

Knowledge Acquisition Session Report NCI – DCP Protocol Information Office

Session Date: May 30, 2000

Session Time: 1:00 – 4:00 P.M.

Session Topic: McKesson HBOC, BioServices unit site visit

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Organization: Protocol Information Office, NCI Division of Cancer Prevention

Session Location: Rockville, Maryland

Type of Session:

Interview

Task Analysis

Scenario Analysis

Concept Analysis

Observation

Structured Interview

Other: Site Visit

Documentation: KA Session Report

General Topic Area

McKesson BioServices' repository

Session Objective

Elicit DCP and McKesson Chemopreventive Agent Repository information requirements by examining the repository's facility and operating procedures.

Report Summary

The McKesson HBOC company supplies agents to site pharmacies for use in DCP (Division of Cancer Prevention) clinical trials. McKesson's BioServices business unit operates the CAR (Chemopreventive Agent Repository) to perform this task. The Chemopreventive Agent Repository receives drugs, labels each bottle or blister pack, ships to site pharmacies, and performs quality assurance/ quality control procedures. CAR does not manufacture or package agents. The Chemopreventive Agent Repository solicits bids when an agent must be manufactured. McKesson's commercial repository packages cancer prevention agents. The commercial repository performs agent release and stability testing in its analytical laboratory. CAR personnel manage inventory using an in-house designed FoxPro system. McKesson will consider the possibility of integrating its systems with DCP's PIMS (Protocol Information Management System).

McKesson HBOC

McKesson HBOC has provided products and services to the entire healthcare system since 1833. McKesson maintains its headquarters in San Francisco, and employs over twenty-four thousand people in facilities throughout the United States. McKesson HBOC is organized into three main divisions:

1. Supply Management
2. Information Technologies
3. Pharmaceutical Partners Group

Each division is comprised of multiple business units. The DCP PIO works with the Chemopreventive Agent Repository located in Rockville, Maryland. Although DCP PIO staff refers to the repository as ‘McKesson’, it functions under the BioServices business unit of the Pharmaceutical Partners Group division.

Figure 1 depicts McKesson HBOC’s three divisions and details the pharmaceutical Partners Group’s four business units. The figure shows how the Rockville, Maryland repositories fit into the McKesson company organization. This information was gleaned from the McKesson web site.

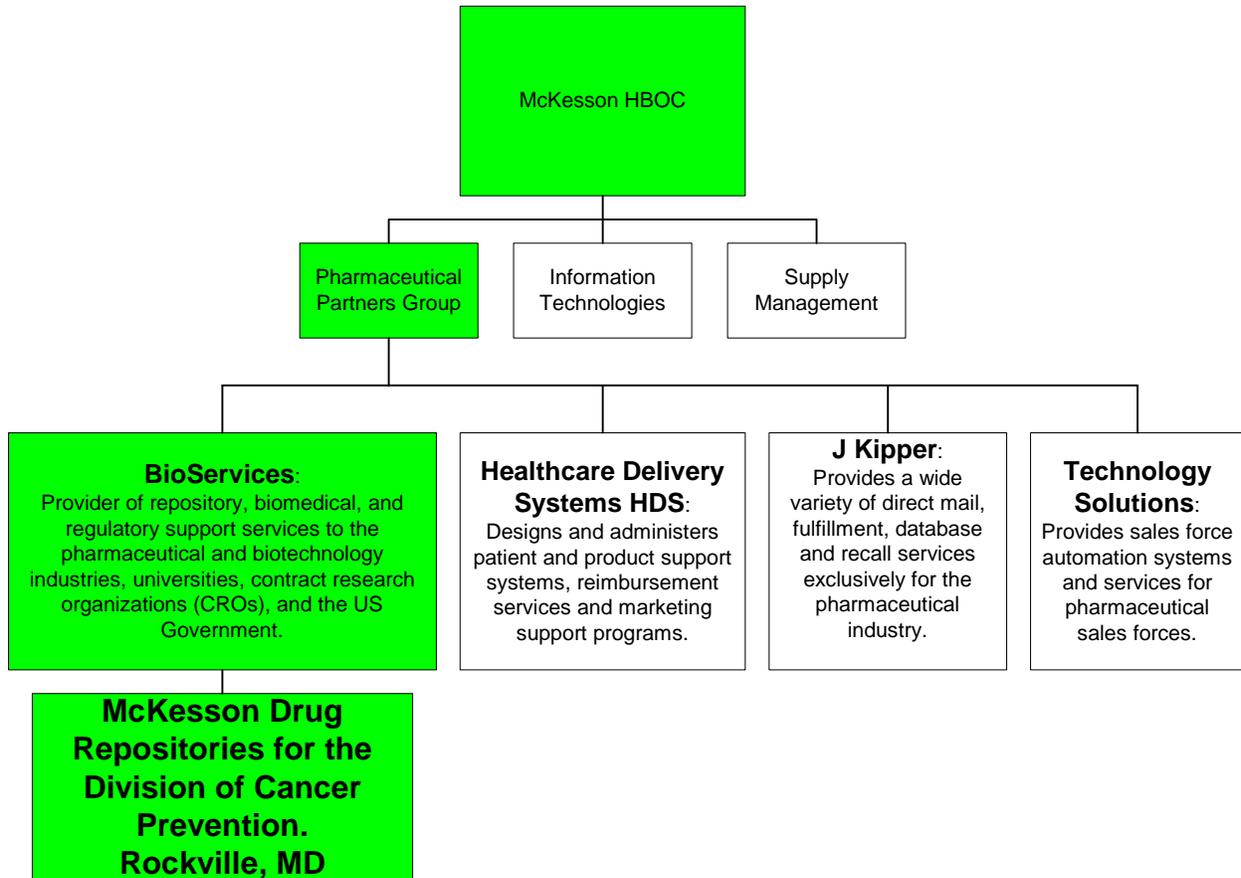


Figure 1: Drug Repositories’ Place in McKesson’s Organization

McKesson Repository Facilities

McKesson serves the Division of Cancer Prevention with two repositories:

1. Chemopreventive Agent Repository (serves DCP)
2. Commercial repository

The Chemopreventive Agent Repository receives, stores, and distributes drugs used in cancer prevention clinical trials. McKesson's commercial repository packages any manufactured DCP drugs that are not already packaged by the pharmaceutical companies. The repository houses a lab used to test formulas and receives, stores, and distributes drugs for its commercial contracts.

McKesson has implemented various measures to ensure a controlled environment for its DCP drug repositories. Security systems, including motion detectors, video surveillance and cycle locks protect each facility. Environmental systems maintain a constant temperature and humidity level. Repository personnel monitor the levels and call the manager if the reading fluctuates. Double HALON and Inergen systems protect the repositories from fire. Diesel and propane generators provide electrical backup.

Chemopreventive Agent Repository

The Chemopreventive Agent Repository (CAR) has two bays: clinical and pre-clinical. A fire-proof wall separates the two bays. Bay One contains drugs approved for use in cancer prevention trials. CAR staff validates shipments at a workstation in Bay One. Bay Two receives, stores and distributes bulk material used in pre clinical studies. Much of Bay Two's inventory is used for animal studies. Bay Two also holds an archive of animal wet tissue, slides and paraffin samples.

Commercial Repository

McKesson uses its 120,000 square foot commercial repository primarily for storage and distribution. The repository receives around 20,000 shipments a year. Large clean rooms enable packaging of drugs for DCP and McKesson's commercial contracts. This facility contains three large stability chambers to test drugs under different shipping conditions. Each chamber controls temperature and humidity and is re-certified every six months. The commercial repository maintains a high standard for accurate shipping. A recent audit revealed only 100 errors out of 122,000 opportunities.

Repository's Analytical Lab

McKesson started using its analytical lab in 1993. The Lab tests formulations and performs analytical work to support other work in the facility. The Analytical Lab contains a variety of instruments including:

- Scales: The lab has one room dedicated to weighing. Some scales are sensitive enough to measure a microgram. Lab technicians balance the scales daily, and each one is calibrated every six months.

- HPLC: McKesson tests sixty to seventy percent of its active pharmaceutical agents using High Performance Liquid Chromatography (HPLC). The instrument tests for release and stability of a particular agent.
- Equipment that analyzes how well a tablet is dissolved and digested under different conditions such as patient movement. Technicians use high quality water to help in the testing.
- Gas spectrometer: Used to identify chemical compounds

Lab technicians use a standard set of operating procedures to perform their work, but they are sometimes required to search pharmacological literature for new or unknown procedures. Technicians will develop an analytical method themselves if one is not available in the literature. Inventory is recorded both electronically and in hand-written ledger books.

Figure 2 shows the basic features of the Rockville repositories.

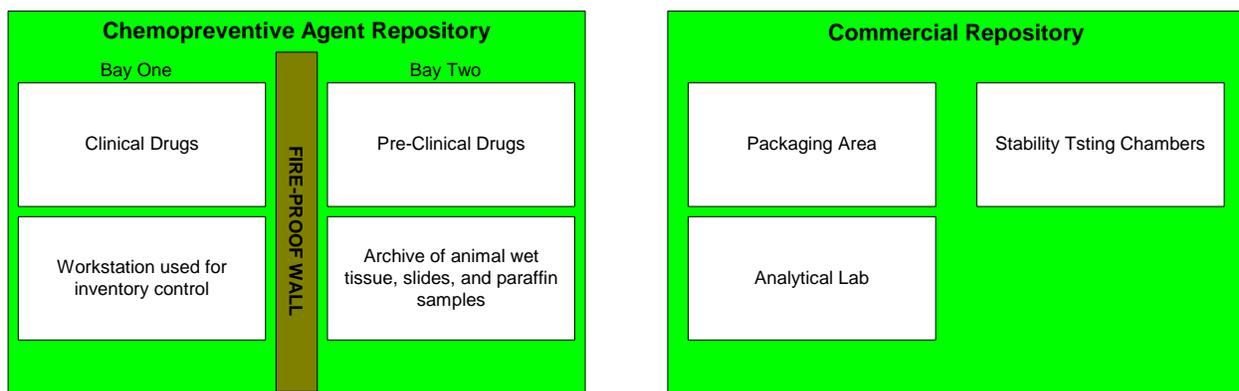


Figure 2: McKesson Repository Features

Repository Process

McKesson's repositories have standard operating procedures for all tasks. The Chemopreventive Agent Repository (CAR) stocks around 80% of a study's agent supply. CAR personnel solicit bids when an agent must be manufactured. The Chemopreventive Agent Repository uses McKesson's commercial repository for packaging. CAR personnel follow thorough procedures when shipping drugs to site pharmacies. Personnel manage CAR's inventory by using an in-house designed FoxPro system.

Chemopreventive Agent Repository Inventory Tracking System: PAMS

The Preventive Agents Management System (PAMS) has been in place for years and helps CAR staff control inventory. PAMS is a FoxPro database designed by former repository staff member Ted Miller. PAMS includes the following categories:

- Bulk pre-clinical
- Bulk clinical
- Study specific

Each category contains the following data:

- Date
- Agent
- Source
- Study number
- Lot number
- Dose

PAMS records archival information on animal tissue samples housed in Bay Two of the Chemopreventive Agent repository. CAR personnel have adapted PAMS to this task, since it was not designed to track such samples. PAMS can produce and print reports, receipts, barcodes, and labels.

Receiving Shipments

The Chemopreventive Agent Repository receives bulk chemicals, formulated drugs, and pre-packaged doses. CAR personnel record new shipments from pharmaceutical companies in the PAMS system and in a hand-written ledger book. PAMS assists CAR staff in locating inventory by the shelf location and lot number. Animal tissue samples are archived by the same process.

Manufacture of Study Drugs

Occasionally, the Chemopreventive Agent Repository is required to have bulk drugs manufactured into pill form. CAR personnel solicit bids for agent compound manufacturing and award the contract. The contractor manufactures a pilot batch for stability and release testing before the contract is awarded.

Packaging at the Commercial Repository

Study drugs and placebos are packaged in bottles or in blister packs. Chemopreventive Agent Repository staff believes blister packs provide better compliance and reduce waste. Blister pack instructions are produced at the Chemopreventive Agent Repository.

Pharmaceutical companies package about sixty percent of the drugs sent to the repositories. The Chemopreventive Agent Repository will send formulated pills to McKesson's commercial repository for packaging when needed.

The packaging area contains rooms dedicated to handling large and small orders. The commercial repository maintains standard operating procedures for gowning and washing of packaging staff prior to entering the packaging area. Packaging staff use a bottle-filling machine to complete large orders. The machine counts bottle contents visually. Packaging personnel fulfill smaller orders by hand. McKesson's commercial repository returns the completed shipment to the Chemopreventive Agent repository where it is labeled.

Labeling at the Chemopreventive Agent Repository

The Chemopreventive Agent Repository uses labels to help maintain patient and drug/placebo anonymity. The Preventive Agent Management System (PAMS) prints the labels. Each label consists of three parts. Two parts contain directions and information for the patient. The remaining part identifies the contents of the bottle. CAR staff members tear off this part of the label. Placebos and study drugs appear identical after this portion is removed. CAR personnel divide the placebos and study drugs into separate boxes prior to shipment.

Shipping the Order to Site Pharmacies

Chemopreventive Agent Repository personnel perform a detailed quality assurance process on all orders before shipment to site pharmacies. Two staff members perform most tasks in the Chemopreventive Agent Repository to provide quality control. Staff members ensure that each bottle receives a barcode. The method requires three in-process checks of each bottle:

1. By barcode number
2. By lot number
3. By name

CAR personnel scan each barcode by hand.

CAR ships completed orders after receiving approval from Dr. Crowell (DCP Program Director assigned to the McKesson contract). NCI vendor Clinical Chemoprevention Study Associates (CCS) may also approve a shipment. The Chemopreventive Agent Repository is not concerned with monitoring patient accrual and will not refuse a proper shipment request.

Maintaining a Study's Drug Supply

Each research site pharmacy provides monthly reports of its inventory to the Chemopreventive Agent Repository. CAR personnel record the information in PAMS and update the site pharmacy's inventory information accordingly. CAR sends agent request forms to site pharmacies. The site pharmacy faxes the form to CAR when the pharmacy needs more clinical trial drugs.

Unused Inventory

The Chemopreventive Agent Repository maintains a quarantined area to separate drugs that:

- have expired
- have been returned from site pharmacies
- need to be tested or approved

Returned drugs from human clinical trials are never reused; they are destroyed.

The DCP sometimes allows site pharmacies to destroy their unused inventory because of high return shipping costs. Site pharmacies follow a standard operating procedure for the destruction and adherence is checked during monitoring visits.

McKesson's Perspective on New System Integration

System Improvements

Greg Bullard, Principal Investigator with the McKesson BioServices business unit, manages the Chemopreventive Agent Repository. Mr. Bullard shared his ideas on how a new computer system would make the whole process more efficient.

Mr. Bullard identified system requirements that would make the repository run more efficiently. The new system should:

- Retrieve all information contained in the Investigational New Drug (IND)
- Access records by IND and study number
- Report repository inventory by drugs already assigned to a study and by available stock
- Report inventory at each site
- Provide access to charts on stability tests
- Allow sorting of attributes in a variety of ways
- Accept inventory information like:
 - Grams
 - Capsules
 - Capsules per bottle
 - Bottles
 - Wet tissue data

McKesson BioServices Integration with the Protocol Information Management System

McKesson BioServices representatives expressed some interest in developing an Oracle-based system for their DCP work. The representatives felt that it would add some expense, but consolidating would cut down on system variables. The BioServices business unit has budgeted one-half an FTE for a new system based on SQL Server and MS Visual Basic/ Visual Tool. BioServices staff has identified a resource who could assist with the development of a new system. McKesson representatives speculated that data import and export might allow their new system to communicate with DCP's Protocol Information Management System (PIMS).

PIMS is not designed to replace McKesson's existing systems. McKesson BioServices representatives identified some current limitations and some questions to be answered.

Limitations:

- Handling connectivity with the National Cancer Institute (NCI)
- Chemopreventive Agent Repository resides outside the McKesson Wide Area Network
- Handling back-up systems and procedures

Questions to be answered:

- Will PIMS integration with McKesson repositories be a co-venture between McKesson and NCI or will the NCI handle it alone?
- How will patient records be secured?

- What will be needed to provide constant validation of network security?
 - McKesson has a security capability through its main computer that sanitizes patient records to exclude patient information beyond name and study number.

Entries for Domain Dictionary

Agent: An active force or substance capable of producing an effect.

Clinical agent: An agent that has been approved for use in a human clinical trial.

HPLC: High Performance Liquid Chromatography. Technique used to analyze chemical compounds.

Pre-clinical agent: An agent that has yet to receive approval for use in a human clinical trial.

Release Testing: Testing procedure used to assess the rate of drug absorption of a particular dosage.

Stability Testing: Testing procedure used to determine a drug's appropriate storage condition and expiration date.