengths (e.g., hours/days vs. weeks) and scope of affected systems (narrow vs. widespread IT system outages)
- Be validated at regular intervals, particularly when significant changes to downtime plan components or systems occur (e.g., introduction of new EMR or electronic systems)
- Be developed in consultation with the individuals and teams who would be involved in enacting actions outlined within the policies/procedures, to help ensure the feasibility and practicality of plan components (10)

CONSIDERATION 2:

In collaboration with relevant organizational departments, systemic treatment teams should maintain a list of the key components required to sustain ongoing systemic treatment operations including individuals/roles, processes, technological assets (e.g., pumps, label printers, software applications, etc.) and/or external services (e.g., reliance on external health care facilities, such as external labs).

Dependencies between these systems should be defined and their relative importance should be established, to enable prioritization of recovery efforts in the event of a downtime (10,13,14).

CONSIDERATION 3:

If warranted in the event of an IT downtime, systemic treatment teams should establish a multidisciplinary systemic treatment downtime command centre composed of key individuals (e.g., clinical leadership, administrators, IT staff, etc.) to direct ongoing systemic treatment downtime operations (2,4,15).

Recognizing that there may be equivalent group(s) directing downtime operations at the organizational level, a systemic treatment command centre should aim to provide actionable and specific direction to systemic treatment staff and providers.

The command centre should remain flexible in scope and function(s) depending on the downtime circumstances (1). Potential broad areas of focus for this group include:

- Decision making and coordination regarding potential systemic treatment operational changes (e.g., changes to operating hours or staffing, shifting assigned tasks among staff)
- Internal communication functions, such as relaying organizational updates to frontline staff, and sharing information from frontline staff (e.g., concerns, issues, barriers) to relevant organizational teams
- Collection and collation of patient information required for ongoing systemic treatment delivery (e.g., lists of active treatment patients, contact information, systemic treatment histories)
- If applicable in the case of an EMR outage, collaborating with organizational health records department to implement paper-based records, charts and documentation systems
- If applicable in the case of an extended limitation of systemic treatment capacity, collaborating with Most Responsible Physicians (MRPs) and hospital ethics committee representatives (as

applicable) to coordinate patient prioritization measures and/or referrals to alternate systemic treatment facilities (outlined in further detail in ***Patient Prioritization and Referrals*** section)

CONSIDERATION 4:

Systemic treatment teams should establish criteria to guide decision making regarding when a systemic treatment command centre structure would be convened during an IT downtime or emergency scenario. Factors to consider may include:

- Expected or actual length of IT downtime or emergency scenario
- Scope and nature of affected IT system(s), including impact on the safety of systemic treatment delivery (e.g., loss of electronic system safeguards) and overall systemic treatment capacity (i.e., the number of patients able to be treated)

CONSIDERATION 5:

Systemic treatment teams should ensure that validated protocols are documented and available related to manual and/or backup patient care processes that may be necessitated in the event of an IT system downtime (e.g., prescribing via manual/written orders, order verification, treatment preparation, treatment administration, etc.) (1,2). These protocols should:

- Be maintained in a format that will remain accessible in the event of an IT downtime (e.g., offline electronic format, or multiple paper-based copies), and be in a location that is known to staff
- Outline procedures to transition to backup electronic or manual systems
- Recognize potential sources of error related to manual processes and incorporate appropriate risk mitigation strategies. For example, if written orders are necessitated, avoiding the use of "Do Not Use Abbreviations" (16), and ensuring written orders contain necessary information for verification (e.g., patient height, weight, Body Surface Area (BSA), dose reductions etc.) (17,18)

CONSIDERATION 6:

Systemic treatment teams should define key downtime responsibilities according to staff member roles/professions to enhance staff understanding and role clarity in the event of an IT downtime (9,10,19). Teams should consider incorporating role/profession specific "Task Cards" outlining key responsibilities by role as a component of systemic treatment downtime kits.

CONSIDERATION 7:

To support increased systemic treatment capacity in the event of a downtime or emergency scenario, systemic treatment facilities may wish to develop downtime-specific medical directives (or other mechanisms for the delegation of controlled acts). For example, directives for pharmacists to order required laboratory tests or supportive care medications (18).

CONSIDERATION 8:

Systemic treatment teams should proactively discuss and coordinate components of their emergency preparedness plans with other departments within their facility (e.g., radiation treatment, laboratory

and pathology, diagnostic imaging), other facilities within their Regional Cancer Program, and/or provincially.

Elements of coordinated emergency preparedness planning at the local/regional level could include:

- Planning for potential referrals of patients between facilities including associated requirements (e.g., bilateral agreements, credentialing of staff, funding distribution, transportation, etc.)
- Proactively developing relationships and/or models of care with other health care facilities within a region (e.g., community care organizations, community pharmacies) which could be leveraged or expanded in the event of an IT downtime to support overall systemic treatment capacity (e.g., shifting of supportive care treatments to community settings)
- Planning for clinical scenarios that may involve multiple treatment modalities and/or facilities (e.g., where and how patients receiving concurrent systemic and radiation treatment would be treated in the event either service becomes unavailable at a centre during an IT downtime)

CONSIDERATION 9:

Systemic treatment teams should aim to document challenges and issues experienced during an IT downtime for use in continuous improvement of downtime policies and procedures (10).

Internal Communications

Background

Internal communications include communications among staff, clinicians and leadership within an institution affected by an IT downtime or emergency scenario. Communications between these individuals is expected to play a critical role in an IT downtime response.

Organizational Considerations

- Organizational communication plans should be referenced for how staff/providers will be initially notified of an IT system downtime, and subsequently notified when the downtime has concluded (20,21)
- Communication mechanisms utilized during an IT downtime must follow applicable organizational, legal, and privacy requirements, particularly as it relates to the communication of Personal Health Information (PHI)
- Organizational communication policies should be referenced regarding what information (type and sensitivity) may be communicated via which communication methods or systems, including how staff/provider personal devices (e.g., cell phones, messaging applications) may or may not be used for communicating different types of information
- Hospital-wide communication systems (e.g., landline phones, pagers, intercoms, dictation, internet, email) may become unavailable in an IT downtime or emergency scenario. Individual

teams should work with organizational and IT leadership to understand what contingency plans and backup communication systems are available at their institution, and how these systems would be used in the event of a downtime.

Systemic Treatment Considerations

CONSIDERATION 10:

Systemic treatment teams should maintain pre-established means to communicate with staff/providers in the event of an IT downtime (3,22). To facilitate this, teams should document staff/provider contact information and maintain this information in a format that will remain accessible in the event of a downtime (e.g., offline electronic backup) (2). In particular:

- Ensure multiple means of contact are available for key systemic treatment team roles (e.g., cell phone number, home phone number, email, etc.)
- Ensure that secondary contact persons (if applicable) are documented for key systemic treatment team roles, for use in situations where the primary contact may be unavailable

CONSIDERATION 11:

Systemic treatment teams should consider creating targeted messaging groups according to clinical disciplines, roles, or responsibilities (e.g., nursing, pharmacy, physicians, etc.) to facilitate communication and collaboration in the event of an IT downtime (23).

CONSIDERATION 12:

Systemic treatment teams should ensure that verbal communications introduced due to IT system downtimes (e.g., information being provided by phone that would normally be transmitted electronically) incorporate risk mitigation strategies to reduce the potential for errors. An example of a risk mitigation strategy may include reading back information received by phone to the other individual to ensure accuracy (17).

External Communications

Background

In the event of an emergency scenario, it is expected that there would be significant demand from multiple external parties on the affected hospital for communications and status updates throughout the duration of the event. Examples of external groups may include patients, partnering clinicians and health care organizations, clinical trial organizers, external vendors, media outlets and provincial organizations (Ontario Health, Ministry of Health).

For systemic treatment leadership specifically, the expectation would be that if an IT downtime event occurred, they would notify Ontario Health (Cancer Care Ontario)'s Systemic Treatment Program and Performance and Accountability, Regional Cancer Programs teams, as well as appropriate Ontario Health (Cancer Care Ontario) senior and clinical leadership at the earliest opportunity.

Organizational Considerations

- Organizational leadership may be responsible for overall external communications strategy and/or approval of public communications, incorporating direction from public relations and legal teams, law enforcement (as applicable), or regulatory agencies (4,13)
- Careful consideration of what information to share with external groups is warranted, including avoiding oversharing confidential or unverified information that may pose further risk to the organization, particularly in the case of a suspected cyber attack (10)

Systemic Treatment Considerations

CONSIDERATION 13:

In an IT downtime or emergency scenario, systemic treatment teams should prioritize timeliness and transparency in their communications with patients, while adhering to their organization's requirements and guidance regarding external communications.

Messaging should emphasize the measures being taken to ensure the quality and safety of ongoing systemic treatment and the impact the situation may have on patient experience (e.g., longer appointment times or delays).

Recognizing the concerns that patients may have in these situations, frontline staff should be equipped to share validated information and provide direction on how and when further information will be shared.

CONSIDERATION 14:

During the initial phase of an IT downtime or emergency scenario, systemic treatment teams should communicate directly with their patients emphasizing immediate actions requested to ensure continued systemic treatment operations in the short term (e.g., requesting patients to not come in, or to phone prior to attending scheduled appointments).

CONSIDERATION 15:

To facilitate continued patient communication in the event of an IT downtime, systemic treatment teams should consider maintaining secure offline backups of basic patient information including contact and demographic information (2,3,24).

CONSIDERATION 16:

In the event of an IT downtime, systemic treatment teams may wish to utilize centralized communication mechanisms, such as call centres, website, or social media updates as a means of addressing patient questions and concerns while alleviating communication burden on individual staff members (23), specifically:

- Where appropriate, staff phone lines with administrative, clerical, or temporary staff (i.e., staff reassigned from other areas in the facility, if applicable) to maximize clinical staff availability for patient care activities
- Develop "call sheets" which provide staff answering phones with a standardized approach and information to assist in responding to frequently asked questions (25)
- Post signage in key areas (e.g., waiting rooms) outlining any altered appointment procedures/expectations, including the potential for delays

Paper Documentation and Manual Systems

Background

The considerations outlined below should be understood within the context of an extended IT system downtime. Namely, the importance of coordinated systems to maintain the control and functionality of paper-based documents/systems would be expected to become increasingly important as an IT downtime extends in duration (e.g., for days or weeks) and the volume of paper documentation accumulated continues to grow.

Organizational Considerations

- Organizational policies and procedures relating to the privacy and security of paper-based documents should be referenced and followed throughout an IT downtime. A significant volume of paper documents may be created during an extended downtime, and these documents would lack certain privacy/security measures typically found in EMRs or other electronic record systems (e.g., requiring a login to access patient health information)
- Organizational policies and procedures relating to the retention and destruction of paper records should be referenced and followed throughout an IT downtime (11,12)

Systemic Treatment Considerations

CONSIDERATION 17:

Systemic treatment facilities should develop and/or maintain paper-based (or offline electronic) forms, systems and references to enable continued systemic treatment delivery in the event of an IT system downtime (2,9,12,15,22), specifically:

- Backup forms, systems, and references should meet established guideline and accreditation standards
- Backup systems/resources should be validated at regular intervals to ensure they remain accurate; consider updating these resources concurrently with live/electronic versions to ensure parity between versions.
- Examples of forms to maintain backup versions of may include: systemic treatment regimen orders, laboratory/pathology orders, consultation forms, imaging forms, medication administration records (MARs), referral forms, etc. **See reference: (2), Table 5 for further examples.**

CONSIDERATION 18:

In the event of an IT downtime, systemic treatment teams may need to utilize alternative sources of patient and treatment information to guide ongoing care. This may include:

- Requesting patients bring pertinent medical records and/or medications with them to treatment appointments (2,26)
- Reaching out to health care providers in the community such as family physicians or pharmacists who may be able to share relevant clinical histories (4)
- Connecting with Ontario Health (OH) to determine if OH administered data may be available and applicable (e.g., eClaims or Activity Level Reporting (ALR) data)

CONSIDERATION 19:

Systemic treatment teams should maintain clearly marked IT downtime kits (e.g., in red binders) in centralized areas (9,17,19). Contents of these kits should be standardized, and should include **(See reference: (19) for further examples)**:

- Paper documents/forms
- Essential reference information
- "Quick Start" guides or checklists for key systems and applications

Downtime kits could be structured to directly include only the most crucial or immediately applicable materials, and direct staff to another location for specialized materials, or materials required for a more extended downtime.

CONSIDERATION 20:

Systemic treatment teams should consider maintaining templates/order sets for commonly utilized systemic treatment drugs and regimens, for use in the event of an IT system downtime (2,27).

Teams should also consider maintaining templates/order sets for more complex systemic treatment regimens, where having this information pre-prepared may be of benefit (5).

CONSIDERATION 21:

Systemic treatment teams should collaborate with or defer to other hospital administrative and clinical teams for the development and validation of specific paper-based forms and associated processes that are within those team's area of expertise, for example:

- Paper lab requisition forms and associated process development/validation would be within the laboratory and pathology team's expertise
- Paper patient registration forms and associated process development/validation would be within the health records department's expertise (20,21)

CONSIDERATION 22:

Systemic treatment teams should plan for potentially significant logistical challenges associated with paper-based documents during an extended IT downtime. Namely, the storage and organization of significant volumes of paper documents which may require the use of additional physical spaces, filing cabinets, tables, folders, printing, etc. (28).

CONSIDERATION 23:

Referencing existing organizational or departmental standards, systemic treatment teams should ensure documents within paper patient charts are ordered consistently to facilitate ease of use (i.e., consistent sequencing of laboratory results, systemic treatment orders, MARs, treatment notes, etc.) (29).

Teams may wish to maintain a sample paper patient chart to serve as a format/layout example in the event paper charts are necessitated during an IT downtime.

CONSIDERATION 24:

Systemic treatment teams, with guidance from their health records department (as applicable), should consider establishing a centralized location for storing key paper-based documents such as patient charts. Teams should implement sign out procedures (or similar document control measures) for these documents (22,23,30) which emphasize the return of materials to the storage location.

Such procedures would help ensure the custody and control of documents is maintained, and that key documents remain available for staff use or can be more easily located if needed.

CONSIDERATION 25:

Systemic treatment teams should emphasize overall management and version control of paper documentation, particularly in the case of an extended IT downtime. Suggested components include:

- Marking “master” or reference copies of key documents with a sticker/stamp (or similar system) to identify which version should be considered the reference copy versus duplicate records; consider including necessary items in downtime kits
- Applying times, dates, and/or signatures to differentiate updated versions of similar documents
- Ensuring paper patient care documents include at least two patient identifiers (e.g., full name, date of birth)
- In accordance with organizational guidelines, securely disposing of redundant/duplicate copies of paper documents
- Recognizing the risks versus benefits when creating copies of key documents such as patient charts, including balancing an increase in access to information and enabling patient care, versus the risks involved with the creation of duplicate or outdated records

CONSIDERATION 26:

Systemic treatment teams should recognize the risk of inadvertently using outdated or incorrect information in situations where both electronic (e.g., downtime EMRs) and paper-based systems are being utilized simultaneously to provide patient care. Teams should apply risk mitigation strategies to assist in these situations (e.g., clearly identifying the most updated information source, versus discontinued/outdated copies) (9,19).

CONSIDERATION 27:

Systemic treatment teams should consider maintaining paper (or offline electronic) copies of planned systemic treatment suite patient schedules and treatment information for use in the event of a potential IT downtime. (1,2,4,12,31).

Determining the interval of time to have this information pre-prepared for will require balancing the benefit of having this information available if needed, versus the workload of maintaining this information and the risk of information becoming outdated or inaccurate, specifically:

- High level information (i.e., which patients are booked at which times, on which dates) could be maintained further in advance (at least 1-2 days worth, but potentially more)
- More specific information (i.e., pre-printing specific treatment regimen/dose information) could be maintained for the upcoming day of scheduled patients (particularly if this function is easily accomplished through a software report). Pre-printing dose information should be avoided further in advance to avoid potential errors with out-of-date dosing.

CONSIDERATION 28:

Systemic treatment teams should maintain a sufficient supply of pre-printed paper forms (e.g., systemic treatment orders, MARs, treatment notes, etc.) to enable continued patient care in the event of a brief IT downtime (20), approximately 1-2 days worth.

The specific quantity and types of forms to maintain will vary by clinical area and facility, but there should be a sufficient quantity to enable patient care until additional copies can be produced.

CONSIDERATION 29:

Systemic treatment teams should evaluate the type and scope of medical records they provide to systemic treatment patients, including through patient portals (e.g., MyChart). These records may be useful as a source of treatment information if hospital IT systems (and therefore systemic treatment documentation/histories) become unavailable.

Systemic treatment teams may wish to potentially expand the scope of systemic treatment documentation/records provided to patients for this purpose.

Electronic Medical Record (EMR) and Backup Systems

Background

In the event of a suspected cyber attack, affected facilities should recognize that many (or all) IT systems, whether they were affected by the cyber attack or not, may become unavailable; these systems may be brought offline (or heavily limited) as a precautionary measure to prevent the spread of suspected malware. This may include temporarily severing IT connections to partnering health care facilities or external data assets (1,2,15), which should be accounted for in IT downtime planning.

It is recognized that implementation of multiple items within this section would require significant IT expertise and coordination/planning at the organizational and/or regional levels. Many of these items would not solely be within the scope of systemic treatment teams.

Organizational Considerations

- Leadership team members should maintain awareness of their organization's overall plans, systems and level of technical expertise (either on-site, or via external service providers) related to backup electronic patient care systems
- Potential limitations of a facility's downtime EMR system (if available) should be understood. These may include the quantity and timeframe of patient care information available through the downtime EMR (i.e., how many days of patient information/data would be available) and if/when this information would be deleted (i.e., would data become unavailable over time during an extended IT downtime)
- Organizational procedures for downtime declaration and initiation should be understood, particularly how this may affect patient care processes (i.e., could there be a period of time where

normal electronic patient care systems are unavailable, but downtime systems have not yet come online, and if so, how would this be managed)

- In the event of a widespread IT downtime, the sequence in which systems are restored may be prioritized based on the criticality and interdependencies between systems (i.e., certain systems cannot be restored in isolation of others) (31)

Systemic Treatment Considerations

CONSIDERATION 30:

In a process led by organizational IT leadership, systemic treatment facilities should implement IT backups for electronic patient care systems and information, particularly the Electronic Medical Record (EMR), in preparation for a potential IT system downtime. Components include:

- Maintaining an offline/downtime EMR should be considered as a key element of a facility's electronic backup strategy (10,20,29,32)
- The scheduling, frequency and extent of backups for different systems and data should be based on the criticality of the information being backed up (i.e., certain information could be backed up less frequency if older versions remain appropriate for continued use) (1,12,14,32–34)

CONSIDERATION 31:

Systemic treatment teams should implement backup systems and processes to minimize the potential impact and safety risks of losing clinical reference and EMR clinical decision support systems (e.g., dose calculations, adjustments and alerts, allergy alerts, drug interaction checks) in the event of an IT downtime (5,27), specifically:

- Implement additional safety measures such as independent double checks for systems or processes which have experienced the loss of electronic safety measures (e.g., alerts or automated calculations)
- Maintain backup clinical reference information via staff personal devices/logins, or through paper copies of key reference information
- Provide training or resources for prescribers regarding the required elements to include on written systemic treatment orders and supportive care prescriptions (17,18)

CONSIDERATION 32:

In collaboration with organizational IT leadership, systemic treatment facilities should consider maintaining downtime computers (22). Teams should evaluate the location(s) and distribution of downtime computers, potentially locating them in centralized areas to facilitate collaboration and shared use between staff (18,27) and/or implement access controls (e.g., sign up sheets or schedules) if the quantity of downtime computers is limited.

CONSIDERATION 33:

Systemic treatment teams should assess the applicability of existing provincial systems and/or data assets (e.g., ClinicalConnect) as potential sources of patient care and general information (e.g., patient contact information, demographics).

If not already in place, systemic treatment clinicians may wish to register in advance for necessary credentials to access these systems in the event of an IT downtime (2).

However, teams should recognize that access to provincial systems or data assets may be limited in certain scenarios (e.g., suspected cyber attacks) to protect the integrity of these systems. Therefore, systemic treatment downtime planning should not be solely reliant on this access.

CONSIDERATION 34:

In collaboration with organizational IT staff, systemic treatment teams should evaluate and configure internet connected devices such as point of care devices, pumps and label printers to function offline if this functionality is available (2).

CONSIDERATION 35:

Systemic treatment teams should be aware of the following information regarding systemic treatment funding during/post IT downtime:

New Drug Funding Program (NDFP):

- Data submission through eClaims is required for reimbursement
- If the hospital normally submits data manually through the eClaims web-interface, they may continue to do so, even during a hospital IT outage
    - If access to eClaims is not available, email: OH-CCO_InfoPDRP@ontariohealth.ca, please do not email personal health information to Ontario Health.
- If the hospital normally uploads their treatment claim data via DSP or through HL7 integration, they should contact Ontario Health (Cancer Care Ontario) prior to their data submission

Activity Level Reporting (ALR)/Systemic Treatment – Quality Based Procedure (ST-QBP)

- ALR data submission(s) through the Data Submission Portal (DSP) are required for ST-QBP funding
- ALR data is due on a monthly basis according to the fiscal year ALR Submission Schedule (See: Data Book: *I - Activity Level Reporting (ALR) > Specifications > ALR – Submission Schedule*)
    - Any data (months) that miss the deadline due to extenuating circumstances can be submitted on the proceeding/next deadline, with the intention to submit the full fiscal year by the absolute final deadline at year-end (i.e., the “June” ALR deadline, typically the first business day of the month).
- If ALR data is irrecoverable from an IT downtime or there is an imminent failure to submit the full fiscal year by the absolute final deadline, the hospital is required to inform Ontario Health

immediately to initiate a contingency plan for ST-QBP funding settlement of the affected fiscal year.

CONSIDERATION 36:

Systemic treatment teams should identify backup systems/methods to support ongoing patient scheduling in the event of an extended IT downtime.

Exact processes may vary, establishing a centralized team and method for this task (e.g., a spreadsheet with restricted editing permissions) may avoid confusion on what the "master" schedule is for upcoming treatments and may facilitate reconciliation of information in the post-downtime recovery phase (35). However, centralizing this task may also introduce the risk of potential errors and limit opportunities for errors to be discovered.

Staffing, Training, and Downtime Exercises

Background

Due to the manual nature of work conducted during an IT downtime, it is expected that facilities will require additional staff time and/or number of staff to complete equivalent tasks to those in a non-downtime environment (1,27), including for conducting independent double checks of systemic treatment in the absence of typical EMR safety features (e.g., dose alerts, calculations).

Recognizing that each potential IT downtime may be different and an individual IT downtime may evolve in circumstances over time, the need for flexible staff roles and responsibilities throughout a downtime should be emphasized.

Organizational Considerations

- Staff should complete cybersecurity training offered by their organization and adhere to recommended privacy and security best practices to help minimize risks associated with cyber threats, including potential IT downtimes (36)
- Engagement with staff unions (as applicable) should be considered to establish clarity on policy and processes related to staffing coverage, particularly flexibility regarding staff working hours/days and responsibilities in an IT downtime/emergency event
- Situationally, organizational leadership may temporarily reassign staff from hospital teams of lower acute priority/resource need during an IT downtime to assist teams in higher priority treatment areas (such as systemic treatment) which may require additional staff (17,26). Given the specialized knowledge and skills of systemic treatment clinicians they should not be redeployed to other hospital areas (37).
- Depending on the circumstances and length of an IT downtime or emergency event, staff/provider burnout may become a significant concern (28,38). Organizational supports for

staff should be explored, such as ensuring set time off between shifts, providing food and lodging if staff cannot travel home, or offering applicable psychosocial supports.

Systemic Treatment Considerations

CONSIDERATION 37:

Systemic treatment teams should conduct regular training, testing and simulation exercises of their IT downtime plans and procedures to ensure that these plans are actionable within their specific operating environment (1,32–34,39). Elements to consider include:

- Training, testing, and exercises of downtime plans should occur at defined intervals in alignment with organizational/accreditation standards, and when significant changes to downtime plans or systems occur (12,14,17,31)
- Training and simulation activities should cover different aspects of potential IT downtimes or emergency scenarios such as types of affected IT systems, length of downtime, systemic treatment areas (oncology clinic, oncology pharmacy, systemic suite), specific downtime tasks/processes, staff mixes, and shift assignments (e.g., days/evenings/weekends)

CONSIDERATION 38:

Guided by organizational staff with suitable expertise, systemic treatment teams should include each of the following components as part of their IT downtime training and testing plans (39):

- **Training:** Ensuring staff understand their roles and responsibilities within the downtime plan and teaching them associated skills to fulfill those roles, including training and opportunities to practice with relevant IT downtime systems/applications
- **Exercises:** Conducting simulations of emergency scenarios to validate aspects of the downtime plan. Exercises serve to identify gaps within the downtime plan, or areas where further training may be required.
- **Testing:** Led by organizational IT staff, validation of IT systems specified within the downtime plan to ensure they will function as expected in a downtime, such as testing of recovery and backup systems.

Findings from training, testing and exercises should be used to inform adjustments to downtime policies and procedures (i.e., did the plans produce expected outcomes when tested) (10,39,40).

CONSIDERATION 39:

Systemic treatment teams should include training on IT downtime policies and procedures as part of overall staff training and orientation programs (9,27). More frequent or detailed training should be considered for specific individuals/roles who would be most involved in a potential IT downtime response, such as leadership or management staff.

CONSIDERATION 40:

In the event of an extended IT downtime or emergency scenario resulting in a sustained decrease in systemic treatment capacity, systemic treatment and organizational leadership should determine whether additional staff can/should be temporarily recruited to increase systemic treatment capacity (i.e., extend operational hours or add additional operating days) (2,15,25).

CONSIDERATION 41:

Staff from other hospital areas who are temporarily reassigned to assist systemic treatment staff during an IT downtime should be assigned tasks that align with their skills and training. Potential roles for these individuals could include acting as messengers to communicate information between units, picking up and delivering medication orders, coordinating with laboratory teams to relay results, or answering patient phone calls.

CONSIDERATION 42:

Recognizing that an IT downtime may necessitate the use of manual or paper-based systems which newer practicing systemic treatment clinicians may not have experience with, systemic treatment teams should leverage the expertise of more experienced staff with knowledge of these systems and processes to support their more junior colleagues (5,17).

CONSIDERATION 43:

Systemic treatment teams should train and subsequently schedule staff to ensure that there is an individual on each shift who has completed downtime procedure training and could coordinate initial actions outlined in downtime plans if required (11).

Non-Systemic Treatment Clinical Considerations

Background

A significant or extended IT downtime would most likely affect multiple teams within a hospital beyond systemic treatment. These likely include other treatment areas (e.g., radiation treatment, surgical services, emergency room and critical care services), diagnostics (e.g., laboratory and pathology, diagnostic imaging), clinical trial operations and administrative teams.

From a systemic treatment perspective, understanding the potential impact of an IT downtime on associated teams will inform systemic treatment-specific planning and preparation. Where feasible, systemic treatment teams should explore means to support other teams in their own responses to an IT downtime. For example, to decrease the burden on laboratory, imaging and pathology teams determine whether there may be non-essential lab tests or lower priority imaging that could be delayed or omitted (27,28).

Systemic Treatment Considerations

CONSIDERATION 44:

Systemic treatment teams should collaborate with laboratory and pathology colleagues to implement solutions to continue receiving necessary laboratory information to enable systemic treatment delivery in the event of an IT downtime. Components include:

- Establishing altered timelines, if applicable, for specimen collection and processing to inform systemic treatment planning (i.e., understanding when lab orders and specimen collection should occur to allow sufficient time for lab results to become available prior to planned systemic treatment administration)
- Ensuring the interpretation of laboratory results (e.g., the incorporation of laboratory reference ranges) is reflected in paper laboratory reports (27,28)
- Determining whether the use of external laboratories should be initiated/expanded if hospital laboratory capacity is limited

CONSIDERATION 45:

Systemic treatment teams should collaborate with laboratory and pathology colleagues to establish a process for prioritizing and sharing critical systemic treatment laboratory results (i.e., results required to make immediate treatment decisions) in an IT downtime (2,22).

CONSIDERATION 46:

Systemic treatment teams should collaborate with laboratory and pathology colleagues to determine alternative means of communicating systemic treatment laboratory results if usual electronic systems such as the EMR are unavailable (2,18,22,41).

Methods may vary but could include the use of phone or fax (if available) or the use of temporarily reassigned staff to physically relay information from the lab to systemic treatment teams.

Teams may also wish to coordinate a process where paper lab reports for systemic treatment patients are physically separated from lab reports for other hospital areas by laboratory staff to allow for ease of identification and collection.

Patient Prioritization and Referrals

Background

Systemic treatment facilities should reference Pandemic Planning Clinical Guidelines for Patients with Cancer (37) and Supplemental clinical guidance for patients with cancer (See Page Sidebar) (42) as recent Ontario-specific patient prioritization and referral guidelines. Please refer to these documents for expanded information on this topic.

Organizational Considerations

- The impact of an IT downtime on organizational e-referral system integrations (e.g., Ocean eReferral) should be understood. If e-referral systems have been affected, mitigation strategies or alternative solutions should be explored (e.g., communication of e-referral system downtime and/or reversion to paper-based referrals systems where available)
- An understanding of organizational, regional, and provincial planning for a potential patient referral or transfer system should be understood, including aspects such as funding, patient travel and hotels/lodging

Systemic Treatment Considerations

CONSIDERATION 47:

If warranted in situations of sustained limitation to systemic treatment capacity (i.e., lasting multiple days or longer), systemic treatment facilities should implement a patient prioritization and ethical decision-making framework to guide the sequence in which patients are offered treatment at the affected centre(s) given resource limitations (2,22,37,41). Implementing a patient prioritization framework ensures:

- A consistent and equitable approach is applied to all patients, and across all affected systemic treatment facilities (37)
- Patients are prioritized based on need (i.e., severity of symptoms or life-threatening nature of their cancer) and the efficacy of treatment (i.e., control of life-threatening or severe symptoms, prevention of unstable clinical situations, or likelihood of cure) (37,42)

CONSIDERATION 48:

Adapted from: Pandemic Planning Clinical Guidelines for Patients with Cancer (37), Supplemental clinical guidance for patients with cancer (42)

Note: "The patient priority classification is intended to allow flexibility determined by the local circumstances and available resources. It is recognized that local or regional circumstances and the availability of resources may influence a cancer program's ability to follow the criteria" Pandemic Planning Clinical Guidelines for Patients with Cancer (37)

Suggested Systemic Treatment Patient Prioritization Categories include:

Priority A: Patients with aggressive tumours, or experiencing life threatening situations; some patients already receiving systemic treatment

Priority B: Most systemic treatment patients

Priority C: Patients receiving oral hormone therapies (particularly in the adjuvant setting), IV bisphosphonates as their only IV treatment, or routine follow up care

Key Actions for Priority A and B Patients Include:

Patients Classified as "Priority A":

- Current systemic treatment patients classified as Priority A should continue to be seen
- New patient referrals assessed as Priority A should be offered appointments if available (or re-referred to other facilities if applicable)
- If there is insufficient capacity to treat all patients within this classification, patients experiencing life threatening situations or those with potentially curable disease should be prioritized first

Patients Classified as "Priority B":

- Current systemic treatment patients classified as Priority B should continue to be seen if capacity is available, but may be assigned to a waiting list if required
- New patient referrals assessed as Priority B should be triaged, oriented to the appointment process and assigned to a waiting list (or re-referred to other facilities if applicable).

General Guidance Regarding Patient Prioritization Include:

- Wherever possible, patients currently receiving systemic treatment should continue therapy
- As systemic treatment capacity becomes available, patients who have had their treatments deferred should be contacted to schedule appointments
- For patients who have had their treatment temporarily deferred and are on a waiting list, systemic treatment teams should ensure a method is in place (e.g., scheduled phone follow ups) to determine if a patient's clinical status, and therefore prioritization level, changes during the deferral period (i.e., progression of symptoms or disease)
- Patients waiting for treatment should have a method to contact their systemic treatment team to discuss issues that may arise during the deferral period
- An appeals process of a patient's prioritization classification should be considered, with specifics determined by the affected centre(s)
- Patient triage and prioritization should remain flexible based on shifting local resources throughout an IT downtime or emergency scenario, with waiting lists being reviewed and reassessed regularly

CONSIDERATION 49:

Systemic treatment teams should conduct decision making regarding patient prioritization and referral through a locally coordinated team-based approach to ensure consistency in approach between providers and to alleviate decision-making burden on individual clinicians (37,42). Systemic treatment teams should consider incorporating patient prioritization and/or referrals decision-making as a function or sub-group of their established systemic treatment downtime command centre.

CONSIDERATION 50:

In the event of a sustained limitation of systemic treatment capacity due to an extended IT downtime or emergency scenario, implementation of a patient transfer or re-referral process for Priority A and B patients (as outlined in Consideration #48) from the affected centre(s) to other systemic treatment facilities should be considered (37). Implementation of transfer/referral processes would be in addition to maximizing utilization of remaining systemic treatment capacity at the affected centre(s).

Systemic treatment facilities considering the implementation of a patient re-referral process should contact Ontario Health to discuss next steps. Ontario Health (Cancer Care Ontario) would work with the affected facility(s) and Regional Cancer Program leadership to help facilitate and advise on this process if warranted.

CONSIDERATION 51:

The significant patient impact of patient prioritization and/or transfer and re-referral processes (if necessitated) should be recognized (37). This may include, but is not limited to, concerns regarding:

- Potential treatment deferral and associated clinical implications
- If referral is being discussed, the prospect of receiving their treatment at a new and unfamiliar location, including associated logistics (e.g., travel, cost)
- An overall decreased level of access and/or communication from their health care team

Systemic treatment teams should recognize the importance of open and consistent communication with patients if patient prioritization or referral processes are being considered as a key component of mitigating these concerns. Systemic treatment teams should involve psychosocial professionals (where available) in decision making and discussions.

If available, systemic treatment teams should utilize patient navigators to facilitate patient transfer/referral processes, including acting as the primary contact for patient questions or concerns.

CONSIDERATION 52:

Systemic treatment facilities experiencing reduced capacity to accept new patient referrals during an IT downtime should discuss policies and approaches for the limitation or redirection of new patient referrals (e.g., suspending acceptance of new referrals for certain patient groups, such as Complex Malignant Hematology patients, or Day 1 systemic treatment starts) with Regional Cancer Program and Ontario Health (Cancer Care Ontario) leadership.

CONSIDERATION 53:

In the event a patient transfer or re-referral process is implemented, the high-level roles of affected systemic treatment facilities, Regional Cancer Programs, and Ontario Health would be (37):

<u>Ontario Health:</u>

- Supporting region-to-region and provincial conversations regarding capacity pressures and broader strategy

Note: Providing advice and coordination of re-referral for specific patients is outside the scope of Ontario Health's role

Regional Cancer Programs:

- Facilitate re-referral discussions within their region and/or with neighbouring regions, keeping Ontario Health informed

Systemic Treatment Facilities

- Facilitate re-referrals for individual systemic treatment patients (including required provider to provider communication to facilitate patient care)

CONSIDERATION 54:

In the event patient transfers to alternate systemic treatment facilities are initiated, systemic treatment teams should ensure that appropriate clinical documentation is transferred to the receiving systemic treatment facilities to facilitate continuity of care (17,18).

It is recognized that an IT downtime may limit the scope and availability of medical records able to be transferred. Where feasible, relevant clinical documentation to be transferred may include:

- Relevant past medical history, including previous systemic treatment doses received
- Diagnosis
- Systemic treatment planning and notes
- Systemic treatment orders and supportive care prescriptions
- Relevant imaging, laboratory & pathology, and other test results (e.g., genetic testing)

CONSIDERATION 55:

Systemic treatment teams may wish to consider the following items when determining which patients should be prioritized for on-site treatment versus referral to alternate systemic treatment facilities:

- Frequency of systemic treatment administration
    - Patients on less frequently administered treatments, such as maintenance trastuzumab or rituximab, may be prioritized for referral as they would have a lower travel burden
    - If multiple patients are being referred to multiple systemic treatment facilities at varying distances from the affected centre, patients on more frequently administered treatment

regimens should be referred to geographically closer facilities to the affected site, to lower overall travel burden

- Complexity and/or potential safety risks of systemic treatment administration
  - Patients receiving treatment with continuous infusions, fixed doses, or predictable treatment schedules may be prioritized for on-site treatment given the relative ease of administration of these treatments as compared to others in an IT downtime environment (2)
- Patient and Treatment factors
  - Clinical factors such as patient stability and combined treatment modalities (e.g., combined systemic treatment and radiation treatment)
  - Overall patient capacity and desire to travel, including potential mobility concerns
  - Financial capacity to travel, including public and private funding availability
  - Care partner supports available

Overall planning regarding patient prioritization and/or referrals should emphasize patient autonomy and decision-making.

CONSIDERATION 56:

Systemic treatment teams should maintain detailed records of all patients who are transferred to alternate systemic treatment facilities to receive care. Records should be reconciled once patients are repatriated to their original systemic treatment facility, or when patients conclude their treatment.

CONSIDERATION 57:

Systemic treatment teams should be aware that Out of Province (OOP) or Out of Country (OOC) patient referrals for systemic treatment would generally only be considered once all systemic treatment capacity is exhausted within Ontario.

If initiating OOP or OOC processes is ultimately required, Ontario Health would work with affected facilities to provide further information and guidance regarding this process.

Shifting and/or Reducing Patient Volumes

Background

In the event of an extended IT downtime or emergency scenario resulting in decreased systemic treatment capacity, consideration of methods which enable treatment of patients outside of the systemic treatment suite (e.g., at home or in the community) or less frequently than usual while maintaining clinical efficacy may be warranted.

Systemic Treatment Considerations

CONSIDERATION 58:

Systemic treatment facilities should work with partnering organizations within their region such as Ontario Health atHome (formerly Home and Community Care Support Services (HCCSS)) or community pharmacies to explore whether certain patient care activities could be shifted to the community setting to enhance systemic treatment capacity (37). Potential patient care activities could include:

- Flushing peripheral IV locks and central venous access devices (CVADs)
- Ambulatory pump discontinuations
- Management of drainage devices (e.g., surgical site drains)
- Management of nephrostomy/chest/wound tubing
- Dressing changes
- Administration of subcutaneous treatments (e.g., prostate or breast cancer anti-hormone treatments)

CONSIDERATION 59:

As a potential means of increasing systemic treatment capacity, prescribers may wish to implement the following measures if they are clinically appropriate and meet funding eligibility requirements:

- Consider switching patients from shorter interval to longer interval immunotherapies if applicable
- Consider switching patients from parenteral treatments to oral or subcutaneous treatments that may not need to be administered on-site at the affected centre
- Prioritize the use of regimens dosed every three weeks instead of weekly, if clinically appropriate

If alternate/unfunded dosing intervals or regimens are being considered to maximize systemic treatment capacity in an IT downtime/emergency scenario, and your hospital would like to confirm funding eligibility with Ontario Health's New Drug Funding Program (NDFP):

- Contact your Ontario Health NDFP Reimbursement Specialist via eClaims
- If access to eClaims is not available, email: OH-CCO_InfoPDRP@ontariohealth.ca
- Further instructions and means of communication (e.g., phone, fax) will be provided to your hospital, depending on access to communication and information systems. Please do not email personal health information to Ontario Health.

Such measures should be considered only at the discretion of systemic treatment prescribers and should be individualized to each patient based on their clinical circumstances and treatment preferences. Circumstances at the affected centre may also inform these decisions (e.g., extent of limitation to systemic treatment capacity, expected wait time for treatment, availability of alternate systemic treatment facilities for referral).

If implemented, these treatment decisions would require robust supporting patient education (e.g., discussion of why these treatment modalities were not implemented prior to the current IT downtime/emergency scenario).

Post-Downtime Recovery

Background

An extended IT downtime is typically resolved by restoring affected systems to backup versions from prior to the event, including a period of testing and validation to ensure proper functionality (1,2,7,43). Affected IT systems may be restored in a staggered manner, with priority systems being targeted for restoration first.

Following system restoration, there may be a significant backlog of activities for systemic treatment teams to address, including patients who may have deferred their treatments during the IT outage, patients who were referred to other centres who may be repatriated to their original systemic treatment facility, and additional efforts to digitize paper-based records created during the outage and incorporate these into the EMR.

Organizational Considerations

- The implications of paper medical records created during an IT downtime on an organization's health record retention requirements should be understood (i.e., what version(s) of which records should be maintained, and which may be securely destroyed). Teams should defer to their organization's legal and health records teams for guidance.
- Manual entry of information from paper-based records into the EMR is a process with a high risk for error that should prioritize clear communication, involve multiple staff members/double checks, and occur under the guidance of an organization's health records department

Systemic Treatment Considerations

CONSIDERATION 60:

Following the conclusion of an IT downtime event, systemic treatment teams should ensure that paper-based patient care documents created throughout the downtime are accurately captured and incorporated into the patient's electronic medical record (1). Elements of this process include:

- This process should not begin until directed by organizational/IT leadership, to ensure IT systems are stable and data will not be lost
- If known, consider including a note outlining dates of key documents that were captured on paper during the downtime and subsequently scanned into the EMR, such as patient assessments or progress notes, to facilitate ease of reference when records are digitized (19)
    - Systemic treatment clinicians (e.g., oncologists, pharmacists) may wish to document an EMR summary note outlining key treatment information that occurred during the IT downtime (e.g., treatments administered, dates, dose reductions, etc.)
- This process will likely involve significant workload, particularly in the case of an extended IT system downtime. Additional staff time and/or number of staff may be required to facilitate this process, which should be accounted for when conducting IT downtime recovery planning (17,27)

CONSIDERATION 61:

Systemic treatment staff roles and responsibilities when incorporating downtime documentation into the patient's medical record should be clearly defined and communicated.

Precise responsibilities by profession/role may vary, this process could consist of pairs of clinicians reconciling the patient chart (9,44), be a pharmacist-led process (30), or be led by non-clinical staff (17). Reconciling records could be completed by existing staff with dedicated time set aside for this process, or if resources permit, temporarily recruiting additional staff to assist with this task (21).

CONSIDERATION 62:

Systemic treatment teams should define what paper-based information created during an IT downtime should subsequently be manually entered into the electronic medical record (rather than scanned) to facilitate future patient care. Examples include:

- Systemic treatment drug/regimen doses administered, particularly for drugs with cumulative dose limits such as anthracyclines (if this functionality is available in the EMR)
- Details of adverse drug reactions, infusion reactions or new allergies identified during the downtime (19)

CONSIDERATION 63:

Following the conclusion of an IT downtime or emergency event, systemic treatment teams should hold retrospective meeting(s) to debrief the incident and the team's response (45). Debrief meetings may:

- Occur at multiple levels within the organization (profession/role-level, department-level, organization-wide)
- Seek to establish and validate a timeline of downtime event
- Solicit feedback from staff, providers, patients and other stakeholders involved in the downtime response to identify issues experienced and potential areas for improvement to downtime plans

CONSIDERATION 64:

After systemic treatment downtime debrief meeting(s) have occurred, teams should work to update associated downtime policies and procedures based on the findings identified and subsequently communicate enacted changes to systemic treatment staff and providers.

Where feasible, systemic treatment teams should aim to minimize the time between when downtime debrief meetings occur, and when systemic treatment downtime plans, policies and procedures are updated.

Appendix 1: Acknowledgements

Systemic Treatment Emergency Preparedness Working Group Members

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Appendix 2: Literature Search Strategy

Date range: 2014 – present

Language: English

Database(s):
Embase <1974 to 2024 August 21>
Ovid MEDLINE(R) ALL <1946 to August 21, 2024>

Search strategy:

#	Query	Results from 22 Aug 2024
1	exp systemic therapy/ or exp radiation oncology/ or exp cancer chemotherapy/ or exp oncology ward/	733,160
2	exp health care facility/ or *hospital/ or clinical practice/	2,467,473
3	((healthcare or health care or clinical or medical or cancer) adj2 (facilit* or centre* or center* or office* or practice*)).ti,ab,kw.	1,337,748
4	(systemic treatment or systemic therapy or oncolog* or chemotherap* or hospital* or organization* or facilit*).ti,ab,kw.	8,983,889
5	exp disaster planning/ or disaster/ or patient safety/	255,755
6	(respond* or response or readiness or prepare* or resilience or continuity or contingency or patient* safety).ti,ab,kw.	8,678,356
7	(incident command or incident report*).ti,ab,kw.	7,966
8	exp cyberattack/ or cybersecurity/	7,927
9	(cyberattack* or cyber-attack* or cyber attack* or cyber or ransomware or cyber-crime*).ti,ab,kw.	7,765
10	((information technology or information system* or network*) adj3 (offline or off-line or outage* or downtime or shutdown or failure or paraly* or disruption*)).ti,ab,kw.	5,226
11	1 or 2 or 3 or 4	11,142,766
12	5 or 6 or 7	8,850,138
13	8 or 9 or 10	19,897
14	11 and 12 and 13	831
15	14 use oemezd	583
16	exp antineoplastic protocols/ or antineoplastic combined chemotherapy protocols/ or exp radiation oncology/ or hospital departments/ or oncology service, hospital/	606,924
17	exp health facilities/ or *hospitals/	2,995,531
18	((healthcare or health care or clinical or medical or cancer) adj2 (facilit* or centre* or center* or office* or practice*)).ti,ab,kw.	1,337,748
19	(systemic treatment or systemic therapy or oncolog* or chemotherap* or hospital* or organization* or facilit*).ti,ab,kw.	8,983,889

#	Query	Results from 22 Aug 2024
20	exp disaster planning/ or disasters/ or patient safety/	272,379
21	(respond* or response or readiness or prepare* or resilience or continuity or contingency or patient* safety).ti,ab,kw.	8,678,356
22	(incident command or incident report*).ti,ab,kw.	7,966
23	exp computer security/	21,374
24	(cyberattack* or cyber-attack* or cyber attack* or cyber or ransomware or cyber-crime*).ti,ab,kw.	7,765
25	((information technology or information system* or network*) adj3 (offline or off-line or outage* or downtime or shutdown or failure or paraly* or disruption*)).ti,ab,kw.	5,226
26	16 or 17 or 18 or 19	11,452,723
27	20 or 21 or 22	8,863,477
28	23 or 24 or 25	33,086
29	26 and 27 and 28	1,191
30	29 use medall	507
31	15 or 30	1,090
32	remove duplicates from 31	784
33	limit 32 to yr="2014-Current"	**567***

*duplicates removed

Appendix 3: References

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