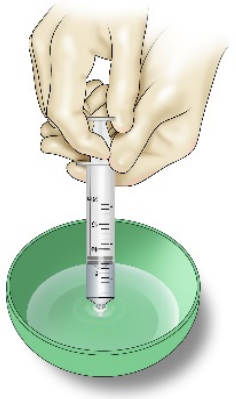
Marrow Cellution™ Component Flushing (Rinsing) Instructions



2,000 Units/ml
Heparin Flush Bath

- Withdraw approximately 5-7mL of Heparin Solution (2.000 Units/ml) into 10ml syringe.
- Remove Stylets from Introducer Needle and Aspiration Cannula with distal end of needle inside sterile bowl.
- Connect Heparin-filled syringe to the shorter Introducer needle and inject Heparin until needle is fully rinsed.
- Aspirate Heparin back into syringe and disconnect from needle.
- Repeat for the longer aspiration needle.
- Rinse each stylet, short introducer sharp and blunt, longer aspiration stylet.
- With needle guards in place, rinse the outside of each needle by injecting Heparin into the open end of the guard.

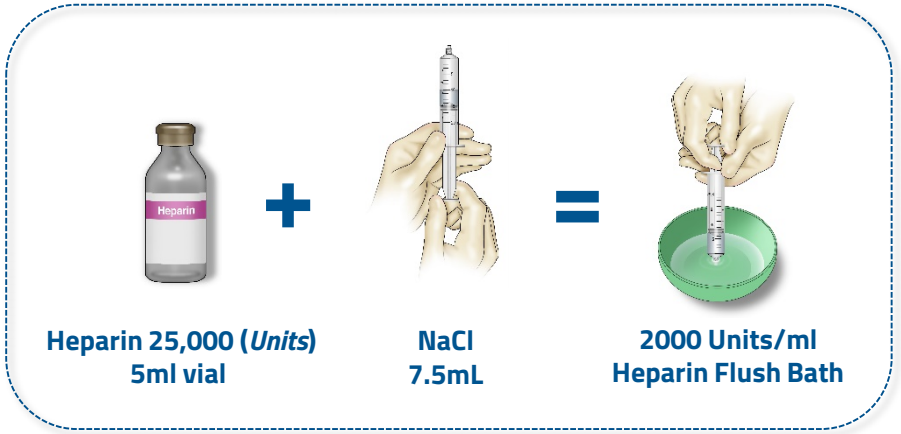
IMPORTANT:
All Marrow Cellution™ components and Syringe(s) and must be re-rinsed with heparin solution prior to each use

Heparin Flush Protocol

Example with 25.000 Units Heparin in a 5ml vial

Preparation of a Heparin Flush Bath

- Obtain a 5ml vial of 5.000 Units Heparin per ml (25,000 Units in total).
- Using syringe, empty the 5ml into a sterile bowl.
- Add 7,5ml of sterile saline to bowl.
- Bowl contains 12,5ml of 2.000 Units Heparin per ml.
- Summary: 25.000 Units / 12,5ml = 2000 Units/ml.



Alternate Preparation (not recommended)

- Obtain 10ml of 1.000 unit per ml Heparin (10.000 Units in total).
- No dilution required.

It is important that the strength per mL of the heparin rinse is at least 1,000 but **preferably 2,000** and that you have adequate volume to rinse all of the needles and syringes.

Heparin Concentration Chart

Heparin Concentration Required: 2.000 Units/ml

Total Volume Needed: ~10-15ml

	Final volume in basin = **15ml**		Final volume in basin = **10ml**	
Heparin concentration in vial	**Volume Heparin** to be used from vial	**Volume Saline** to be added	**Volume Heparin** to be used from vial	**Volume Saline** to be added
2.000 Units/ml	15ml	0	10ml	0
2.500 Units/ml	12ml	3ml	8ml	2ml
5.000 Units/ml	6ml	9ml	4ml	6ml
10.000 Units/ml	3ml	12ml	2ml	8ml
25.000 Units/ml	1,2ml	13,8ml	0,8ml	9,2ml

Formular to calculate Heparin Volume: **H-Volume = (2.000 x Final vol.) / Concentration per ml in vial**

Calculation of Saline volume: Final volume – Heparin volume