

The Establishment of Point -of- Care Testing at KSUMC

Rana Hasanato, M.D., KSFCB
Head. Clinical Chemistry, POCT and STAT Laboratories
Laboratory Director, KSUMC
King Saud University Hospital's Laboratories
Dept. of Pathology and Laboratory Medicine.

King Saud Medical City

- **King Khalid University Hospital (KKUH)** is a tertiary academic hospital, having > 800 beds, and expecting to reach > 1000 beds with the expansion. New clinical services are being opened such as the Cardiac Center and Organ Transplant Center.
- **King AbdulAziz University Hospital (KAUH)** is a sister hospital, with > 100 beds, and expecting to reach 200 beds with the expansion. It is specialized in ENT, Ophthalmology, and Diabetic Center.

The Journey of POCT at KKUH

- It all began few years ago when we realized that laboratory analyzers are being used outside the lab with no proper training and without meeting the minimum clinical laboratory standards.



KKUH Story Line: “Analytical Instrument Run by Non-Laboratory Personnel” (KKUH= King Khalid University Hospital)

Curiosity for Searching :

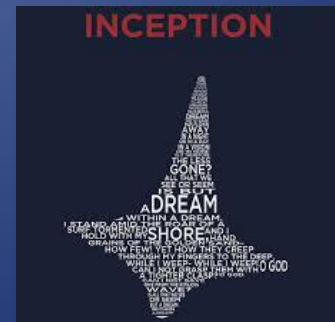
- As the Head of Clinical Chemistry, I received request from biomedical engineer that they need spare part for one of the blood gas analyzer that belongs to other clinical service not related to Clinical Chemistry Laboratory.
- Found it intriguing to investigate how laboratory equipment is being utilized outside central laboratory.
- Results were disappointing as the instrument did not match Clinical Laboratory Standards including: no routine maintenance, daily quality control, inventory management, data archiving, data transmission to HIS or reference range. Moreover, the instrument operation was not that easy for the operating staff who was paramedic with no experience or sufficient training on these instruments.



KKUH Story Line: “Analytical Instrument Run by Non-Laboratory Personnel” (KKUH= King Khalid University Hospital)

Inception of New Concept:

- The investigation findings led to the inception of an idea “**Why don't we have Point Of Care Testing?**”
- **Survey** was prepared and sent-out to all hospital departments dealing with patient care with a simple idea “Do You Have an Analytical Device” and “How Are You Using It”. The survey included questionnaire regarding analytical devices management including: inventory management, daily quality control, maintenance, troubleshooting, etc.
- The results of this questionnaire were alarming, it revealed that we have “**NO Awareness and Lack Good Practice**”.



KKUH Story Line: “Analytical Instruments Run by Non-Laboratory Personnel” (KKUH= King Khalid University Hospital)

Idea Development:

- **Proposal** for initiation of a “**Point Of Care Program**”, was submitted to the Chief Medical Officer of KSUMC. In this proposal we highlighted the importance of having POC Program supervising outside-laboratory analytical instruments to ensure its validity and results accuracy based on laboratory quality control criteria.
- Additionally, this proposal was aimed to integrate all outside-laboratory analytical instruments **under one administrative and supervision unit.**



KKUH Story Line: “Analytical Instruments Run by Non-Laboratory Personnel”

(KKUH= King Khalid University Hospital)

Acceptance:

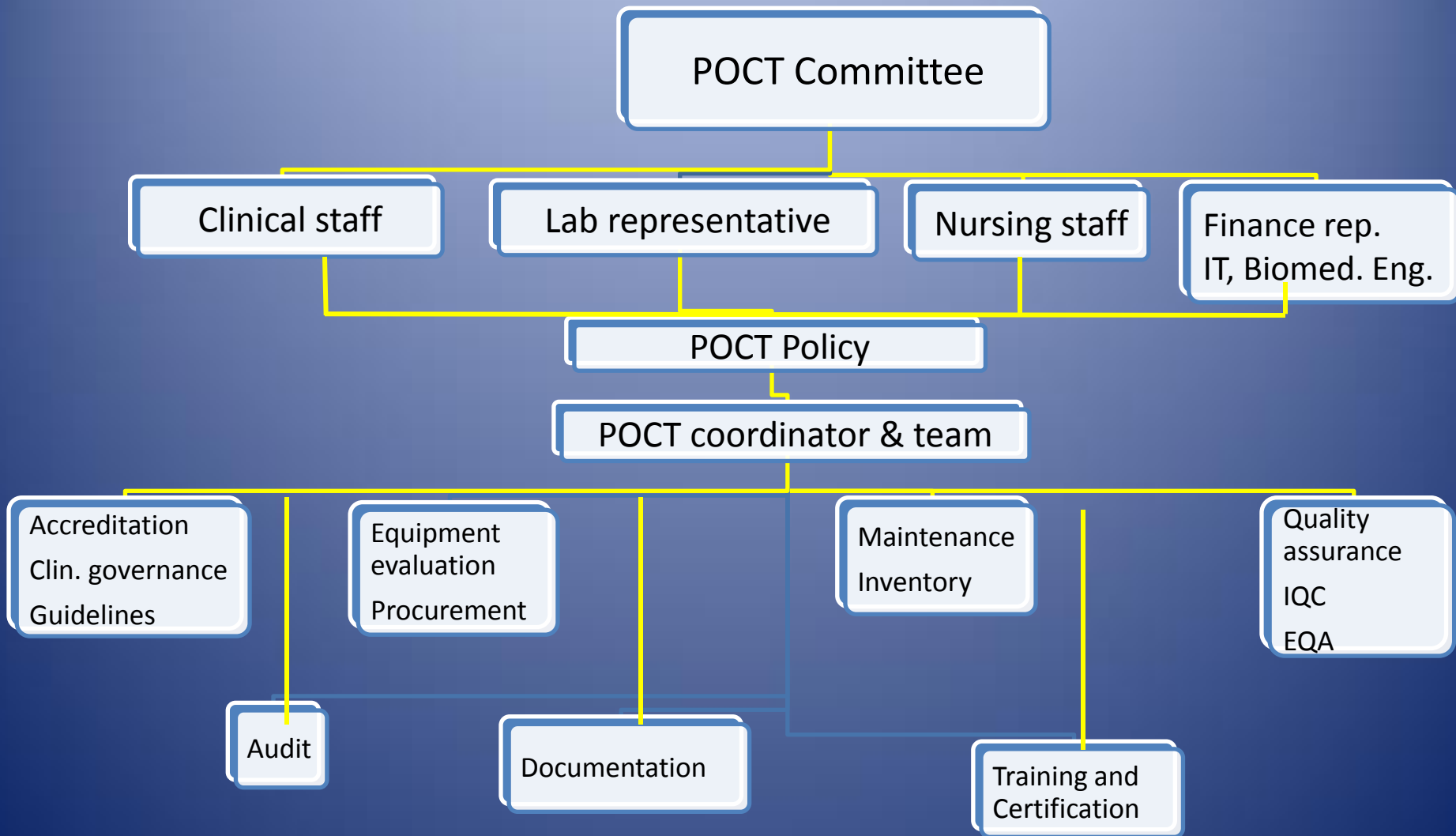
- Due to urgency and justification of these reasons an acceptance has been granted from hospital administration requiring **establishment of POC committee** which included Laboratory personnel (Head of Clinical Chemistry Unit), representative from different clinical departments (Department Heads), IT department, and medical purchase office [meeting monthly]
- The successful meeting of this committee led to the establishment of what is called “**Task Force Committee**” aimed to create of Policy and Procedure and took responsibilities to enforce its application [meeting biweekly]

POCT Committee- Mission

- Be accountable to the Hospital management for ensuring the delivery of a high quality POCT service

Role of POCT Committee

- To establish POCT policy and guidelines and ensuring it is fully implemented
- To approve use of POCT equipment and improve its management in terms of proper procurement
- To Ensure equipment handling by competent and trained users
- To introduce new technologies and consolidation of technologies at all POC sites
- To establish common quality control and quality assurance program
- To define criteria for taking action against unsatisfactory performance, inappropriate use, poor quality practices including withdrawal of POCT equipment when appropriate, elimination of tests that do not meet quality standards and removal of incompetent users



POCT Coordinator

Be responsible for

- Day-to-day operational matters of all POCT sites
- Training and development of staff from various professions in the use of POCT equipment
- Coordination, documentation and planning of the future POCT requirements
- Maintaining communication within the Laboratory Services and with clinicians, nurses and support staff
- Ensuring that the systems are in place to enable quality standards to be maintained

Clinical Users of POCT devices

Be individually accountable for their practice and ensure that –

- They acquire, and maintain skills in the use of POCT devices
- All POCT results are correctly documented in the patient records
- All users of POCT are competent and authorized to use devices and their training records are maintained
- Standard operating procedures are in place for POC devices in their area

Clinical Users of POCT devices (contd...)

- A designated Nurse educator will be responsible for the training of new users of the device, update training and upkeep of associated training records

Biomedical Department

- Provide technical advice and support
- Report technical performance problems
- Be involved in the purchase of new equipment

Supplies Department

- Liase with the POCT Committee before any POCT equipment is purchased
- Lead in the tender and procurement process of any new POCT equipment
- Inform the POCT committee of any requests or purchasing wishes

IT Department

- Advise on POCT data management and connectivity to appropriate host systems
- Liase with suppliers and laboratory to set up network connections to the hospital and laboratory computer systems

Bedside Testing in KKUH before POCT

- Scattered, unmanaged, and unorganized bedside testing instruments throughout the hospital
- Different types of analyzers without standard results comparability.
- Insufficient training.
- No documentation of results, QC, or maintenance.
- Frequent shortages of reagents and supplies(no stock).

POCT Implementation and Achievements

Achievements 2011

- Policy and Procedures (SOPs) preparation for POCT devices
- QC and Machines maintenance documentation
- Intensive end user training and certification
- Proper Inventory for all Supplies
- Establishment of more POCT sites at:
 - Cath-Lab
 - Labor and Delivery (L&D)
 - NICU

POCT Implementation and Achievements



Achievements 2012

- **Awarded CAP Accreditation** in Feb 2012 after only one and a half years of POCT program existence
- **Re-standardization of Glucometers.**
- Training given to more than 2000 nurses on the new Glucometer device

POCT Implementation and Achievements



Achievements 2013-14

- Complete Standardization of Blood gas machines in all POCT sites.
- POCT site was created in PICU
- Two new tests were added to POCT testing menu: ketone bodies and C-reactive protein
- Establishment of POCT task force at KAUH

POCT at KAUH -2014

- POCT division at KAUH has grown to include 27 glucose meters across the hospital and creatinine testing in Radiology department. The POCT is currently actively working on adding coagulation testing(5 devices has been acquired) and establishing connectivity to all devices to facilitate results transmission to the Hospital Information System(HIS).

POCT Implementation and Achievements



Achievements 2015-16

- Implementation of Hemoglobin A1c testing in primary care, diabetic and pediatric units.
- Working on finalizing the glucometer networking connectivity.
- Full POCT network connectivity coverage to help manage all POCT sites in the hospital
- Establish unified KKUH and KAUH monitoring system for the new glucometer service.

Success stories

CRP Testing in NICU:

- CRP is used in NICU setting to establish or exclude the diagnosis of sepsis
- CRP testing was offered through the central laboratory at KCUH during normal working hours(7:00 am to 4:30 Pm).
- After the introduction of CRP POCT device in NICU, testing is now available 24 hrs/day, 7 days a week
- Small sample volume more suitable for neonatal patients(sample volume was reduced from 2ml to 1.5 μ l)

=Patient Satisfaction

Success stories, cont.

Creatinine in Radiology department:

- Creatinine testing prior to contrast administration is required for certain patient to prevent kidney injury
- Patients who needed radiological intervention had to be scheduled to come prior to their procedure date for laboratory testing or wait for the results of the main laboratory testing.
- After the introduction of POC Creatinine testing, the results are available immediately and the feedback from the radiology department showed great provider satisfaction as well as patient satisfaction

=Patient Satisfaction

Success stories, cont

- The implementation of INR POC testing in KKUH out patient coagulation clinic tremendously improved the turn around time(TAT) and consequently led to the reduction of patient waiting time at the clinic and smaller sample volume



=Patient Satisfaction

Conclusion

- Quality management along with multidisciplinary approach can lead to a robust POCT program that adds value and enables the hospital to improve patient care and patient satisfaction.
- Involving all the stakeholders in the decision making process, by having an engaged POCT committee, promotes cooperation and facilitate rules enforcement.
- With hard work, dedication, and systematic approach in applying international standards and guidelines, the POCT program at KSUMC (KKUH and KAUH) has lived to its objectives and continues to grow in response to the hospital growth and expansion.