

Planning for Downtime

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CHAPTER OUTLINE

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KEY DEFINITIONS

Affected Systems—identification of pharmacy information/automation systems as well as hospital information systems that support pharmacy operations and the medication use process. These systems usually consist of the pharmacy information system (PIS), automated dispensing cabinets (ADM), pharmacy robot, TPN compounding machine, pharmacy's intranet and/or hospital's internet sites, admitting/registration system (ADT/registration) for patient access, financial systems, carousel inventory cabinets, bar code medication administration systems (BCMA), clinical decision support (CDS), computerized provider order entry (CPOE), electronic medication administration record (eMAR), clinical results/electronic healthcare record, laboratory information systems, etc.

Cost of Downtime—associated costs including: (1) direct costs—staff salary, downtime equipment, lost revenue, downtime supplies, and (2) indirect costs—delays in medication delivery, increase in medication errors, staff stress levels, etc.

Evaluation/Outcomes Measure—post downtime review to determine if existing policies and procedures, planning, and staffing worked, and what needs to be changed.

Levels of Downtime—duration of downtime that will require different activation of the downtime plan to maintain pharmacy operations, for example: (1) short duration—up to 2 hours, (2) medium duration—2 to 7 hours, and (3) long duration—greater than 8 hours.

Recovery Period—time period post downtime for entry of data generated during downtime to update pharmacy information/automations systems that were affected during downtime.

Scheduled Downtime—system outage that is scheduled for pharmacy information/automation systems allowing for

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prospective downtime planning; most common reasons include planned hardware or software upgrades.

Unscheduled Downtime—system outage that is not scheduled for pharmacy information/automation systems, resulting in no prospective downtime planning. Most common reasons include unplanned hardware or software failures, power outages, and extreme weather conditions.

Background

In the ideal technical environment, downtime of pharmacy information systems, automation, or associated information systems involving the medication use process would not be an issue. There would be sufficient redundancy for hardware and software, as well as the necessary information system infrastructure (power, network, routers, and hubs) to eliminate a single source of failure which would lead to downtime. As reliance on clinical information systems increases and becomes entrenched in normal workflow, the more difficult it becomes to work without 100% available computer systems.¹ Senior staff will forget how to work in a paper environment while younger staff may have never worked without technology, leading to chaos if proper paper backup systems are not available.² This dependency on technology should never outweigh the fundamental role of the pharmacist in providing safe, cost-effective pharmaceutical care to the patient. Around-the-clock system access is now considered a necessity, which increases the staff's concern about downtime.³

Currently, scheduled downtime occurs because of the need for software and hardware upgrades, routine maintenance activities, infrastructure maintenance and upgrades, and any other planned occurrence that would cause the systems to be unavailable.⁴ Unscheduled downtime occurs randomly and without warning, and different responses are required based on the time of day, duration of downtime, and what systems are affected. The main advantage of scheduled downtime is the ability to pre-

plan, review, and staff for the downtime. However, even scheduled downtimes can turn into mini-unscheduled downtimes when unexpected problems are encountered that can extend the downtime or create unintended consequences.

Unfortunately, downtime (scheduled and unscheduled) will occur and planning for such events is crucial. Downtime plans can also be requested during surveys by the Joint Commission on Accreditation of Healthcare Organizations especially as the survey relates to automated dispensing cabinets access during system inaccessibility.⁵

The content and examples in this chapter are to be used as a reference or starting point for development of downtime plans, policies and procedures, and workflows specific to each individual's organizational and departmental information systems and operational environments.

Downtime Policy

The fundamental role of a downtime policy is to ensure continuity of the medication use process by a structured, methodical plan that will enable the staff to revert to a manual process with minimal disruption to patient care. Most pharmacies are operating with minimum staffing levels, so transitioning to a manual process while trying to maintain normal operations is a stretch without prospective planning. A downtime policy template with its major categories can be seen in Figure 12-1. The major categories include notification of system outages, scheduled versus unscheduled downtime and duration, patient profiles, handling of existing and new medication orders, label options, shift procedures, contents of a downtime box, testing methodology, recovery processes, post downtime assessment and identification of affected systems. This template can be used as a starting point for customization and addition of specific issues by individual hospital pharmacies. The purpose of each category will be discussed briefly.