Flap failure should be DETECTED EARLY.

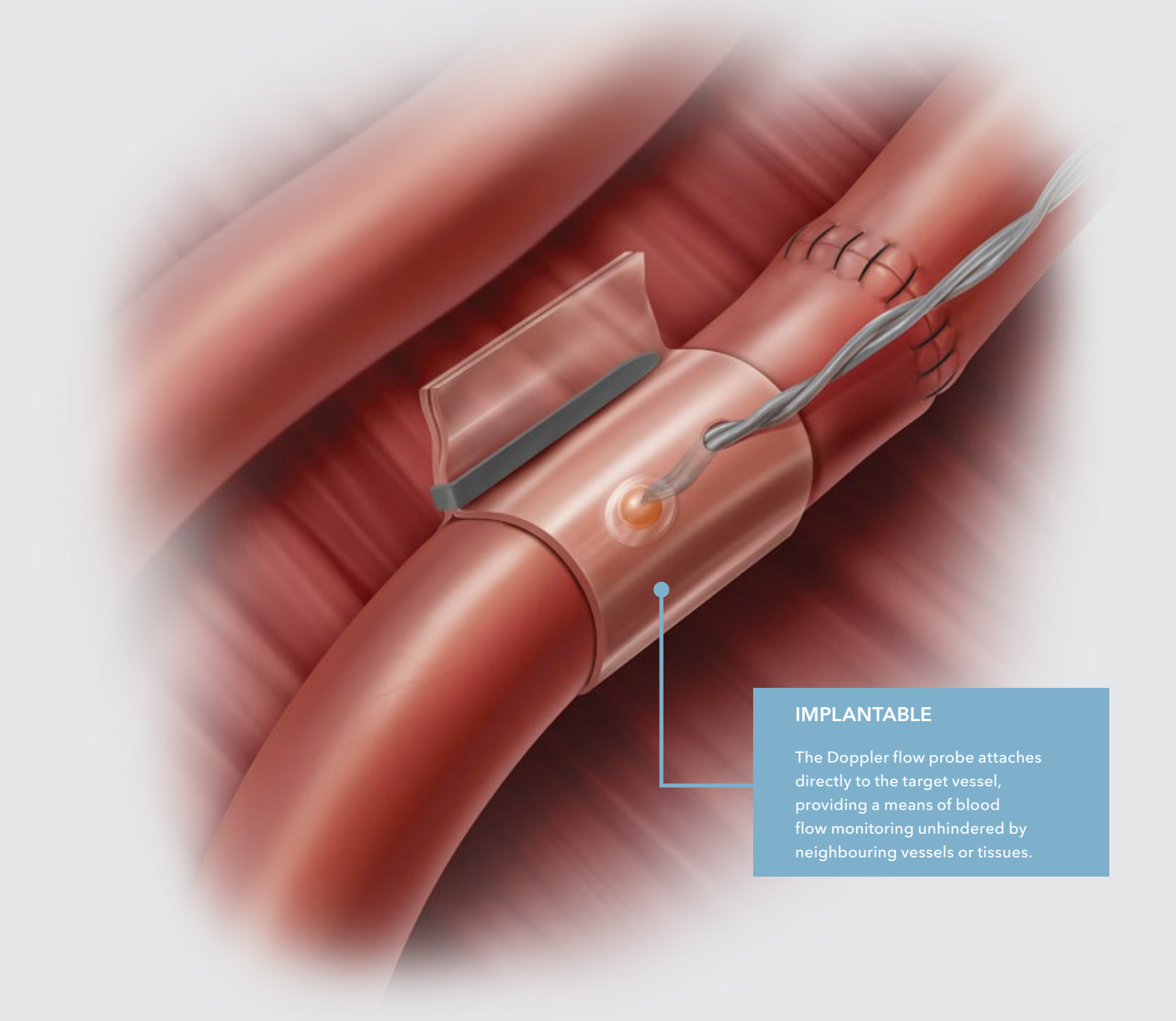
Doppler

BLOOD FLOW MONITORING SYSTEM

A surgeon saw a need. We listened. Our Doppler Monitoring System tracks blood flow continuously, even during a procedure.[1] And, when compared to clinical monitoring alone, it's associated with significantly higher salvage rates.[2,3]

COOK® MEDICAL

Improved free-flap salvage rates[2,3] as compared to clinical monitoring alone.



IMPLANTABLE

The Doppler flow probe attaches directly to the target vessel, providing a means of blood flow monitoring unhindered by neighbouring vessels or tissues.

Illustration by Lisa Clark

1. Wax MK. The role of the implantable Doppler probe in free flap surgery. *Laryngoscope.* 2014;124(Suppl 1):S1-S12.
2. Chang TY, Lee YC, Lin YC, et al. Implantable Doppler probes for postoperatively monitoring free flaps: efficacy. A systematic review and meta-analysis. *Plast Reconst Surg Glob Open.* 2016;4(11):e1099.
3. Lenz Y, Gross R, Penna V, et al. Evaluation of the implantable Doppler probe for free flap monitoring in lower limb reconstruction. *J Reconstr Microsurg.* 2018;34(3):218-226.
4. Um GT, Chang J, Louie O, et al. Implantable Cook-Swartz Doppler probe versus Synovis flow coupler for the post-operative monitoring of free flap breast reconstruction. *J Plast Reconstr Aesthet Surg.* 2014;67(7):960-966.
5. Teven CM, Ooi ASH, Inbal A, et al. Implantable Doppler monitoring of buried free flaps during vascularized lymph node transfer. *J Surg Oncol.* 2017;116(3):371-377.
6. Ho MW, Cassidy C, Brown JS, et al. Rationale for the use of the implantable Doppler probe based on 7 years' experience. *Br J Oral Maxillofac Surg.* 2014;52(6):530-534.
7. Poder TG, Fortier PH. Implantable Doppler in monitoring free flaps: a cost-effectiveness analysis based on a systematic review of the literature. *Eur Ann Otorhinolaryngol Head and Neck Dis.* 2013;130(2):79-85.

Consider the clinical evidence.

Decreased returns to surgery[1]

When a free-flap failure is suspected, it takes significant resources to verify and repair the compromised anastomosis. This can result in cancelled procedures to make way for a possible salvage procedure.

Because the Doppler system offers objective monitoring at an earlier stage, it has been associated with a decrease in returns to surgery.[1]

Higher salvage rates[2,3]

When compared with clinical monitoring alone, the Doppler system is associated with significantly higher free-flap salvage rates.[2,3] A systematic review and meta-analysis by Chang et al. (2016) showed a reported increase of between 57% and 73%.[2]

Lower failure rates[2]

The systematic review by Chang et al. showed an overall failure rate of 2.11% for the implantable Doppler groups.[2] Groups that used clinical monitoring alone had an overall failure rate of 4.21%.[2] The review concluded that using an implantable Doppler may reduce the number of flap failures by at least 37%.[2]

False positives and negatives

False positive rates of 1% to 25% have been reported in clinical studies where Doppler has been evaluated.[4-6] However, the rate of false positives can be reduced by appropriate training and protocols.[7]

The false negative rate for the Doppler has been reported as between 0% and 5%.[4,6] This suggests only a very low risk that the Doppler will not detect a compromised free flap.

CONTINUOUS

Monitoring with the Doppler system is continuous, so loss of patency or thrombosis can be detected immediately. Immediate detection allows immediate intervention.

CLEAR

With audio and visual confirmation, the clinician and the healthcare staff can clearly interpret the signal level.

Videos are available at **cookmedical.com/doppler.**

Doppler Blood Flow Monitor

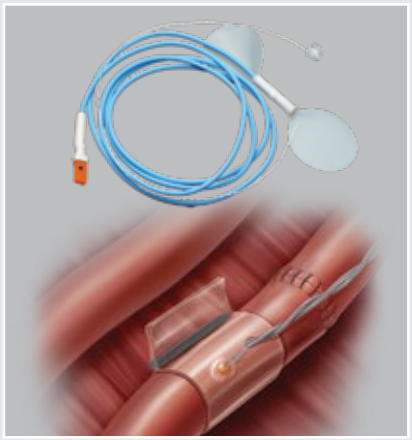
Used for monitoring blood flow in vessels intraoperatively, and following reconstructive microvascular procedures, reimplantation and free-flap transfers.

Order Number	Reference Part Number
G55328	DP-M350

Doppler Extension Cable

Used for monitoring blood flow in vessels intraoperatively, and following reconstructive microvascular procedures, reimplantation and free-flap transfers.

Order Number	Reference Part Number
G21364	DP-CAB01



Cook-Swartz Doppler Probe

Used for monitoring blood flow in vessels intraoperatively, and following reconstructive microvascular procedures, reimplantation and free-flap transfers.

Order Number	Reference Part Number	Cuff Length mm
Long Cuff		
G03014	DP-SDP002	32
Standard Cuff		
G21363	DP-SDP001	17.4

Doppler Monitor Battery Charger

Used with the Doppler Blood Flow Monitor, and includes adapter plugs for the US, UK, Europe and Australia.

Order Number	Reference Part Number
G55458	DP-M350-CHG1

Doppler Monitor Cable-Verifier

Used to verify that the Doppler Blood Flow Monitor channels and extension cable are functioning properly.

Order Number	Reference Part Number
G31632	DP-MCV01

Some products or part numbers may not be available in all markets. Contact your local Cook representative or Customer Service for details.

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