Advice Statement 011/13  

1. What is the sensitivity and specificity of positron emission tomography/computed tomography (PET/CT) compared to other diagnostic imaging modalities in determining the cause of pyrexia of unknown origin (PUO)?  
2. What is the clinical and cost effectiveness of PET/CT as a first-line imaging investigation in patients with PUO?

This advice has been produced following completion of technologies scoping report 20 by Healthcare Improvement Scotland, in response to an enquiry from the Scottish PET short-life working group.

**Background**
- PUO is defined as a temperature higher than 38.3°C on several occasions and lasting longer than 3 weeks, with a diagnosis that remains uncertain after inpatient or outpatient evaluation for a minimum of 3 days or three outpatient visits. PUO is often cited as a ‘common problem’, but incidence/prevalence figures could not be identified.
- A United Kingdom consensus document published by the Royal College of Physicians and Royal College of Radiologists in 2012 recommended that PET/CT be used ‘to identify the cause of a PUO where conventional investigations have not revealed a source’.
- The Scottish PET short-life working group is currently considering indications for appropriate use of PET/CT scans.

**Clinical effectiveness**
In answer to the two questions above:
- The quality and quantity of evidence is insufficient to determine whether or not PET/CT has superior accuracy compared to alternative diagnostic imaging modalities in the investigation of PUO. Some small prospective and retrospective case series and cohort studies suggest that PET/CT may help in diagnosing the cause of PUO, or directing targeted investigations, but the evidence base for this is weak.
- The quality and quantity of evidence is insufficient to support or refute the use of PET/CT as a first-line imaging technique in patients with PUO, or to determine when in the diagnostic work-up the use of PET/CT is most appropriate.

**Cost effectiveness**
- No economic evaluations were identified. In Scotland, the average cost per PET/CT (FDG) scan is £1,164.
Advice context:
The status of SHTG Advice Statements is advisory.

No part of this advice may be used without the whole of the advice being quoted in full. This advice represents the view of the SHTG at the date noted.

It is provided to inform NHS boards in Scotland when determining the place of health technologies for local use. The content of this Advice Statement was based upon the evidence and factors available at the time of publication. An international evidence base is reviewed and thus its generalisability to NHSScotland should be considered by those using this advice to plan services. It is acknowledged that the evidence constitutes only one of the sources needed for decision making and planning in NHSScotland. Readers are asked to consider that new trials and technologies may have emerged since first publication and the evidence presented may no longer be current. SHTG Advice Statements are considered for review on a 2-yearly basis. The evidence will be updated if requested by the clinical community, dependent on new published reports. This advice does not override the individual responsibility of health professionals to make decisions in the exercise of their clinical judgment in the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

Chair
Scottish Health Technologies Group