A powerful tool for estimating reference concentrations of radionuclides in urine

The ICCR app estimates reference concentrations of radionuclides in urine assuming intakes equal to one Clinical Decision Guide (CDG) for each radionuclide.

The app uses hypothetical contamination scenarios as input by the user and provides related information about possible medical countermeasures.
The ICCR app is intended to be a reference tool used for educational and informational purposes only. This app is NOT a substitute for medical assessment by informed medical authority and should NOT be used to make medical decisions for individuals or groups of individuals. Health care providers should consider the specific circumstances of each patient encountered during an emergency and use their clinical judgment in providing care.

This app contains information obtained from reference documents. Reasonable efforts have been made to reproduce reliable and accurate information. The user, however, assumes responsibility for the consequences of using this information.

The information in this app does not represent the official policy of the U.S. government or the Centers for Disease Control and Prevention (CDC). Neither the U.S. government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal responsibility for the accuracy, completeness, or usefulness of any information disclosed. This app is not intended for use in medico legal claims or for insurance reimbursement.
From the Home page you can:

- Create a new assessment
- Access of all your saved assessments
- Lookup information about the Radionuclides and Medical Countermeasures
- Get access to Help and Resources
- Read more about this app
This version of the app projects concentrations in urine for a select number of radionuclides. Additional radionuclides will be included in future versions.

This is a measure of how fast a radionuclide is absorbed into the bloodstream from the respiratory tract. Choices are Slow, Moderate, Fast, or Fast + vapor and are based on the ICRP Database of Dose Coefficients. Each radionuclide has a default absorption type that is auto-populated. Only absorption types that are applicable for a radionuclide are displayed and available for selection.

The concentration of radionuclides in urine varies with time after exposure due to absorption and excretion biokinetics. The default time elapsed is set to days; however, hours and years are also available.

When you have made all the selections, tapping ‘generate’ will calculate the Projected Urine Concentration.
This urine concentration is the projected amount found in a spot urine sample for an intake of one Clinical Decision Guide (CDG) for the selected parameters.

If a measured amount is greater than this value, given the same exposure parameters, it means that the CDG has been exceeded and further medical treatment should be considered.

This may include a more detailed investigation of tissue-specific absorbed doses over different time periods or decorporation therapy using medical countermeasures.

This app also presents the available medical countermeasure, with dosage and contraindication information.

From here you can create another assessment and share, edit, and delete the current assessment.
Search through your assessments

Access to all your saved assessments

Create a new assessment
Internal Contamination Clinical Reference App (ICCR)

Menu

1. The menu icon is available throughout the entire app.

2. Tapping the menu icon displays the menu allowing for easy navigation through the app.

This app projects reference concentrations of radionuclides in urine assuming intakes equal to one Clinical Decision Guide (CDG) for...
The Radionuclides page offers quick access to detailed information on each of the radionuclides.

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<table>
<thead>
<tr>
<th>Radionuclides</th>
</tr>
</thead>
<tbody>
<tr>
<td>Americium-241 (Am-241)</td>
</tr>
<tr>
<td>Cesium-137 (Cs-137)</td>
</tr>
<tr>
<td>Cobalt-60 (Co-60)</td>
</tr>
<tr>
<td>Iodine-131 (I-131)</td>
</tr>
<tr>
<td>Iridium-192 (Ir-192)</td>
</tr>
<tr>
<td>Plutonium-238 (Pu-238)</td>
</tr>
<tr>
<td>Plutonium-239 (Pu-239)</td>
</tr>
<tr>
<td>Strontium-90 (Sr-90)</td>
</tr>
</tbody>
</table>
The Radionuclide Details pages offer detailed information on each of the radionuclides, such as:

- Half-life
- Mode of Decay
- Chemical Properties
- Uses
- Origin
- Form
- Visual Characteristics
- Possible Harmful Effects

**Americum-241 (Am-241)**

**Half-life:**
432.2 years

**Mode of Decay:**
Alpha particles and weak gamma radiation

**Chemical Properties:**
Crystalline metal that is solid under normal conditions. Am-241 can be combined with beryllium to produce neutrons
Medical Countermeasures

- Calcium DTPA (Ca-DTPA), Zinc DTPA (Zn-DTPA)
- Potassium iodide (KI)
- Prussian blue insoluble

The Medical Countermeasures page offers quick access to detailed information on each of the available medical countermeasures.
The Medical Countermeasure pages offer detailed information on each of the available medical countermeasures, such as:

- Brand names
- Indications
- Mechanism of action
- Dosage
- Contraindications
- Adverse Effects
- Duration of Therapy
- References

**Medical Countermeasure Details**

**Calcium DTPA (Ca-DTPA), Zinc DTPA (Zn-DTPA)**

**Radionuclides:**
Americum, Plutonium

**Brand names:**
Pentetate calcium trisodium injection and Pentetate zinc trisodium injection. Also known as trisodium calcium and trisodium zinc diethylentriaminepentaacetate (DTPA).

**Indications:**
Have questions about the app? The Help & Resources page may have the answers.

The app can be used in two different ways.

1. Lookup reference information on a particular radionuclide or a medical countermeasure
2. Perform assessments based on hypothetical patient scenarios

Explains the Clinical Decision Guide (CDG)
On the About this App page you will find:

- Product Purpose/Goal/Objectives
- Intended Audience
- Contact Us
  - If you have question regarding the ICCR app please email rsbinfo@cdc.gov.
- Acknowledgements/Credits
- Disclaimer

This product was developed and produced by the:

**Centers for Disease Control and Prevention (CDC)**

**Oak Ridge Institute for Science and Education (ORISE)**

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