



**PHILIPS**

Ultrasound

Case study

# Uncompromised imaging, features and workflow in a premium compact ultrasound system

## Philips Ultrasound Compact 5000 series

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### Overview

The Compact 5000 series is the latest introduction to the Philips family of ultrasound systems and is available for use in obstetrics and gynecology. This portable compact system inherits multiple capabilities which current users of Philips ultrasound systems may be familiar with, such as premium image quality, full array of system-compatible transducers, advanced features and superb user workflow. Years of advanced development and experience with premium ultrasound systems for women's healthcare has paid dividends in the robust usability of the Compact 5000 series. This article provides an overview of Perinatal Associates of New Mexico (PANM) experience with clinical evaluations of the image quality, features and performance of the Compact 5000 series in our Maternal-Fetal Medicine (MFM) practice.

## Background

As the largest maternal-fetal medicine (MFM) practice in New Mexico, Perinatal Associates of New Mexico (PANM) demonstrates a constant drive toward performance excellence. PANM is a leading perinatal provider in New Mexico and has been known for their exceptional patient care and leading role in the MFM field.

PANM is ideally positioned to routinely assesses new and promising clinical developments from industry partners to help bring the latest technological advancements to their patients.

### Research protocol

The Compact 5000 series was extensively evaluated throughout our practice's outpatient offices and within the hospital inpatient setting on labor and delivery and the antenatal unit.\* A variety of exam types were performed, including biophysical profiles, fetal anatomic surveys, fetal echocardiograms and Doppler evaluations of the umbilical, middle cerebral arteries and ductus venosus. A questionnaire completed by the sonographer, nurse or clinician at the end of each exam assessed how the Compact 5000 series performed regarding image quality, workflow and clinical confidence in diagnosis as compared to using the practice's current equipment – either the Philips EPIQ Elite or CX50 ultrasound systems.

Data collected on the clinical performance and image quality of the Compact 5000 series included evaluation of 2D, 3D/4D, color, pulsed wave Doppler, and microflow imaging (MFI), as well as the FlexVue with Orthogonal View. The standardized surveys were graded on a point-scale from -2 to +2 as defined below.

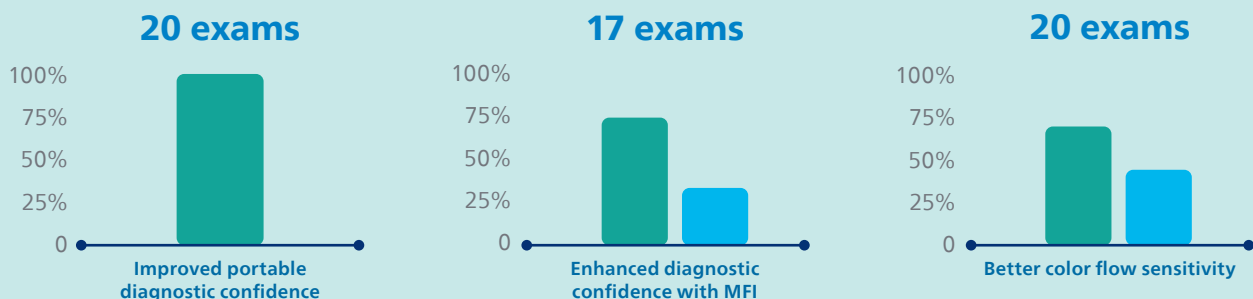
- +2 = Strongly agree
- +1 = Somewhat agree
- 0 = Neutral
- 1 = Somewhat disagree
- 2 = Strongly disagree

### Study findings

After performing 20 exams with the Compact 5000 series, 100% of participants "Strongly agree" that the Compact 5000 series improved their diagnostic confidence for labor and delivery portable exams.

After performing 17 exams with the Compact 5000 series, 71% of participants "Strongly agree" and 29% "Somewhat agree" that microflow imaging (MFI) enhanced their diagnostic confidence.

After performing 20 OB/GYN exams with the Compact 5000 series, 70% of participants "Strongly agree" and 30% "Somewhat agree" that the color flow sensitivity of the Compact 5000 series is better than their current ultrasound system for general imaging ultrasound exams.



\*The evaluation of the Compact 5000 series at PANM was conducted under institutional review board approval provided by the WCG (WIRB Copernicus Group) IRB.

## System benefits

### Portability

The Compact 5000 series and its portable cart are easy to maneuver and simply adjusted for scanning while sitting or standing at the patient's bedside. The system was effectively used in our clinical office rooms where the sonographer is seated next to the patient bed, as well as in the tight quarters of labor and delivery triage which requires the ultrasound machine to be squeezed in next to the patient's gurney and the user tucked in, standing at the bedside. The device's battery life also exceeded our expectations, lasting up to 2.5 hours of scanning with extended batteries, thereby avoiding the hassle of identifying an available electrical outlet often required by other portable ultrasound systems with shorter battery life. The Compact 5000 series has the additional benefit of sharing many transducers with our premium cart-based EPIQ Elite system.

### Intuitive user interface

In our clinical evaluation, we found the user interface to be intuitive from the onset of powering on the Compact 5000 series. The workflow to enter the patient's data, select the necessary transducer and begin an exam mimicked that of our existing EPIQ Elite systems, making adoption of the portable system efficient. Undoubtedly, when integrated into our system to replace our current fleet of ten CX50 systems, the Compact 5000 series will become an asset allowing all our sonographer and nursing staff to utilize the system without any hindrance in the user interface.

Maneuvering through the familiar touchscreen user interface was analogous to movements found on our current EPIQ Elite systems. The Compact 5000 series has the capability to integrate many exam protocols using SmartExam. This capability allows for exam consistency and quality as portable systems are often used in a variety of settings and complete several different obstetric exam types.

### Seamless connectivity

The Compact 5000 series connects easily to Wi-Fi to share images and reports with existing picture archiving and communication systems (PACS). Upon connection to our practice's dedicated Wi-Fi system, the portable system began communicating with our PACS, allowing for quick and efficient review of images for clinical diagnosis.

Additionally, real-time talk, text, screen-share and video-streaming capabilities via Philips Collaboration Live are available on the Compact 5000 series. Our perinatal practice has extensive experience using different modalities for telemedicine, including Collaboration Live. We found the ability to interact with our sonographer staff, as well as the patient, for consultation on the Compact 5000 series to be comparable to our daily teleultrasound use on our existing EPIQ Elite systems. While conducting our evaluation of the Compact 5000 series, we implemented a novel use of its integrated telemedicine software – Philips Collaboration Live – to complete MFM inpatient rounds.



Often, our physicians are in the outpatient clinic seeing patients while inpatient MFM consultations arise on labor and delivery. Most of these inpatient consultations require ultrasound evaluations. While our sonographer completed the inpatient ultrasound evaluation, we connected via Philips Collaboration Live and were able to interact with the patient, complete their history, discuss the ultrasound findings in real-time, and share our management plan without leaving the outpatient clinical site, driving to the hospital, and walking to the patient's bedside. The novel ability to complete a MFM consultation using Philips Collaboration Live on the Compact 5000 series distinctly offers opportunities to anyone providing inpatient perinatal care.

## Conclusion

The utility of ultrasound in obstetrics and gynecology remains a leader as a frontline, low-cost imaging modality, and consistently demonstrates its necessary role in the prenatal diagnosis of fetal anomalies and the ongoing assessment of complicated pregnancies. With each decade, remarkable advancements in ultrasound

technology continue to advance the way clinicians evaluate and diagnose fetal abnormalities and pregnancy complications. With state-of-the-art transducer technology, premium features and enhanced user workflow, the Compact 5000 series clearly stands as a remarkable advancement in portable ultrasound.



The Philips Ultrasound Compact 5000 series represents a significant leap forward in compact, uncompromising, portable ultrasound. In both obstetric and perinatal care, the availability of ultrasound has remarkably changed the healthcare of the patient and the prenatal diagnosis and management of the fetus. The Compact 5000 series continues to push the capabilities of ultrasound in its provision of high-quality imaging, advanced technological features, simplistic user interface and enhanced connectivity.



### About the author

Michael S. Ruma, MD, MPH, joined PANM in 2008 after completing his fellowship training in maternal-fetal medicine at the University of North Carolina at Chapel Hill. He also received a Master of Public Health degree in Health Policy and Administration from the School of Public Health at the University of North Carolina. His interests and research include maternal red blood cell sensitization, efficiency in obstetric ultrasound performance, standardization of perinatal care and the harmful effects of prior authorization on medical practice. He has practiced in New Mexico for the last 14 years and is the current president of PANM.

