

Comments in Support of the Petition for an Adjusted Need Determination for One Dedicated Cardiac Mobile PET Scanner

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Dear Members of the Technology and Equipment Committee:

This letter serves to document my support for the petition for an adjusted need determination for one dedicated cardiac mobile PET scanner in the 2023 State Medical Facilities Plan. The benefits of cardiac PET/CT (cPET) over traditional “standard” cardiac diagnostic modalities are vast. First, cPET is simply the best modality for the diagnosis of significant coronary artery disease. Second, cPET is the best and only modality that has demonstrated accurate patient stratification where revascularization (coronary bypass surgery or percutaneous coronary stenting) reduces the risk of death and myocardial infarction.

Cardiac PET stress testing has become increasingly prevalent worldwide and in the United States. As such, there is now a copious amount of data to support its clinical use and its advantages over traditional single photon emission tomography stress testing (SPECT). When compared to SPECT, cPET offers attenuation correction, high count densities and better radiotracers. These features translate into better image quality and higher sensitivity and specificity for detecting significant coronary disease. (Mc Ardle BA, et al. *J Am Coll Cardiol*. 2012;60(18):1828-1837, Parker MW, et al. *Circ Cardiovasc Imaging*. 2012;5(6):700-707, Bateman TM, et al. *J Nucl Cardiol*. 2006;13(1):24-33., Danad I, et al. *JAMA Cardiol*. 2017;2(10):1100-1107)

Cardiac PET also offers the advantages of quantifying regional absolute myocardial blood flow (MBF). MBF measurements allows for improved risk stratification such that invasive revascularization procedures yield successful outcomes. Studies have demonstrated that as MBF falls below thresholds, revascularization improves MBF. However, if MBF is above threshold, invasive procedures do not improve MBF but in fact, elevate patient risk. (Bober, et al. *Eur J Nucl Med Mol Imaging*. 2019 Jun;46(6):1226-1239., Tadashi Murai. *JAMA. Analysis From DEFINE FLOW and IDEAL*, 2020 Volume: 9, Issue: 14, Driessen et al, *Circulation: Cardiovascular Imaging* Volume 11, Issue 5, May 2018, de Winter RW, et al. *Eur Heart J Cardiovasc Imaging*. 2021 Dec 8.) Finally, Gould et al have demonstrated that cPET with low flow MBF thresholds, revascularization procedures reduce the risk of death and myocardial infarction by 54%. However, revascularization confers no risk reduction if above MBF thresholds. (Gould KL, et al. *J Am Coll Cardiol CV Imaging* 2021;14(5):1020-34) Hence, cPET with MBF offers the potential of decreased high risk procedure utilization with improved patient outcomes.

In sum, cPET is currently the most effective modality for the diagnosis and treatment of coronary artery disease.

Thank you,

Handwritten signature of Robert Bober, MD, in black ink.

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