

DON'T LET RETAINED BLOOD SYNDROME BLOCK YOUR PATIENT'S RECOVERY

FLOW BETTER

WITH PLEURAFLOW® ACTIVE CLEARANCE TECHNOLOGY®



BLOCKED TUBES LEAD TO RBS COMPLICATIONS

36% of chest tubes
block completely

17% of patients
require one or more
reinterventions
due to RBS²

Patient outcomes
and **healthcare costs**
are negatively
impacted by RBS

A recent prospective study found that **36%** of patients suffer from **completely blocked chest tubes**. Worse yet, **86%** of those occlusions were **intra-thoracic** and therefore invisible to the bedside caregivers.¹ The crucial hours post-surgery, when the patient is still bleeding, are vitally important. Why risk patient outcomes by relying on a conventional chest tube to evacuate blood from the surgical site?

Blocked chest tubes can lead to **Retained Blood Syndrome (RBS)** – the composite of drainage-related post-cardiothoracic surgery complications that are detrimental to patient outcomes and may require early or late reinterventions.

Retained Blood Syndrome (RBS) causes multiple **mechanical** and **inflammatory complications** that may lead to additional interventions and readmissions.^{1,3,4} These complications can occur at any stage of recovery and may include **hemothorax, pericardial tamponade,** and **bloody pleural** or **pericardial effusions**.³

Unreimbursable Costs Per Patient with RBS²

COST OF CARE

\$28,814

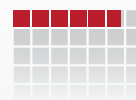
per RBS



LENGTH OF STAY

5.8 days

Increase



MORTALITY RATE

doubled

3% to 6%



PROTECT PATIENTS FROM RBS

with PleuraFlow® Active Clearance Technology® (ACT™) System

Developed by cardiac surgeons, PleuraFlow ACT is a unique system that **proactively prevents or minimizes chest tube occlusions and reduces retained blood** - a known contributor to POAF and other RBS complications which can increase length of stay (LOS), mortality rates, and hospital readmissions.^{3,5}



Clearance Loop enables proactive clearance of thrombus obstruction from the chest tube and provides real-time patency feedback.

The PleuraFlow System has been shown to reduce the incidence of **RBS** by **43%** and **POAF** by **33%**.⁵

Minimize Patient Discomfort

In a recent peer-reviewed study in the *Journal of Thoracic and Cardiovascular Surgery (JTCVS)*, PleuraFlow ACT was reported to:

- **Reduce Retained Blood Syndrome (RBS) reinterventions from 20% to 11%** (a 43% reduction, $p=0.0087$)
- **Reduce Post-operative Atrial Fibrillation (POAF) from 30% to 20%** (a 33% reduction, $p=0.013$)

Our 20FR PleuraFlow ACT System removes nearly triple the amount of blood than a traditional 32FR drain (525 ml vs. 183 ml) and your **patients may benefit from a smaller and more flexible silicone tube**.⁶

ACT NOW

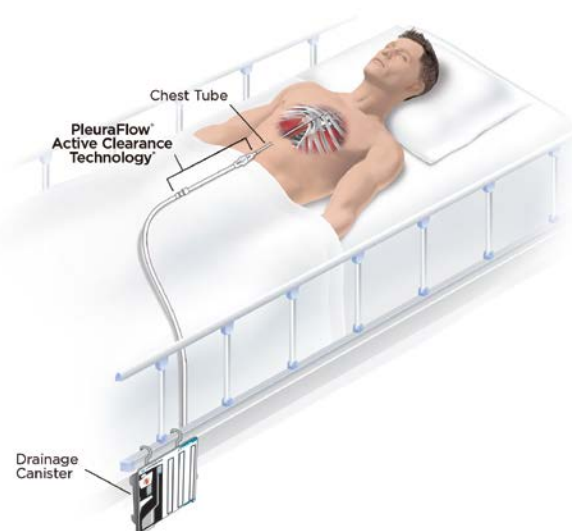
Improve Outcomes, Lower Costs

Ordering Information

PleuraFlow® ACT™ Systems

All Systems include a straight silicone chest tube and a clearance apparatus.

CODE	SIZE	EFFECTIVE-DRAINAGE LENGTH (EDL)	NUMBER OF EYELETS
PF-20	20FR	4" (10.2 cm)	6
PF-24	24FR	4" (10.2 cm)	6
PF-28	28FR	4" (10.2 cm)	6
PF-32	32FR	4" (10.2 cm)	6



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US Patents 7,854,728, 7,951,243, 8,048,233, 8,246,752, 8,388,759, 8,702,662, and 8,951,355. International Patents AU 2004235782; CA 2,565,303. Other US and international patents pending.

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References

- 1 Karimov, J.H., Gillinov, A.M., Schenck, L., et al. Incidence of chest tube clogging after cardiac surgery: a single-centre prospective observational study. *Eur J Cardiothorac Surg*. 2013 Dec;44(6):1029-36.
- 2 Based on over 313,000 US adult heart surgery patients. Data extracted using ICD-9 codes from the 2010 Nationwide Inpatient Sample (NIS), from the DHHS Agency for Healthcare Research and Quality (AHRQ) Healthcare Cost and Utilization Project (HCUP).
- 3 Boyle EM, Gillinov AM, Cohn WE, Ley SJ, Fischlein T, Perrault LP. Retained Blood Syndrome After Cardiac Surgery: A new look at an old problem. *Innovations in cardiovascular and thoracic surgery*. 2015 Sept/Oct;10(5):296-303.
- 4 Dixon, B., Santamaria, J.D., Reid, D., et al. The association of blood transfusion with mortality after cardiac surgery: cause or confounding? *Transfusion*. 2013 Jan;53(1):19-27.
- 5 Sirch J, Ledwon M, Puski T, Boyle EM, Pfeiffer S, Fischlein T. Active Clearance of Chest Drainage Catheters Reduces Retained Blood. *Journal of Thoracic and Cardiovascular Surgery*. 2016. Mar; 151(3):832-838.
- 6 Arakawa, Y., Shiose, A., Takaseya, T., et al. Superior chest drainage with an active tube clearance system: evaluation of a downsized chest tube. *Ann Thorac Surg*. 2011 Feb;91(2):580-3.