

Prometheus PIN® Key Features

The Prometheus PIN® provides rapid intraosseous (IO) access when gaining intravenous access is challenging or impossible. The Prometheus PIN® can be used in emergency medical or trauma cases and can remain in-situ for up to 24 hours.



Figure 1

For medical professionals, use of the Prometheus PIN® (Figure 1) is fast, simple and intuitive.

- Rapid and easy IO insertion
- Single needle solution – one size for all, including paediatrics. Tibia insertion recommended for BMI>30'.
- 15-Gauge needle - pharmacokinetics of which are well established
- Stabilisation accessory supplied
- Single-use product - no driver cleaning required between uses
- No power or battery required for insertion
- Lightweight and robust
- Indicated for access to six IO sites (As seen in Figure 2)
- Latex-free and non-pyrogenic



Figure 2

PROMETHEUS PIN®



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Background

The technique of injecting fluids and medicines directly into the bone marrow of the sick and injured has been around since the 1920s¹. During the Second World War, intraosseous (IO) infusion was widely used to resuscitate patients in haemorrhagic shock². Following the war, use of intraosseous devices declined and essentially disappeared as a common technique. Intraosseous use did not see an increase again until the 1980s. In 1984, the American paediatrician, James Orloski, published a paper entitled "My Kingdom for an IV Line", which advocated the use of IO over intravenous (IV) techniques based on his experience of a paediatric cholera outbreak in India³. Subsequently, numerous studies demonstrated the efficacy of IO administration of emergency medications or fluids in patients, when establishing IV access was difficult.

Fluids and medications infused via IO lines and IV lines have been shown to have the same relevant pharmacokinetic parameters, namely C_{max} (peak concentration) and T_{max} (time to peak concentration)⁴ following injection. Due to the rapid development and adoption of superior IO access technology, the use of IO devices has now become the preferred method for establishing vascular access in patients where traditional intravenous access is difficult or impossible. This includes patients in cardiac arrest, following major trauma, suffering severe dehydration, are shocked or are technically difficult to establish IV access in.

Even in optimal hospital conditions, some medical practitioners have difficulty in successfully inserting IV lines. Additionally, gaining vascular access in paediatrics can be challenging, due to the small size of their veins and higher proportion of subcutaneous tissue. Infusion of fluids via the intravenous route in paediatrics or the elderly can frequently result in veins tissueing.

Guidelines issued, by both the European Resuscitation Council⁵ and the American Heart Association⁶, recognise the importance of IO vascular access as a first alternative to the IV route and recommend its use early during resuscitation.

The Solution

The Prometheus PIN® has been developed by leading clinicians who understand the need for a high quality, reliable IO device, delivered at an affordable price. The Prometheus PIN® has been designed to be used rapidly, intuitively and effectively.

The Prometheus PIN® can be used for IO access in the humeral head (Figure 3) and distal and proximal tibia regions when IV access is difficult or impossible. The Prometheus PIN® incorporates a 15-Gauge trocar and cannula system, the pharmacokinetics and flow properties of which are already well known and scientifically proven.

The single needle solution of the Prometheus PIN® enables it to be used for almost any patient. Furthermore, this reduces cost and complexity, which can be generated when there is a requirement to purchase and use multiple needle sizes.

The simplicity of the Prometheus PIN® makes it a truly useful tool for the emergency care practitioner and the incorporation of a stabilisation device provides additional safety in emergency situations. The polycarbonate stabilisation system (Figure 4) is easy and rapid to apply and reduces the risk of accidental dislodgement during transportation or general use.

The Prometheus PIN® is a single-needle solution for reliable, robust and affordable IO access.

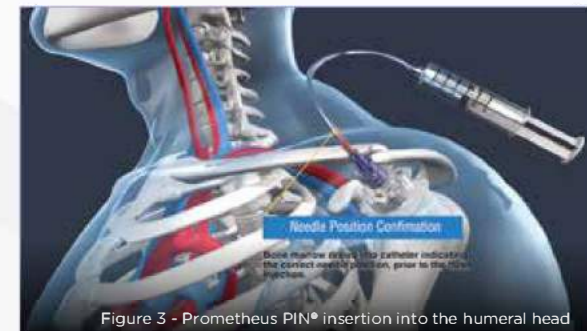


Figure 3 - Prometheus PIN® insertion into the humeral head

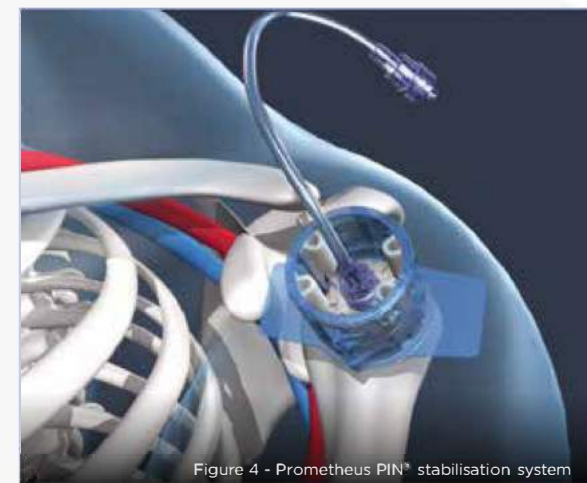


Figure 4 - Prometheus PIN® stabilisation system

- 1 Kehrl T et al. 2016. Intraosseous access in the obese patient: assessing the need for extended needle length. *Am J Emerg Med.* 2016;34(9):1831-4.
- 2 Morrison, G., 1946. The initial care of casualties. *Am Practitioner*, Volume 1, pp. 183-4
- 3 Orloski, J., 1984. My Kingdom for an IV Line. *Am J Dis Child*, Volume 138, p. 804.
- 4 American Journal of Emergency Medicine (2008) 26, p. 31-38, Does intraosseous equal intravenous? A pharmacokinetic study, Von Hoff, D. D.; Kuhn, J. G.; Burris, H., A. and Miller, L. J.
- 5 Soar J, Nolan JP, Bottiger BW, et al. European Resuscitation Council Guidelines for Resuscitation 2015 Section 3 Adult Advanced Life Support. *Resuscitation* 2015;95:99-146
- 6 Link M, Berkow L, Kudenchuk P, et al. Part 7: adult advanced cardiovascular life support: 2015 American Heart Association guidelines update for cardiopulmonary resuscitation and emergency cardiovascular care. *Circulation* 2015; 132[suppl 2]:S444-S464