The Royal Australian and New Zealand College of Radiologists®

RANZCR Statement on Iodinated Contrast Media Shortage

The Royal Australian and New Zealand College of Radiologists (RANZCR) is aware that there is an Australian and global shortage of iodinated contrast media (contrast). Omnipaque and Visipaque are manufactured by GE Healthcare, which is the primary supplier of contrast media in Australia. Due to the current outbreak of COVID-19 and subsequent lockdown in Shanghai affecting the GE Healthcare manufacturing plant, supply of contrast has been impacted.

Contrast is regularly used to enhance CT and other imaging modalities such as fluoroscopy, and interventional radiology, which supports diagnosis and ongoing treatment for a range of conditions. It is sometimes used in radiation therapy planning. When injected into the body, contrast enables a radiologist to see what is happening inside the hollow parts of the body (including blood vessels, stomach, bowel or even the fluid around the spinal cord) providing valuable diagnostic information. It is typically used in more than 50% of CT imaging. Inside Radiology, a website developed by RANZCR, provides information about the use of contrast for patients and health professionals.

RANZCR is liaising with the Therapeutic Goods Administration (TGA) which is seeking alternative supplies of contrast to address the shortfall. Updates can be found on the TGA website.

RANZCR recommends that medical practitioners considering referring a patient for a CT during this time consult with a radiologist for advice on alternative imaging modalities or other strategies that could be used to diagnose and manage their patients.

RANZCR endorses the recommendations of the America College of Radiologists (ACR) Committee on Drugs and Contrast Media[1] that radiology practices and hospitals implement a range of strategies to conserve current supplies of contrast to manage patient care. These recommendations include:

- Utilise alternative studies to answer the clinical question such as non-contrast CT, MRI with or without gadolinium-based contrast media, ultrasound with or without ultrasound contrast agents, nuclear medicine, or PET/CT, when feasible. Please refer to the ACR Appropriateness Criteria® guidelines for indicated alternative studies as needed. Scroll down to AC Portal and use the “Explore by scenario” icon.
- Look for alternative versions of contrast agents, which may be marketed under a different brand name or intended clinical use. Note: U.S. market availability may differ from global availability.
- Source contrast from other vendors, if able, and consider having at least two vendor products on formulary.
- If you currently have access to higher volume single-use vials, contact your institutional pharmacy to determine if it is possible to repackage vials in smaller aliquots to reduce waste (institution level).
- Minimise individual doses administered to reduce waste. Some options include:
    - Weight-based dosing for CT in available aliquots/vial sizes to avoid waste.
    - Reducing dose in conjunction with low kVp protocols that improve contrast conspicuity.
    - Reducing dose and acquire studies with dual-energy protocols (where available) that improve contrast conspicuity.
- Reserve higher concentration (mg iodine / ml) agents for angiographic studies and multiphase studies, which require optimal vascular visualisation.
- Use alternatives to nonionic contrast for oral, rectal, genitourinary administration (examples: iothalamate meglumine or diatrizoate). Consider barium-based products for oral opacification in

[1] American College of Radiology. Statement from the ACR Committee on Drugs and Contrast Media. 13 May 2022. Available at https://www.acr.org/Advocacy-and-Economics/ACR-Position-Statements/Contrast-Media-Shortage#msdynttrid=NI8E3G05Prn7L6rDVSaWu5-HfkTLI4P1cZSH2zuUPYI

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CT and PET/CT, as well as alternative iodine-based agents (ionics). Please refer to the ACR Contrast Manual APPENDIX A: Contrast Media Specifications Table for oral contrast agents.

- Work with other departments, such as Urology, Radiation Oncology, Pain Management, Gastroenterology, Vascular Surgery and Cardiology, which utilize iodinated contrast to prioritise limited supply usage.

Considerations

- Do not sacrifice image quality by using suboptimal doses; ensure enough contrast dose is used for diagnostic image quality.
- Centre for Disease Control and Prevention (CDC) and Joint Commission guidelines state that vials labelled by the manufacturer as "single dose" or "single use" should only be used for a single patient because they typically lack antimicrobial preservatives and can become contaminated and serve as a source of infection when used improperly. Several instances of iatrogenic infection have been reported with improper use of single use vials for multiple patients with basic infection control techniques often violated. Some of these events occurred during times of medication shortages as an effort to reduce waste. However, the CDC issued a statement in May of 2012 that offered guidance for how contents from unopened singe-dose/single-use vials can be repackaged for multiple patients but only performed by qualified healthcare personnel in accordance with standards in United States Pharmacopeia General Chapter <797> Pharmaceutical Compounding-Sterile Preparation. The ASHP, an organization representing pharmacists, posted their guidance as well.
    - In the setting of severe shortage, institutions can explore developing their own guidelines for the safe use of single-use vials for more than one patient following proper infection control guidance and ensuring institution approval since this would deviate from medication and regulatory guidelines. Resources ACR Contrast Manual APPENDIX A: Contrast Media Specifications Table ACR Appropriateness Criteria: Use AC Portal to search for alternative imaging studies for a given indication by clicking on the "Explore by scenario" icon. CDC: Protect Patients Against Preventable Harm from Improper Use of Single–Dose/Single–Use Vials ASHP: Considerations for Imaging Contrast Shortage Management and Conservation.

RANZCR further endorses the recommendations in the recent article by Cavallo and Pahade, titled *Practice Management Strategies for Imaging Facilities Facing an Acute Iodinated Contrast Media Shortage*[2] published in the American Journal of Roentgenology which provides details to support practice management during this contrast shortage.

The following table reproduced from the Cavallo and Pahade[2] article is an example of how practices might prioritise patients based on clinical need. Please note that this list is not ~~an~~ exhaustive and each practice will need to adjust its management strategy based on its patient population and clinical presentations.

Tier 1 **Iodinated Contrast Media always needed**	**Tier 2** **Non-contrast CT feasible**	**Tier 3** **Alternative modality feasible**	**Tier 4** **Deferment feasible**
Emergent Stroke CTP	Diverticulitis	Gastrointestinal bleed	Asymptomatic annual staging
Suspected dissection	Appendicitis	Occult infection	Pulmonary modules smaller than 8mm
Level 1 trauma	Hernia	Pulmonary embolism	Incidental finding workups*
Cardiac catheterization	Bowel obstruction	Oncology staging	
Select oncology cases	Fluid collection	Focal liver lesions	
Clinical trial patients	Non-vascular chest imaging		
	Select oncology stating examinations		

[2] Cavallo. J. Pahade. J.. Practice Management Strategies for Imaging Facilities Facing an Acute Iodinated Contrast Media Shortage.. American Journal of Roentgenology -. 10.2214/AJR.22.27969 May 2022. Available at: https://www.ajronline.org/doi/10.2214/AJR.22.27969