Hazardous Drug Program Development
Tristan Melton, BSc(Pharm); Winnie Lam, BSc(Pharm), ACPR, MBA; Annemarie Rongve, BSc(Pharm), ACPR; Jane Dheere, BSc(Pharm), ACPR

Introduction
Occupational health concerns related to medication exposure have become a subject of interest and debate. Currently, there are limited and conflicting literature regarding the safe handling practice of hazardous drugs in Canada. Since employers are obligated to set forth policies and procedures around the safe handling of hazardous drugs, these must be balanced with an assessment of health risk to the employees and operational efficiency of the organization.

History
- 1970's: first concerns about occupational exposure to antineoplastic drugs
- 1990: “hazardous drug” definition developed by American Society of Health-System Pharmacists (ASHP)
- 2004: National Institute of Occupational Health and Safety (NIOSH) revises definition and develops list of hazardous drugs

What is the NIOSH definition of a hazardous drug?
Hazardous drugs include those that exhibit one or more of the following six characteristics in humans or animals:
1. carcinogenicity
2. teratogenicity or other developmental toxicity
3. reproductive toxicity
4. organ toxicity at low doses
5. genotoxicity
6. structure and toxicity profiles of new drugs that mimic existing drugs determined hazardous by the above criteria

Methods
Primary objectives
- Determine if VIHA will adopt the NIOSH definition to develop a hazardous drug program
- Evaluate the feasibility of a risk stratification system for hazardous drugs
- Develop a comprehensive hazardous drug list within VIHA formulary
- Design a working draft matrix of personal protective equipment for the pharmacy department and nursing for the preparation and administration of hazardous drugs

Secondary objectives
- Create a pharmacy procedure for receiving, storage, medication preparation, dispensing, MAR documentation, labeling, prescription checking, disposal, spill response, transport and accidental exposure for hazardous drugs
- Review specific hazardous drugs through literature and evidence to determine their appropriate level or risk and required precautions

Literature search
A comprehensive literature search was conducted to identify hazardous drug program development at other centers.

Survey
Pharmacists from hospitals and health authorities across Canada were first contacted using the Canadian Society of Hospital Pharmacists (CSHP) Pharmacy Speciality Network. Subsequent contacts were acquired utilizing a snowball sampling technique as there were limited sites involved with a current hazardous drug program. Each site took part in a telephone survey designed to extrapolate data from their hazardous drug program such as: development of policy/procedure, definition, time frame, risk stratification, medications of interest/controversy and recommendations.

Hazardous Drug Working Committee
The working committee was formed that included the following members:
- Pharmacy resident
- Occupational hygienist through occupation health and safety
- Pharmacy manager of tertiary care
- Research and sterile products pharmacist
- Central intravenous admixture pharmacist
- Coordinator for Royal Jubilee Hospital tertiary pharmacy
- Home and community care pharmacist
- Clinical nurse educator of respiratory and oncology

Results
Table 1: VIHA Hazardous Drug List
Table 2: Pharmacy Department Apparel and PPE Matrix
Table 3: Nursing Administration Apparel and PPE Matrix

Discussion
- Developing a modern hazardous drug program is essential to provide safe and effective protection for all VIHA employees involved with the handling of hazardous drugs.
- To date there is limited literature concerning the development of a hazardous drug program. CSHP Hazardous Pharmaceuticals (Including Cytotoxic Drugs): Guidelines for Handling and Disposal publication is fifteen years old without reference to a hazardous drug list.
- The site survey results indicated that only a limited number of hospitals and health authorities across Canada have or are currently developing a hazardous drug program.
- A hazardous drug list and personal protective matrices is only one phase in the development of a comprehensive hazardous drug program. A multidisciplinary approach is required to involve all components concerning the handling of hazardous drugs and contaminated materials e.g. cleaning, laundry, disposal, and documentation.

Conclusions
- The Hazardous Drug Working Committee recommends that VIHA adopt the NIOSH definition for development of a hazardous drug program
- Risk stratification of hazardous drugs is feasible to implement

Application to practice
- We strongly encourage Health Canada to set standardized policy and procedures for hazardous drugs through Accreditation Canada implements required organizational practices.

References available on request – tristan.melton@viha.ca