



**Service Priorities and Programmes**  
**Electronic Presentations**

**Convention ID:** 1174

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**Application of Portable Thermal Imaging Device to Enhance Early Detection of Peripheral Intravenous Site Infection**

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**Keywords:**

Peripheral intravenous site infection

Infrared thermal imaging

**Introduction**

Peripheral intravenous (IV) cannulation is a common procedure used in hospital. They are primarily used for therapeutic purposes such as administration of medications, fluids and/or blood products as well as blood sampling. IV catheters are usually considered a low risk; however it can be associated with complications such as phlebitis or infections. This usually presented as warm, redness and pain over the infected site. Patient whom possess an IV site usually assess by nurse in every shift of duty. However it is quite difficult to assess the IV site for those patients with dark pigmented skin or non communicable patient.

**Objectives**

To assist health care staff identification of early signs of IV cannulation related infection so that early intervention and treatment can be given.

**Methodology**

Body temperature is a very useful parameter for diagnosing diseases. Peripheral IV site infection usually associated with temperature contrast in the affected regions. But in the early stage of peripheral IV site infection, temperature of the infected site just has several degree celcius of different. This different can hardly be assess by touching with bare hand. Also most of the IV site was covered by thin layer of dressing. Portable thermal imaging device with thousands of thermal sensors can create a thermal image on screen that can easily be interpreted by human's eye. Thermal image can obtained even though skin is covered by thin layer of dressing. The slightly rose in temperature of the skin surrounded the IV site suggest peripheral IV site infection or phlebitis which has a longer shape of higher temperature area.

**Result**

In geriatric ward, there are many frail older adults who cannot express themselves. Health care staff cannot assess their pain score. Also dark pigmented skin patient is not easy to distinguish skin redness. As a result portable thermal imaging device is very useful in order to assess patient's IV site condition. To see if there are any early signs of peripheral IV site infection. Therefore early intervention and treatment can

give to patient. In conclusion, portable thermal imaging device offer a noninvasive way to assess patient's IV site condition. It can inevitably improve efficiency and effectiveness of care delivery to patient.