



## Appropriate & Appropriate Use: What Do They Really Mean?



Ordering imaging procedures in cardiovascular medicine, such as echocardiograms, when there may not be an appropriate indication or when the results would make no difference in the patient's care or outcome are easily cited as playing a role in the overuse of echocardiograms, according to an Editorial published in the Journal of the American College of Cardiology.

There clearly are inappropriate imaging tests ordered daily. Hence, the Editorial lauds the actions of the American College of Cardiology Foundation and the American Society of Echocardiography for trying to educate healthcare providers on the appropriate ordering of echocardiograms.

"The appropriate use of a diagnostic-prognostic imaging procedure like echocardiography should be aimed at determining not only if the patient is symptomatic but, possibly more importantly, if the heart is symptomatic," author Randolph P. Martin, MD, Emory University Medical School (Atlanta, GA) writes in the Editorial. "Think of the case of primary mitral regurgitation, where a TTE [transthoracic echocardiogram] may offer important prognostic information, such as changes in left ventricular end-systolic size or global longitudinal strain, findings that may well denote a change in ventricular function long before symptoms or decrease in left ventricular ejection fraction appear."

These findings, then, are very appropriate in determining where the heart itself is becoming symptomatic, so there is a role for excellent clinical judgment in determining when an echocardiogram is clearly appropriate, the author adds.

According to Dr. Martin, there are some steps that can be taken to make sure that echocardiograms are ordered when appropriate. First, offering ordering physicians audits and feedback on their ordering activities compared to those of their peers can directly educate them as to the appropriateness of ordering specific echocardiograms in specific clinical situations. Second, any intervention to try to educate or influence physicians as to what is an appropriate use of an echocardiogram should continue to focus on the top 3 to 5 rarely appropriate (rA) echocardiograms being ordered, often for routine surveillance.

These educational activities, the author notes, should be aimed at those physicians, nurse practitioners, physician assistants, or extenders, and even house staff, who order the highest volume of echoes in both inpatient and outpatient settings.

Dr. Martin also suggests the use of natural language processing and automated analytical software that incorporates artificial intelligence (AI) and machine learning in electronic medical records ordering-reporting

systems. As he points out: "If companies such as Amazon can know what your online ordering history and preferences are, why can't similar AI machine-learning algorithms be applied to the ordering of echocardiograms by individual physicians or healthcare providers? This could highlight and intervene so that only appropriate echocardiograms are considered."

These algorithms, he explains, can be used to notify those who are ordering an echocardiogram whether one has been done recently, show the results in a quick and very useful format, and question whether an echocardiogram, if performed at this time, will appropriately improve the patient's care.

Source: [JACC](#)

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Published on : Fri, 15 Sep 2017