



A Clinical Summary

The benefits of one injection system for all your cardiac and vascular angiography procedures

This clinical overview summarizes findings in the literature describing the positive impact of ACIST Medical Systems' variable-rate contrast injection technology on both patient care and health care costs.*

- Less contrast dosage to the patient– up to 28%¹¹
- Contrast reduction and cost savings – up to 40%^{1,2,5}
- Reduction in procedure and setup time – up to 31%²

* When compared to manual injection methods and fixed-rate power injectors

A Clinical Summary

Below is a brief overview of selected clinical studies found in the published, scientific literature. These publications describe the benefits of using ACIST technology for cardiac and vascular angiography procedures, when compared to manual injection methods and fixed-rate power injectors.



Cardiovascular Angiography

Clinical References:

1. Anne G, Gruber L, Huber A, et al. Traditional versus automated injection contrast system in diagnostic and percutaneous coronary interventional procedures: Comparison of the contrast volume delivered. *Journal of Invasive Cardiology* 2004;16:360-362.
2. Lehmann C, Hotaling M., Saving time, saving money: A time and motion study with contrast management systems. *Journal of Invasive Cardiology* 2005;17(2):118-121.
3. Khoukaz S, Kern MJ, Bitar SR, et al. Coronary angiography using 4 Fr catheters with ACISTed power injection: A randomized comparison to 6 Fr manual technique and early ambulation. *Catheterization and Cardiovascular Interventions* 2001;52:393-398.
4. Chahoud G, Khoukaz S, El-Shafei A, et al. Randomized comparison of coronary angiography using 4F catheters: 4F manual versus "ACISTed" power injection technique. *Catheterization and Cardiovascular Interventions* 2001;53(2):221-224.
5. Brosh D, Assali A, Fuchs S, et al. The ACIST Power Injection System reduces the amount of contrast media delivered to the patient, as well as fluoroscopy time during diagnostic and interventional cardiac procedures. *International Journal of Cardiovascular Interventions* 2005;7(4):183-187.
6. Goldstein JA, Kern M, Wilson R. A novel automated injection system for angiography. *Journal of Interventional Cardiology* 2001;14:147-152.
7. Lim MJ. Early ambulation strategies with contrast management. *Journal of Invasive Cardiology* 2005;17(1):42-43.
8. Kern MJ. Interventional and peripheral vascular procedures using contrast management: Tips and techniques. *Journal of Invasive Cardiology* 2004;16(12):729-731.
9. Laird JR. Contrast delivery and patient safety during peripheral interventions. *Journal of Invasive Cardiology* 2006;18(Suppl A): 21A-25A.
10. Allie DE, Hebert CJ, Walker CM. Automated Contrast Injection and Targeted Renal Therapy: Strategies to Prevent Contrast-Induced Nephropathy and Treat Renal Insufficiency in Patients with Peripheral Arterial Disease. *Vascular Disease Management* 2006;3(3):1-7.
11. Call J, Sacrinty M, Applegate R, et al. Automated contrast injection in contemporary practice during cardiac catheterization and PCI: Effects on contrast-induced nephropathy. *Journal of Invasive Cardiology* 2006; 18(10):469-474.

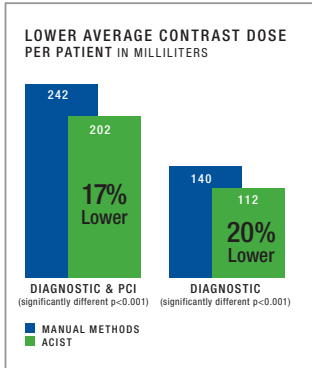
Lower Contrast Dose

The ACIST System decreases the patient-received contrast media volume used in diagnostic and interventional catheterizations.^{1, 5, 11}

Chart adapted from reference¹

"...the use of automated contrast injection in conjunction with contemporary strategies of hydration and N-acetylcysteine use for diagnostic catheterization and PCI procedures was associated with a 30% lower use in contrast volume, a 30% lower incidence of CIN, and a 50% lower incidence of acute renal failure."

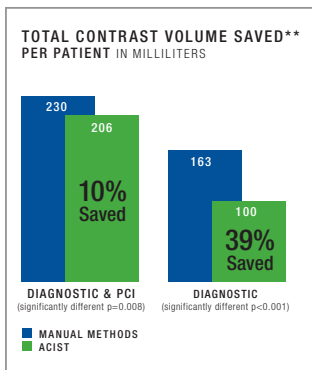
— Call, et al. *J Inv Cardiol* 2006.



Use Less Contrast

Save 10% to 39% of total amount of contrast used for each case- depending on the mix of diagnostic and PCI patients.⁵

Chart adapted from reference⁵



Facilitate Use of Smaller Catheters

By facilitating smaller catheter use, the ACIST System permits faster hemostasis and earlier ambulation, and decreases the need for closure devices.^{2, 3, 7, 8}

Allows for the use of smaller catheters without loss of diagnostic and interventional image quality or patient safety.^{3, 4, 6, 7, 9}

Decrease Procedural Time

The ACIST System decreased the procedural time of diagnostic and interventional cases (set-up time, arterial time, fluoroscopy time) increasing cath lab efficiency, which can result in substantial economic gains.^{2, 5}

* adapted from reference²

** adapted from reference⁵

