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# **Chemical Pharmacy Experiences at Los Alamos and Lessons Learned**

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## Program Goals

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- **Reduce Chemical Inventories by at least 50%**
- **Maintain a more accurate and up to date chemical inventory**
- **Reduce disposal of unused/unspent chemicals by encouraging sharing and the purchase of smaller quantities**

## Barriers

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- **Los Alamos has several laboratory and process facilities spread out over 43 square miles of area**
- **Transport of Chemicals between laboratory sites require that chemicals be placed in a DOT approved container and transported in accordance with DOT regulations**
- **Quality concerns affect the ability to share some chemicals**
- **Purchase of small chemicals difficult. Typically only available in standard sizes (1 lb, 500 ml, etc.)**

## Implementation- Phase 1

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- **Fund clean outs to reduce current inventory**
- **Improve chemical inventory software to allow easy transfer of chemicals between users and the ability to flag chemicals as surplus to alert other users to their availability**

## Lessons Learned-Phase 1

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- **Funded Clean Outs very popular. Significantly reduced inventories.**
- **Chemical inventory system too cumbersome for average chemical user.**
- **Transportation between sites too time consuming and expensive.**
- **Difficult and time consuming to get vendors to supply chemicals in non-standard quantities.**

## Lessons Learned-Phase I

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- **Chemical procurement system is too slow to foster a “just in time” mentality to ordering chemicals. Users still maintain larger inventories than necessary.**
- **Pharmacy (chemical sharing) was unsuccessful, but increase awareness reduced inventories.**

## Program Goals-Phase II

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- **Setup local chemical pharmacies where chemicals are shared within a group and/or site.**
- **Simplify procurement to foster a “just in time” mentality.**

## Barriers-Phase II

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- **Existing chemical management software is too cumbersome.** Centralized inventories require that the chemical inventory system is updated when users remove chemicals from the central storage area to their work area.
- **Too Expensive to hire an individual to manage chemicals.**
- **Chemicals with quality issues must be controlled.**

## Lessons Learned (To Date)-Phase II

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- **Incorporate PDAs with Barcode Readers into the Chemical Management Process**
  - **User only needs to scan a few barcodes to transfer chemicals from central storage**
  - **PDA flags user with important chemical hygiene information (EHS, Carcinogen, P-Listed, etc.)**
  - **PDA flags user if chemical is controlled for quality purposes**

## Lessons Learned (To Date)-Phase II

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- **Use local web based software to interface with PDAs then upload to labwide system.**
- **Ensure systems make it EASIER for the user**
  - **PDA used to flag a chemical or container for disposal – system notifies waste management**
  - **System automatically procures replacement chemical (if desired)**

## Lessons Learned (To Date)-Phase II

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- **Test system with actual users unfamiliar with the process. Modify system until users find it simple and useful.**

## Current Status-Phase II

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- **Software for local pharmacy still under development**
- **Users like chemical hygiene, disposal, and ordering features.**
- **Looking for a simple way of updating container contents when returned to pharmacy.**

## Summary

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- **Site wide attempts at implementing a chemical pharmacy were unsuccessful, but did increase awareness and reduce inventories.**
- **Local site/facility pharmacy only practical approach**
- **Cost to staff pharmacy is prohibitive**
- **Pharmacy needs to be controlled by users**
- **Pharmacy control system must be user friendly, simple, and provide a benefit to the user.**