

A summary of best practices in phlebotomy including the safe handling of biohazards:

Blood, blood collection supplies, and biohazard waste

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Reference Document

DRDC-RDDC-2016-D003

March 2016

IMPORTANT INFORMATIVE STATEMENTS

Prepared For: OnTAP Reviewers: HFOS, GSO, Biological, and Human Subjects; CMS Section Head; and Controlled Goods Reviewer

This publication has been published by the Editorial Office of Defence Research and Development Canada, an agency of the Department of National Defence of Canada. Inquiries can be sent to: Publications.DRDC-RDDC@drdc-rddc.gc.ca

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Abstract

DRDC Suffield is establishing the framework to develop policies and procedures for the in-house monitoring and rapid assessment of organophosphate (OP) exposure to comply with the mandatory addition to the Defence Research and Development Canada (DRDC) Suffield Research Centre (SRC) chemical warfare agent (CWA) worker safety program. The monitoring program aims to examine and follow blood acetylcholinesterase (AChE) activity in laboratory staff who work with Schedule 1 OP CWAs.

A significant component of the AChE monitoring program will be the collection, handling, and disposal of potentially biohazardous material. This document specifically describes the safe handling of blood, blood collection supplies, and waste material. Additionally, current best practices in phlebotomy are described and referenced.

Significance to defence and security

Applying the principles of best practice phlebotomy techniques including the safe handling of potentially biohazardous materials, acts in accordance to the DRDC SRC CWA worker safety program.

Résumé

Recherche et développement pour la défense Canada (RDDC) – Suffield définit actuellement un cadre afin d'élaborer des politiques et des procédures pour la surveillance interne et l'évaluation rapide de l'exposition aux organophosphates (OP), conformément aux nouvelles exigences relatives aux agents de guerre chimique du programme de sécurité des travailleurs du Centre de recherches de Suffield. Le programme de surveillance vise l'examen et le suivi de l'activité de l'acétylcholinestérase (AChE) dans le sang chez le personnel de laboratoire travaillant avec des agents de guerre chimique organophosphatés (annexe 1).

Un important volet du programme de surveillance de l'activité de l'acétylcholinestérase comporte la collecte, la manipulation et l'élimination des matières présentant un danger biologique potentiel. Le présent document décrit comment manipuler de façon sécuritaire le sang, les fournitures nécessaires aux prélèvements sanguins et les déchets. Les pratiques exemplaires actuelles relatives à la phlébotomie sont également décrites et citées en référence.

Importance pour la défense et la sécurité

L'application des principes relatifs aux techniques exemplaires en phlébotomie, y compris la manipulation sécuritaire des matières présentant un danger biologique potentiel, est conforme aux dispositions relatives aux agents de guerre chimique du programme de sécurité des travailleurs du Centre de recherches de Suffield de RDDC.

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Acknowledgements

The author recognizes the influence and guidance from Dr. John Mikler.

1 Introduction

The following is a summary on the safe handling of blood, blood collection supplies, and biohazard waste as outlined in the best practices in phlebotomy derived from the World Health Organization's (WHO) *Best Practices in Phlebotomy* and the Southern Alberta Institute of Technology's (SAIT) *Phlebotomy Course Module*. Avoiding contamination, effective site disinfection, disposal of collection supplies, post exposure prophylactic procedure in case of a needle stick injury and the disinfection of a biohazard spill are discussed in this summary.

Routine practices (formerly called universal precautions) were adopted by Health Canada and include blood and all body fluids, secretions, and excretions (except sweat) regardless whether it contains visible blood or not (Public Health Agency of Canada, 2012). Best practices in phlebotomy protect health workers as well as patients, or those collecting blood samples and those offering it.

2 Reference description

To avoid contamination of concerning bacteria and viruses (methicillin-resistant staphylococcus aureus (MRSA), vancomycin-resistant enterococci (VRE), Clostridium difficile, Hepatitis, etc.) commonly used items should be visibly cleaned before use; regarding single use items (tourniquet, needle, lancet), the best practice is to immediately discard into a sharps container that is clearly visible and within arm's reach.

The puncture/capillary entry site is to be disinfected with a 70% alcohol pad starting at the puncture site and working outwards. Allow alcohol to dry completely (approximately 30 seconds); failure to allow enough contact time increases the risk of contamination (SAIT, 2012).

In the event of an accidental needle stick exposure, post-exposure prophylaxis includes removing PPE if covering affected area, washing area well with soap and water as well as flushing with water for at least five minutes (WHO, 2010). Squeeze wound site to promote bleeding. If there was potential for exposure to human blood seek immediate medical attention. Report the incident as soon as possible.

If blood spillage occurs put on PPE, clean the area with paper towels and flood the area with a 1:10 5.25% chlorine bleach to water solution (WHO, 2010). The area must remain wet for 10 minutes. Soak up bleach solution and discard all waste into an infectious waste container. An alternative to bleach is 2% Virkon (commercially supplied) with a 3 minute contact time (SAIT, 2012).

3 Conclusion

This document describes the safe handling of blood, blood collection supplies, waste material, as well as current best practices in phlebotomy. These guidelines will be used throughout the development of the blood AChE monitoring program. The aim of this program is to provide the framework to develop policies and procedures for routine practices in the in-house monitoring and rapid assessment for OP exposure.

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List of symbols/abbreviations/acronyms/initialisms

AChE	Acetylcholinesterase
CWA	Chemical warfare agent
DRDC	Defence Research and Development Canada
MRSA	Methicillin resistant Staphylococcus aureus
OP	Organophosphate
PPE	Personal protective equipment
SAIT	Southern Alberta Institute of Technology
SRC	Suffield Research Centre
VRE	Vancomycin resistant Enterococci
WHO	World Health Organization

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DOCUMENT CONTROL DATA		
(Security markings for the title, abstract and indexing annotation must be entered when the document is Classified or Designated)		
1. ORIGINATOR (The name and address of the organization preparing the document. Organizations for whom the document was prepared, e.g., Centre sponsoring a contractor's report, or tasking agency, are entered in Section 8.) DRDC – Suffield Research Centre Defence Research and Development Canada P.O. Box 4000, Station Main Medicine Hat, Alberta T1A 8K6 Canada	2a. SECURITY MARKING (Overall security marking of the document including special supplemental markings if applicable.) UNCLASSIFIED	2b. CONTROLLED GOODS (NON-CONTROLLED GOODS) DMC A REVIEW: GCEC APRIL 2011
3. TITLE (The complete document title as indicated on the title page. Its classification should be indicated by the appropriate abbreviation (S, C or U) in parentheses after the title.) Best practices in phlebotomy including the safe handling of biohazards : Blood, blood collection supplies, and biohazard waste		
4. AUTHORS (last name, followed by initials – ranks, titles, etc., not to be used) Garrett, M. J.		
5. DATE OF PUBLICATION (Month and year of publication of document.) March 2016	6a. NO. OF PAGES (Total containing information, including Annexes, Appendices, etc.) 16	6b. NO. OF REFS (Total cited in document.) 3
7. DESCRIPTIVE NOTES (The category of the document, e.g., technical report, technical note or memorandum. If appropriate, enter the type of report, e.g., interim, progress, summary, annual or final. Give the inclusive dates when a specific reporting period is covered.) Reference Document		
8. SPONSORING ACTIVITY (The name of the department project office or laboratory sponsoring the research and development – include address.) DRDC – Suffield Research Centre Defence Research and Development Canada P.O. Box 4000, Station Main Medicine Hat, Alberta T1A 8K6 Canada		
9a. PROJECT OR GRANT NO. (If appropriate, the applicable research and development project or grant number under which the document was written. Please specify whether project or grant.)	9b. CONTRACT NO. (If appropriate, the applicable number under which the document was written.)	
10a. ORIGINATOR'S DOCUMENT NUMBER (The official document number by which the document is identified by the originating activity. This number must be unique to this document.) DRDC-RDDC-2016-D003	10b. OTHER DOCUMENT NO(s). (Any other numbers which may be assigned this document either by the originator or by the sponsor.)	
11. DOCUMENT AVAILABILITY (Any limitations on further dissemination of the document, other than those imposed by security classification.) Unlimited		
12. DOCUMENT ANNOUNCEMENT (Any limitation to the bibliographic announcement of this document. This will normally correspond to the Document Availability (11). However, where further distribution (beyond the audience specified in (11) is possible, a wider announcement audience may be selected.) Unlimited		

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Phlebotomy; biohazard; blood collection; biohazard waste; blood collection; routine practices; Acetylcholinesterase (AChE) Monitoring Program.