TITLE: Need a hand? Not anymore! Evaluation of a new method for preparing agitated saline contrast

Author(s): Priya Koilpillai, Igal Sebag, Robbie Stewart, Chi-Ming Chow, Howard Leong-Poi, Wendy Tsang

Institution Affiliation: St. Michael's Hospital, Unity Health Toronto, Ontario; Jewish General Hospital, Montreal, Quebec; Nova Scotia Health Authority, Halifax, Nova Scotia; Toronto General Hospital, University Health Network, Toronto, Ontario

BACKGOUND:
Since the introduction of agitated saline in 1968, the manual technique to improve opacification of the right heart and identify a right-to-left shunt has largely been unchanged. Although ultrasound technologies have improved, sonographers still face the challenge of injecting agitated saline while simultaneously acquiring images, a technique often requiring 2 persons/three hands.

Recently, the Orbis™ Microbubble Generator was introduced to allow one operator to complete an agitated saline "bubble study" echocardiogram for the identification of a right-to-left shunt.

METHODS:
To assess the benefits of the Orbis device, a clinical evaluation was conducted between April 2024 and February 2025 at four Canadian Echo Labs. Sonographer's and physician's were asked to rate ease of completing transthoracic echocardiograms (TTE) or transesophageal echocardiograms (TEE) using Orbis in reference to manually agitating and injecting saline contrast. Perception of the level opacification was also recorded.

RESULTS:
Two hundred and seventeen Orbis saline contrast injections were assessed via 137 independent observations including 125 TTE, 9 TEE and three with both. One hundred and seventeen echocardiograms were conducted in the Echo Lab and 15 at the bedside (portable).

The ease of preparing and injecting Orbis saline contrast in reference to standard of care (SoC) was rated as "same" to "easier" (3.9/5; n=137). The wait for a second person was considered a "mild" to "moderate" inconvenience" (2.24/5; n=101) with 40%, 34% and 8% for 3-5, 6-10 and over 10 minutes respectively with SoC. Fifty-eight percent (50/86) indicated the Orbis study could have been performed without the second person, eliminating wait times.

Opacification levels with Orbis were "somewhat sufficient" to "very sufficient" (3.5/4, n = 136) with overall echo quality being "fair" to "good" (3.8/5, n = 133).

CONCLUSIONS:
The Orbis Microbubble Generator was considered easy to use as compared with SoC, and provided time savings as a second person was not required. Additionally, the device provided sufficient opacification levels to identify right-to-left shunting. The Orbis device offers a viable alternative to manually agitated saline contrast and can eliminate the need for a third hand.