Background: Because of the shortage of donor heart, the criteria for acceptance have been considerably extended. Pharmacological stress echocardiography is highly accurate for excluding prognostically significant coronary artery disease. Aim: to establish the feasibility of an approach based on pharmacological stress echo as a gatekeeper for extended heart donor criteria.

Methods: Starting April 2005 to January 2007, 9 "marginal" candidate donors (56±9 years, 5 men) were initially enrolled. After legal declaration of brain death, all marginal donors underwent bedside echocardiography, with baseline and (when resting echo was normal) dipyridamole (0.84 mg/kg in 6') or dobutamine (up to 40 mcg/kg) stress echocardiography. Eligible hearts (with normal echo findings) were transplanted and underwent coronary angiography at 1 month after transplant; non-eligible hearts (with abnormal echo findings) were excluded and subjected to cardio-autopic verification.

Results: interpretable echocardiograms were obtained in all 9 patients. Resting echo showed obvious resting wall motion abnormalities in 2 patients (excluded from donation). Stress echo was successfully performed in the remaining 7 (with dipyridamole in 6, and dobutamine in 1) and results were abnormal in 2, in whom coronary artery disease was confirmed by autopic verification (see figure). The remaining 5 hearts were uneventfully transplanted in marginal recipients. All recipients showed normal findings and coronary angiography and intravascular ultrasound at 1-month post-transplant and are alive at 1-21 months follow-up.

Conclusion: Bedside pharmacological stress echocardiography can safely be performed in candidate heart donors with brain death, and shows potential to extend donor criteria in heart transplantation.