Innovation Brief

Medical Technology Innovation Dynamic Purchasing System - Impella CP, Supplied by Abiomed

Summary

Disruptive innovation

This briefing introduces a disruptive innovation newly available via NHS Supply Chain: The Impella CP. Reviewed by clinical specialists and supported by key stakeholders; this device offers a novel approach to supporting a patients circularity system. It is a minimally invasive temporary mechanical circulatory support device.

Introduction

This document is intended to inform clinical stakeholders and procurement teams about innovative products that have undergone a clinical review and are now accessible through NHS Supply Chain.

Products featured in this brief may be classified as:

- Disruptive innovations
    - A disruptive innovation is novel.
    - It should offer improvements compared to the existing provision of care.
    - The proposed format should not exist elsewhere (either within or beyond the health and care sector).

Note: While robust evidence or validated savings may not yet be available, early data and clinical insights support the potential for patient and system-level improvements.

Departments / stakeholders for engagement

- NHS procurement teams
- NHS Cardiac trusts
- Perfusion teams
- Surgical teams
- Intervention / Cath lab teams
- Critical Care teams

Opportunity

The Impella CP presents an opportunity to enhance care by:

- Providing temporary mechanical circulatory support of up to 4.3 litres per minute, improving cardiac output and end-organ perfusion during periods of compromised left ventrical (LV) function.
- Reducing myocardial oxygen demand and helping protect the myocardium from ischaemic injury.
- Supporting haemodynamic stability during high-risk Percutaneous Coronary Interventions (PCI), reducing the risk of peri-procedural instability in patients with severe coronary artery disease.
- Enhancing patient management in cardiogenic shock by maintaining vital organ perfusion and offering a minimally invasive option for temporary circulatory support.

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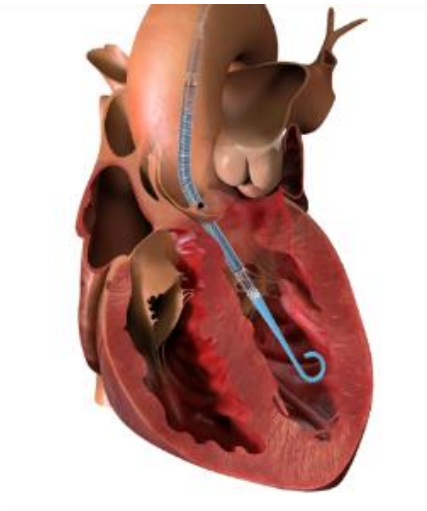
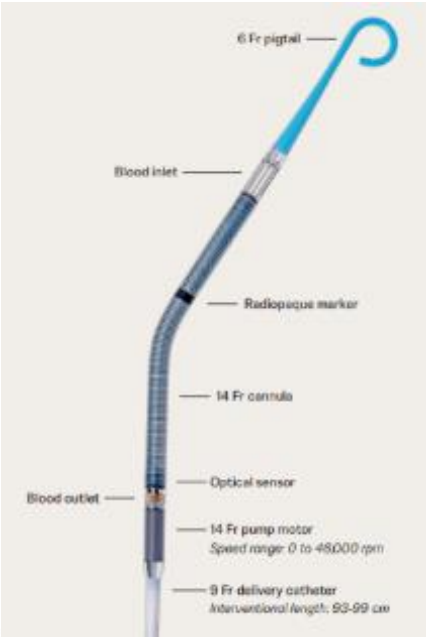
Product overview

The Impella CP device is a miniaturised, catheter-based, intravascular blood pump that supports a patient's circulatory system.
It provides continuous forward flow to increase overall cardiac output, end organ perfusion, unload work from the ventricle (decreasing myocardial oxygen demand) and improve coronary flow (increasing oxygen supply). This action is designed to support systemic haemodynamic and protect the myocardium from ischaemic damage. Impella can deliver 4.3 litres per minute of flow.

This heart pump is designed to improve patient outcomes by using real-time intelligence to optimise positioning, managing and weaning of the Impella device for better patient care. The Impella CP heart pump pulls blood from the left ventricle through an inlet area near the tip and expels blood from the catheter into the ascending aorta.

New haemodynamic sensor technology allows for repositioning in the ICU without the need for imaging, the optical sensor senses aortic pressure while the micro-axial motor senses the blood flow (pressure) between the aorta and the left ventricle.





Clinical relevance

- Can reduce mortality in certain patient groups - improves long-term survival in STEMI-related cardiogenic shock. A randomised control trial shows Impella CP provides a durable long term survival benefit with a 16.3% absolute reduction in mortality at 10 years and patients gaining an average of 600 additional days.
- By improving cardiac output and stabilising haemodynamic, Impella CP can decrease the requirement for vasopressors and inotropes which themselves carry risks (for example arrhythmia, increased myocardial oxygen demand).
- Impella CP allows high risk PCI in patients who would otherwise be too unstable for revascularisation, increasing access to definitive coronary treatment. This enables life-saving intervention in a group historically limited by procedural risk.

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Additional benefits

- Reduces length of stay.
- It is inserted percutaneously via the femoral artery and positioned across the aortic valve, providing haemodynamic support without requiring open surgical access, which expands its suitability to unstable emergency patients who would not tolerate surgical implantation.
- Reduces the need for critical care.
- Enhances operator workflow and safety through smart assist technology.

Supply details

Route - eDirect Supplier - Abiomed

Manufacturer's Product Code (MPC)	Description
0048-0014	CP Smart Assist Pump 000154 9 Fr catheter 6 Fr pigtail 14 Fr microaxial pump
0043-0003	5 Purge Cassettes
0052-0038	Introducer Kit 14 Fr short
0052-0039	Introducer Kit 14 Fr long

Complete requirements in form on https://www.supplychain.nhs.uk/dps

Supporting evidence / notes

https://www.fda.gov/media/140765/download?attachment
Impella ventricular support systems for use during cardiogenic shock and high-risk PCI.

https://www.impella.com/heart-recovery-is-possible/about-the-procedure
About the Protected PCI Procedure.

https://www.heartrecovery.com/en-us/products-and-services/impella/impella-cp-with-smartassist
Johnson & Johnson MedTech briefing.

https://www.nice.org.uk/guidance/ipg633
NICE guidance - percutaneous insertion of a temporary heart pump for left ventricular haemodynamic support in high-risk PCI.

https://academic.oup.com/eurheartj/article/45/31/2808/7686352
Oxford Academic - European Heart Journal article 'Weekly Journal Scan: Impella CP in myocardial infarction complicated by cardiogenic shock.

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