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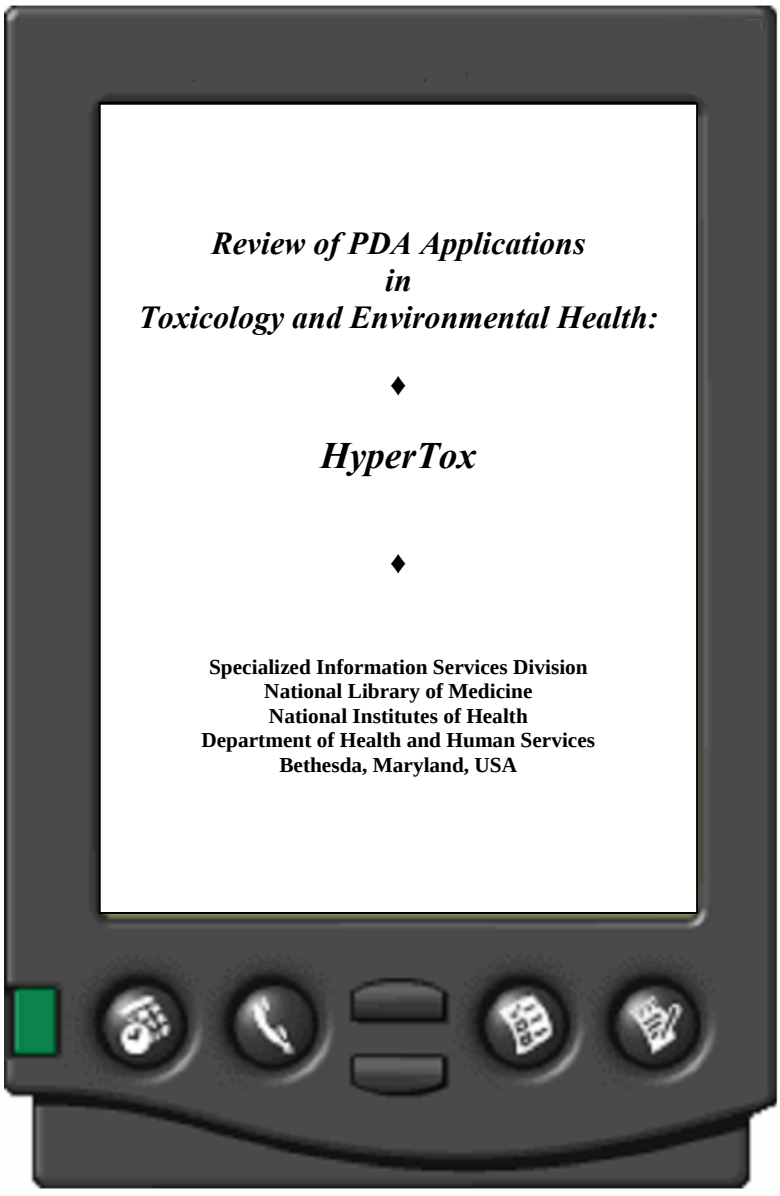

Review of PDA Applications in Toxicology and Environmental Health:

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HyperTox

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Specialized Information Services Division
National Library of Medicine
National Institutes of Health
Department of Health and Human Services
Bethesda, Maryland, USA

HyperTox

(Reviewed 06/2002)

General Information

For general comments regarding the *Review of PDA Applications in Toxicology and Environmental Health*, please see the ***Overview***. The technical and content review of this PDA application – *HyperTox (3.0)* – was based upon a free, downloadable demo. The demo version contains two treatment modules from the full version, which uses 290 KB of memory. *HyperTox* is a commercial e-document designed to assist in medical emergency management and in undergraduate and postgraduate teaching of acute clinical toxicology (poisoning). The handheld version presents a subset of the information contained in the full *HyperTox* document, is designed for acute patient care, and does not contain the self-test sections.

Intended Users

- Emergency Room Personnel
- Intensive Care Unit Personnel
- Medical Ward Personnel

Authorship/Data Source

HyperTox is produced by Meditox Pty Ltd and is edited and largely authored by Drs. A. Dawson, N. Buckley, and I. Whyte. They all have extensive experience in clinical toxicology and have contributed to toxicology textbooks, have published in peer-reviewed journals, and act as consultants to a number of Australian poison information centers.

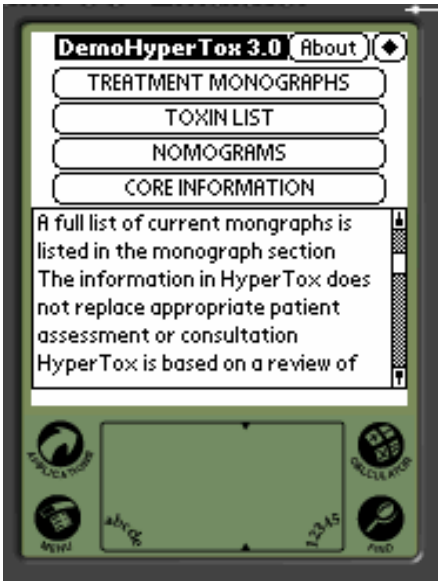
Contents

This e-document is based on a review of available medical evidence and on the authors' clinical experiences. It addresses the treatment of acute poisoning cases and is suitable

for medical emergency departments, intensive care units, and medical wards. It covers all of the following major and toxicologically important drug groups:

- ACE Inhibitors
- Acetaminophen
- Amiodarone
- Antiarrhythmics, Class 1C
- Anticholinergics
- Antihistamines, nonsedating and sedating
- Arsenic
- Benzodiazepines
- Beta Blockers
- Biguanides (oral hypoglycemics)
- Calcium Channel Blockers
- Carbamazepine
- Carbon Monoxide
- Chloroquine
- Clonidine
- Cocaine
- Colchicine
- Cyanide
- Digoxin (cardiac glycosides)
- Disulfiram (Antabuse)
- Ethylene Glycol
- Glycophosphate (herbicides)
- Hydrogen Fluoride
- Insulin
- Iron
- Lead
- Lithium
- Methanol
- Monoamine Oxidase Inhibitors (MAOI)
- Neuroleptics
- Nonsteroidal Anti-Inflammatory Drugs (NSAID)
- Opioids
- Organochlorines
- Organophosphates
- Paraquat
- Phenytoin
- Quinine
- Reuptake Inhibitors
- Salicylate
- Serotonin
- Sulfonureas (oral hypoglycemics)

- Theophylline
- Tricyclic Antidepressants
- Valproate (Sodium)
- Venlafaxine
- Warfarin



◄ ***The initial screen lists the e-document's four main sections – Treatment Monographs, Toxin List, Nomograms, Core Information – and provides links to them.***

► ***The Treatment Monographs section is based on drug/toxin classes and includes the following subsections:***

Included *~ lists individual drugs or toxins for each drug or toxin class*

Overview *~ provides basic information on toxic effects and treatments*

Mechanism of Toxicity *~ outlines the steps of toxic action*

Kinetics *~ covers absorption, distribution, metabolism, and excretion*

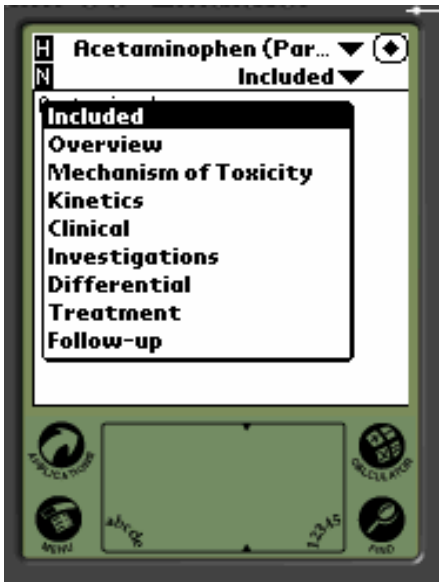
Clinical *~ covers main clinical effects*

Investigations *~ covers recommended tests*

Differential *~ mentions differential diagnoses*

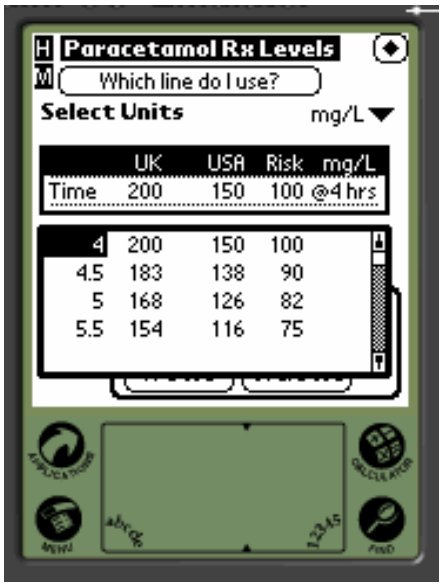
Treatment *~ covers treatment protocols*

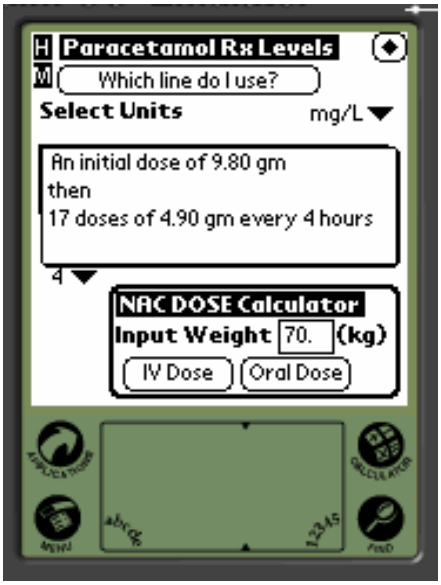
Follow-up *~ covers follow-up care approaches*



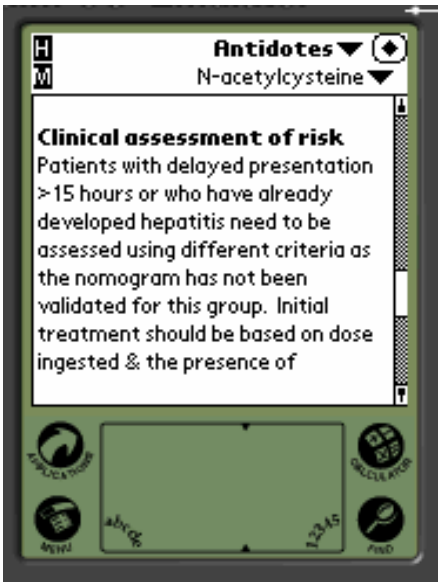
◄ ***The Toxin List section displays specific drugs/toxins and the drug/toxin classes in which they belong side by side in two vertical columns.***

► ***The Nomograms section contains information crucial to case management. For example, in managing a case of acetaminophen (paracetamol) overdose, ER personnel can consult a nomogram data table to assess the risk of hepatotoxicity. The three columns – UK, USA, Risk – reflect the most commonly used nomogram lines. Units of measure can be displayed in mg/L or µmol/L.***





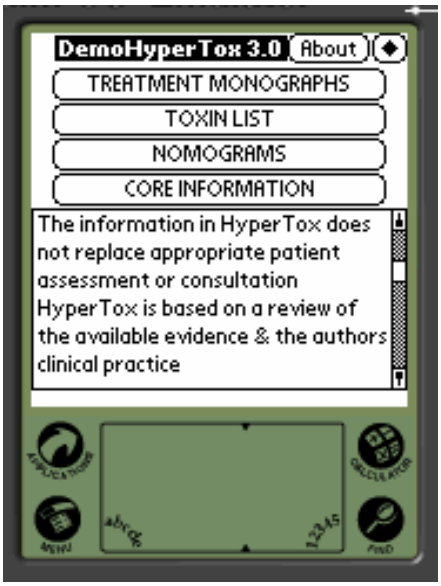
◄ ***To determine the appropriate N-acetylcysteine (NAC) dose to administer to a patient being treated for acetaminophen (paracetamol) poisoning, for example, ER staff can employ the NAC Dose Calculator.***



◄ ***The Core Information section contains information on antidotes, syndromes, common complications, and interventions. The Antidotes portion of this section is displayed here.***

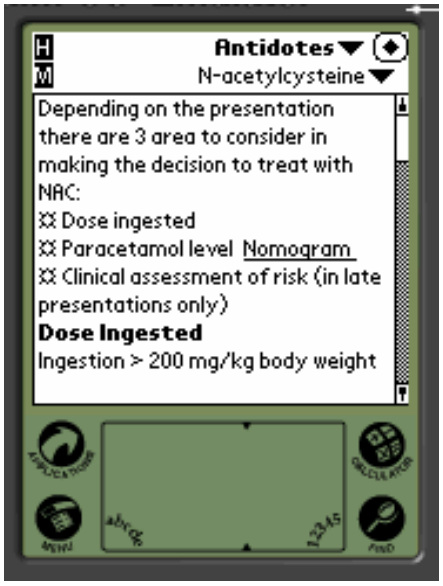
Navigation

This is an application that functions in an offline mode and does not require any degree of mobile connectivity. TealInfo™ is required to view the *HyperTox* e-document. Note that TealInfo™ does not allow copying/cutting and pasting of text and that no search function is available.

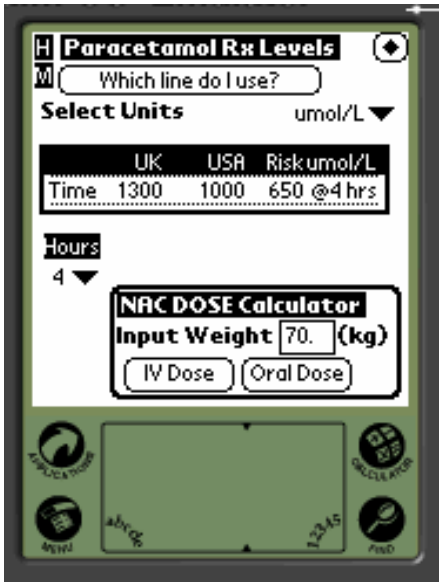


◄ ***The document is organized into tables, lists, and links. The user can scroll through the text by tapping the scroll buttons or by dragging the scroll bar (right margin of the screen). The top half of the screen provides links to four sections. To exit the application, the user can tap on the black diamond in the upper right corner.***

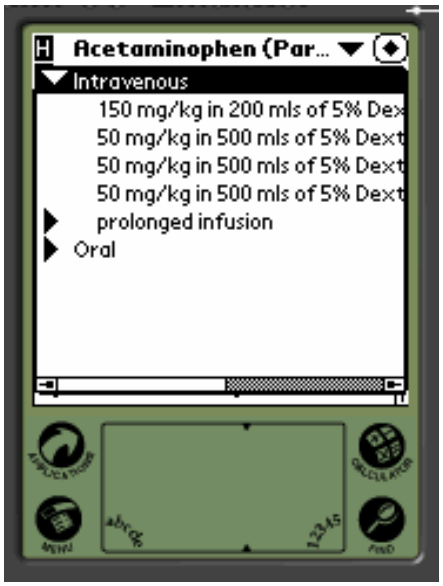
◄ ***In look-up tables, such as the Toxin List shown in the screen shot to the left, inputting any letter will take the user to the first word that starts with that letter.***



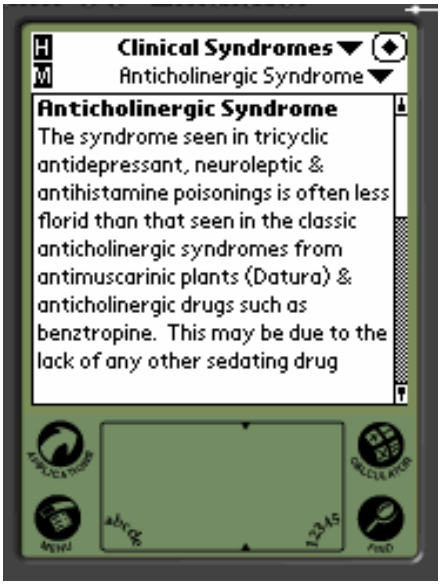
► ***Tapping on underlined text, such as the word Nomogram shown in the screen shot to the right, will link the user to information contained in that section (as shown in the screen shot below).***



◄ *Tapping on a right-pointing triangle in a pop-up window, such as the triangle next to the word "Intravenous" in the screen shot to the left, expands out the information (as shown in the screen shot below).*

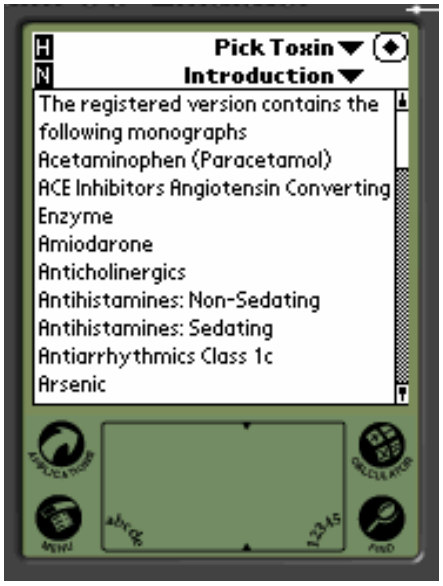


► *Tapping on a down-pointing triangle, such as the triangle next to the word "Intravenous" in the screen shot to the right, collapses the information (as shown in the screen shot below).*



◄ ***The home page (H) link is always found in the top left corner of the screen, and the link to Treatment Monographs (M) is located underneath the H link.***

► ***The link to Nomograms & Calculators (N) is found underneath the H link on some screens.***



For general information on TealInfo navigation, please see the TealInfo Online User's Manual at www.tealpoint.com/tealinfo/files/infodoc.htm.

Requirements

- Software: TealInfo™
- Hardware: 46 KB free memory (*HyperTox*)
  124 KB free memory (TealInfo™)
  Palm OS 3.0+

Application Type/Price

- Shareware

- *HyperTox*: $15 (includes free updates for 1 year)
- TealInfo™ 4.10: $16.95 (single-user license)

Availability

HyperTox is available from HyperTox.com and from commercial PDA software distributors. TealInfo™ is available from TealPoint.com.

Useful Web Links

For more information on *HyperTox*, visit www.hypertox.com. For more information on TealInfo™, go to www.tealpoint.com.

Review of PDA Applications in Toxicology and Environmental Health

Overview

Handheld computer devices known as Personal Digital Assistants (PDAs) are increasingly being used in the fields of toxicology and environmental health. Moreover, software applications covering specialized subject matter in these fields are increasingly being made available to PDA users.

In an effort to provide information on the main technical and content features of selected applications, the National Library of Medicine's Division of Specialized Information Services (SIS) has undertaken an ongoing review of them. Typically, individual reports in the review series are based on free, downloadable demos.

Each report typically covers the following topics: General Information, Intended Users, Authorship/Data Source, Contents, Navigation, Requirements, Application Type/Price, Availability, Useful Web Links, and Updates.

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Note: The *Review of PDA Applications in Toxicology and Environmental Health* is not intended to be all comprehensive, but rather a review of selected applications. SIS staff welcomes any comments on completed reviews or suggestions for additional reviews of applications not currently included, as long as they fall within the scope of toxicology and environmental health. You may contact us via email at tehip@teh.nlm.nih.gov with any comments, questions, or suggestions.

It is not the intention of SIS staff to recommend, or not recommend, any particular PDA device(s) or software application(s), but rather to provide an objective and descriptive review of the main technical and content features of selected applications based on their downloadable demo versions.

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