Device that records a single-lead ECG monitor and stores it for later study; and gives an instant ECG reading.

A modified blood pressure monitoring device and hand-held ECG devices are more accurate than pulse palpitation in detecting undiagnosed atrial fibrillation in a family practice setting, a study from the University of Oxford has found. Using the hand-held devices could reduce the need for 12-lead ECGs, which take up clinical time, suggested study author Dr. Matthew Thompson, formerly co-director of the Oxford Centre for Monitoring and Diagnosis in Primary Care (MaDOx) and now professor and vice-chair for research in the department of family medicine at the University of Washington in Seattle.

The Oxford study involved 1,000 patients age 75 years and older in six U.K. primary-care practices. All patients were screened for atrial fibrillation (AF) by one of nine nurses and then each of three devices, followed by a 12-lead ECG. All ECGs were read by cardiologists blinded to the patients’ diagnosis. The three devices studied were: WatchBP, an electronic blood pressure monitor with a light that flashes if it detects AF; Omron HeartScan, a single-lead ECG monitor that gives an instant ECG reading and stores it for later study; and Merlin, a wristwatch ECG device that records a single-lead ECG to be looked at later.

While 110 participants already had a diagnosis of AF, only 67 were exhibiting AF at the time of the appointment. Another 12 cases were detected during the study.

All of the methods used to detect AF had sensitivities in the 90% range, showing all are useful in ruling out AF. When it came to detecting AF, the nurses were able to do so in 12 minutes in palpitation with a specificity of 86.1% in all patients. In cases of undiagnosed AF, the nurses were able to detect it with a high sensitivity but the specificity was 78.3%. In contrast, the WatchBP had a specificity of 89.7%. When the cardiologists read the ECG from the Omron and Merlin ECG recorders they had specificity scores similar to the WatchBP, at 94.6% and 90.8%, respectively.

The benefit of the WatchBP over the hand-held ECG devices is it does not require the skill of reading ECGs. However, while the sensitivity and specificity of the WatchBP look encouraging, Dr. Thompson warned that based on these results, for every 100 patients there will be one true positive diagnosis of AF and another 10 false positives. With this threat of false positives, “what is not clear is how often you should screen people.”

A Canadian study has also shown a hand-held single-lead ECG device is superior to pulse palpitation in detecting AF. Researchers used the HeartCheck hand-held ECG—manufactured by Canadian company CardioComm Solutions, Inc.—to screen 1,334 people for AF. Only 12 of 28 ECG-confirmed cases of AF were detected by pulse palpitation. The study, by Dr. Karl Boyle and colleagues at the University of Toronto, was presented at the 2013 Canadian Cardiovascular Congress.

When it comes to detecting AF, it is feasible to run a community-based rehabilitation program for patients with chronic obstructive pulmonary disease (COPD) using local staff and equipment, a large trial from Ireland has shown. “There is increasing acceptance that rehabilitation has to occur in the community,” said Dr. Andrew Murphy, senior author of the study and a professor of general practice at the National University of Ireland in Galway. “This study shows the feasibility of running these programs.”

While the program produced statistically significant improvements in pulse palpitation compared with usual care, the results did not meet the pre-specified criteria for clinical significance.

The study involved 350 patients with moderate to severe COPD from 32 primary-care practices across Ireland who were randomized to the rehabilitation program or usual care. The eight-week program included a two-hour session each week, with one hour devoted to education and one hour to exercise. It was run in schools or neighbourhood gyms by trained local nurses or physiotherapists volunteering their time.

The primary outcome was health status as measured by the Chronic Respiratory Questionnaire (CRQ) at baseline and three months after program completion. The 20-item CRQ measures dyspnea, fatigue, emotional function and mastery on seven-point Likert scales, with higher scores representing less impairment. Rehab patients had a higher mean improvement in total CRQ score than the usual-care group (an adjusted mean difference of 1.1). Statistically significant differences were also seen on the CRQ’s dyspnea and physical subscales. However, the researchers couldn’t exclude the possibility that these differences were less than 0.5 points, which is considered the minimal clinically important difference for the CRQ.

Still, only seven patients needed to participate in the program for one to show an improvement in the CRQ. “An intervention that has a number needed to treat of seven people to me is reasonably important,” Dr. Murphy said.

He added that the results have been sent to the Irish minister of health to see if the program can be implemented. Dr. Murphy presented the study at the North American Primary Care Research Group Conference by the end of the year. It was also published in Thorax (October 2013).