

Featured POCT Program

Point of Care Testing at UMass Memorial Health Care, Worcester, MA

UMass Memorial Health Care is the largest health care system in Central and Western Massachusetts. This nonprofit system encompasses a complete health care continuum, with a multi-campus academic medical center, member and affiliated community hospitals, community-based physician practices, ambulatory clinics, long-term care facilities, home health agencies, hospice programs, and rehabilitation and behavioral health services. As the tertiary care referral center, UMass Memorial Medical Center in Worcester, MA, is a 783-bed facility on three campuses.

The POCT program at UMass Memorial Medical Center has its earliest beginnings in 1996 with separate programs on each of the 3 campuses. Each facility had separate accreditation procedures as well as a varied testing menu and separate vendors. In 1998, when the merger of the campuses occurred, a major effort was put forward to standardize all POC testing across the tri campus facilities. Currently, the POCT menu includes both waived, PPM and moderately complex tests performed by various levels of hospital personnel, includes physicians, anesthesiologists, perfusionists, RN's, respiratory therapists, phlebotomists and patient care assistants. This program has direct oversight by the Department of Hospital Laboratories, POCT division. This division is staffed by a Director, a Manager, two MT's and one lab support technician.



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The areas that perform waived testing are accredited by Joint Commission on the Accreditation of Hospitals (JCAHO), PPM and moderate complex testing by College of American Pathologists (CAP) and are included under the laboratory's CLIA certificate.

The total number of POCT tests performed annually is approximately 900,000. The **waived testing** includes whole blood glucose (Life Scan), Stool for occult blood (Sure-Vue), gastric aspirates and vomit for pH and occult blood (Gastrocult), Urine dipsticks (Bayer), Urine pregnancy (OSOM), Hemoglobin (HemoCue), rapid strep (Signify A), H.Pylori (Pyloritek), hemoglobin A1C (DCA2000). Whole blood glucose is the most utilized waived test with a total volume of 500,000 annually. The system has 109 Sure Step Flexx glucometers, 62 download locations spread over 45 nursing stations. The database supports greater than 2000 certified operators and all patient and QC results. The RALs Plus IMS screens over 1000 patient test results daily and sorts results according to the customization profiles established by the POCT division. We have chosen to use the patient account number for patient identification to assure that the test result and the billing is connected to the right episode. At the onset of the program all meters are downloaded via sneaker net method. More recently we have upgraded to a network system, where all glucometers are downloaded on a daily basis by nursing units providing realtime review of patient test results and QC data. Within the past 3 months, we have interfaced our patient test results to our LIS system. The institution has embarked on a system wide HIS program, which includes barcoded patient wristbands assuring positive patient identification. Currently we are working on establishing a system for billing of these glucoses, but are tied up with the medical necessity piece associated with outpatient testing.

Table 1: Volumes of the waived tests at UMMHC.

Test	Total Volume	QC/Patient Data
Gastrocult	3000	Manual
Urine Dipsticks	200,000	Manual
Pregnancy tests	22,500	Manual
Hemoglobin	36,000	Sneaker net
Rapid Strep	16,600	Manual
Cholestek	6,000	Manual
H. Pylori	1,200	Manual
Hgb A1C	1,350	Manual
Glucose	500,000	Network

The POCT division routinely monitors various QA indicators for the above-waived tests for successful performance of QC and patient reporting. These QA indicators include documentation of patient identification, patient test results, internal and external QC, lot number and expiration date of testing kits, operator identification and critical value confirmation. POCT division generates a monthly report for each test performed on individual nursing units to the respective nursing manager. The initial POCT training is done as a part of the orientation to the system in the nursing unit and annual competency is performed thereafter and is the responsibility of the respective nursing unit.

The PPM tests include Urine sediments, vaginal wet preps, KOH preparations and fern tests. These tests are performed by physicians in the varying clinics through out the institution. POCT division monitors the physician performance by CAP surveys, as they are exempt from training and annual competency.

The Moderately complex tests include blood gases (I-STAT), electrolytes, glucose, BUN, Creatinine, ionized calcium, hematocrit (I-STAT), ACT, PT-INR testing (I-STAT), BNP (Bio-site) and fetal scalp pH (Bayer). Four years ago the core laboratory at university campus moved to an off site location approximately half-a-mile from the campus. These two locations are connected through a pneumatic tube system. We could not successfully validate the blood gas testing using the pneumatic tube system and realized that we needed to seek alternate methods to perform blood gas testing. We chose the I-STAT method, because it opened up a whole new menu of choices for doing POC testing especially in ICU's. Currently we have I-STAT devices in all our 8 ICU's, 2 OR's and phlebotomy dept. at University and Memorial campuses. All I-STAT devices are networked to the POCT office and interfaced to our LIS system. The POCT division monitors QC and patient data on a daily basis and are able to use system software to customize analyzers to suite specific nursing locations. We currently use Abbott software for our data management, but are looking to consolidate in to the existing RALS Plus software platform for more uniform management of the POCT testing.

We introduced BNP testing about year ago under request of ER physicians. Previously this was a send out test to an outside reference laboratory. Currently we have 4 Bio site Triage meters located at ER, Cardiovascular Center and in the main core lab. PCA's, phlebotomists and MT's perform these tests.

The Bayer pH analyzer is used on our maternity floor to test fetal scalp samples for pH. It is minimally used and requires a lot of daily maintenance.

Table 2: Volumes of the Moderately Complex tests at UMMHC.

Test	Total Volume	QC/Patient Data
Blood gases	56,000	Network
Electrolytes, Glu, BUN etc	110,000	Network
ACT	6,000	Network
PT-INR	20,000	Network
BNP	3,500	Network
Fetal Scalp pH	25	Manual

The training for all moderately complex training is performed by the POCT department, manufacturers technical representatives and assigned super users. The new users are evaluated initially after a 6-month period and annually there after. All POC testing done with I-STAT instrumentation is monitored on a daily basis for QC failures, proper patient identification, patient critical values and follow up. All moderately complex testing is billed through our LIS system.

We look forward to great challenges in the future by continuing to expand and introduce new POCT technologies. We encourage vendors to customize POCT testing to include database management not only through hospital based network system, but also through wireless technologies. These challenges provide great opportunity for both patients and health care system by providing physicians with superior diagnostic information at the time of visit and revenue enhancement by building billing mechanisms for all POC testing.

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