QUALITY ASSURANCE

(REMAPPING OF PROCESSES IN NABL LABORATORY)

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Introduction:-

Quality Assurance (QA) is the total process whereby the quality of laboratory reports can be guaranteed by IQC ,EQAS, Quality indicator, Remapping of processes. Incorrect Laboratory results may be due to errors occurring during specimen collection (pre-analytical stage), testing (analytical stage) and/or while reporting and interpreting (post-analytical stage) test results.

“A laboratory turnaround time is defined as the total time taken for a sample to be processed within the laboratory, from its arrival at the reception until a validated result has been released to Patient.

Aim and Objectives

Aim:

The aim of this study was to study the Quality assurance of NABL lab by the aspect of IQC,EQAS, Quality indicators & Remapping of processes and find reasons of delay of turnaround time (TAT) of tests in the section of Clinical Biochemistry , Hematology, Clinical pathology

Objectives:

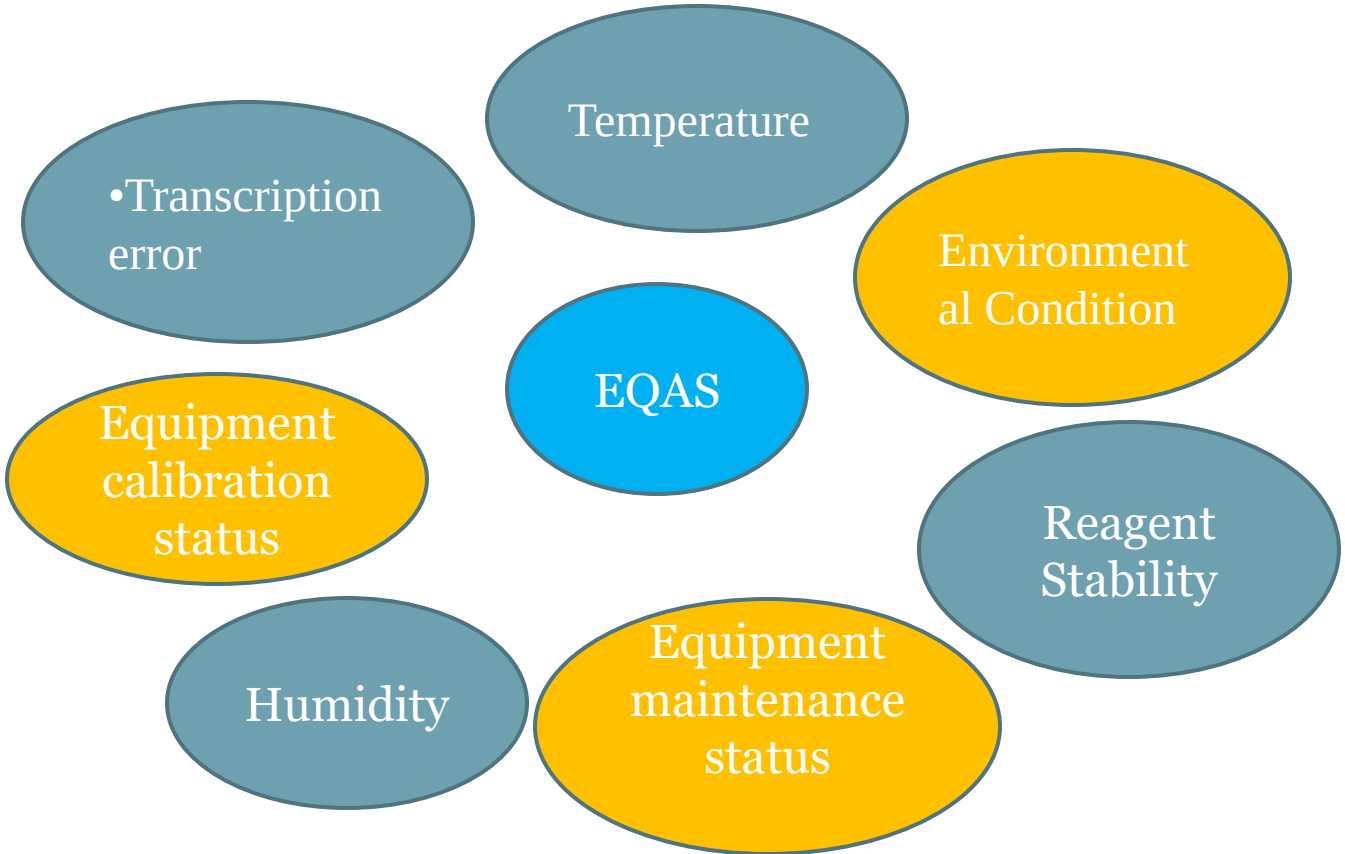
- To Study the quality assurance by IQC & EQAS in NABL Lab.
- To Study the Quality indicator in NABL Lab.
- To Study the difference between time taken for lab reports generation and dispatch with the standard time set by hospital.
- To Find out the cause of delay in process of sample collection to lab report dispatch.
- To Check and observe the maximum utilization of resources.

Methodology:

- **Study Design**: Descriptive study and Observational study
- **Study Area:**101 Bedded Monilek Hospital & Research centre Jaipur.
- **Study duration**: 8th February TO 8th May
- **Sample size**: Total 200 patient,100 for OPD & 100 For IPD
- **Sampling technique**: Convinient sampling
- **Study time-** 8 hr working day (Monday to Saturday)
- **Data collection** : Primary collection.(For IQC daily IQC Report is analyzed, For EQAS monthly report is analyzed).

Observations

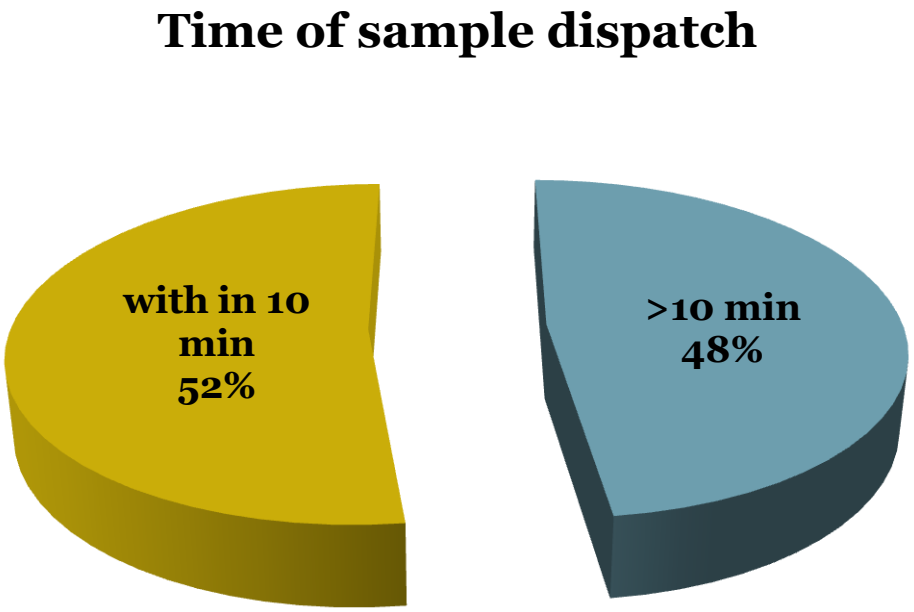
EQAS & IQC Report- EQAS Report of Haematology Department –after every 4 month (Quarterly) Declares & EQAS Report of Biochemistry Department-after every month. If parameter are not in range, then Root cause Analysis is done



Quality indicators in lab-

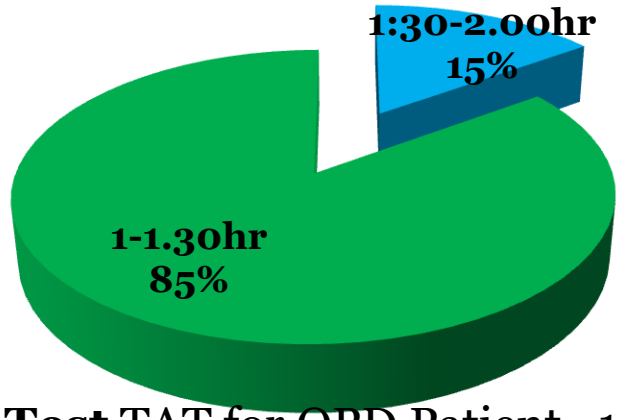
- Numbers of reporting error /1000investigation. 8/1000*1000=8
- Percentage of re-dos 35/500*100=0.07=7%
- Percentage of reports co-related with clinical diagnosis-443/500*100=88.6%
- Percentage of adherence to safety precautions by employees working in diagnostics-15/15*100=100%

Standard time set for sample dispatch from sample collection room to lab is 10 minutes. .sample size(n=200 patients)



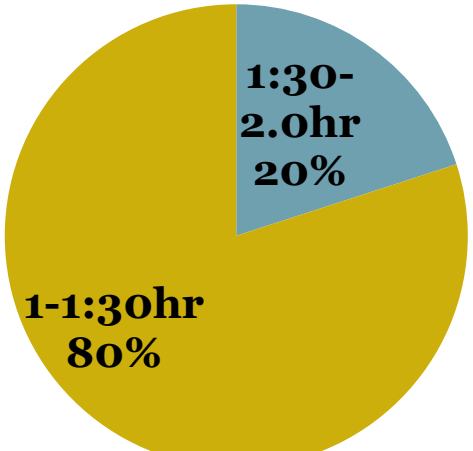
HAEMATOLOGY Test TAT for OPD Patient: -1:35 hr Average time, Standard TAT- 1:30 hr, ,(n=30)

TAT of Haematology (OPD)

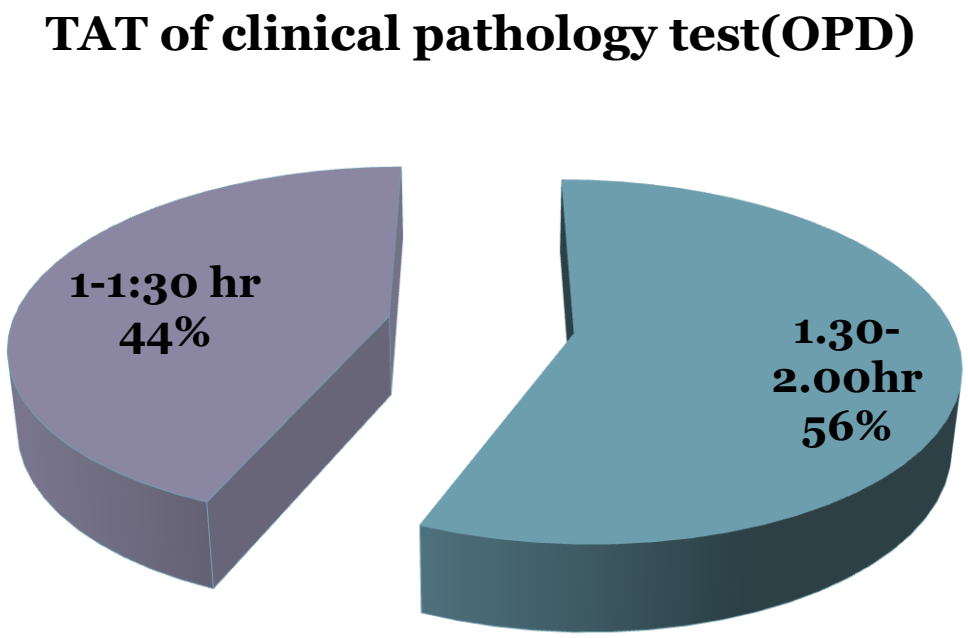


BIOCHEMISTRY Test TAT for OPD Patient--1:30 hr time, STANDARD TAT - 1:30hr(n=40)

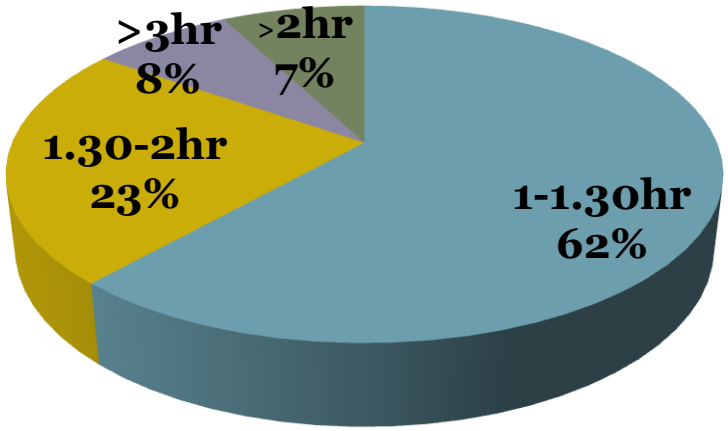
TAT of Biochemistry (OPD)



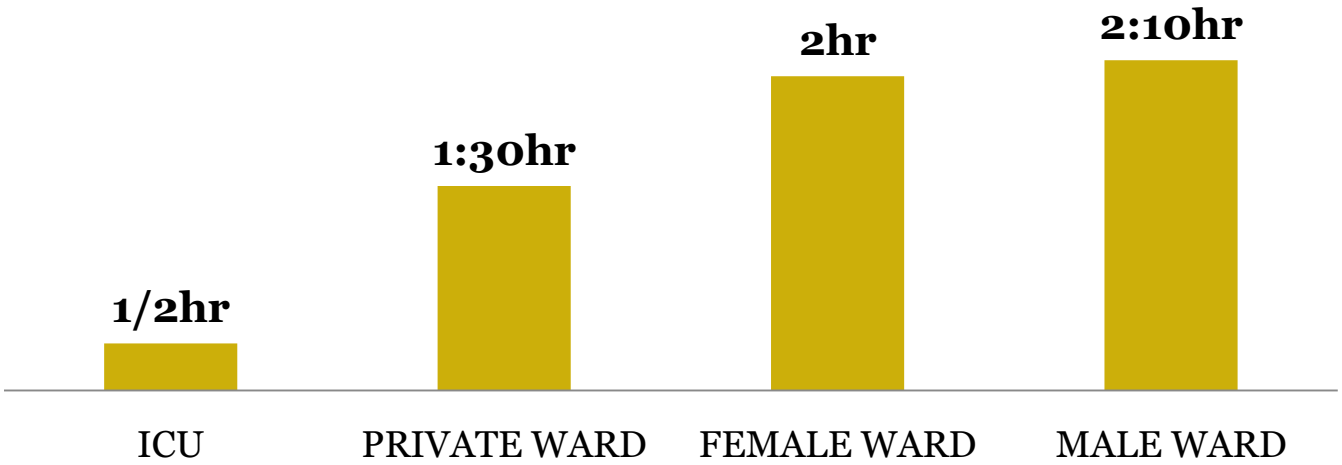
Clinical Pathology Test TAT for OPD Patient: -2 hr average, Standard TAT-1:30hr(n=30)



Haematology TAT of IPD patient - **2hr,** Standard TAT-1:30(n=30)

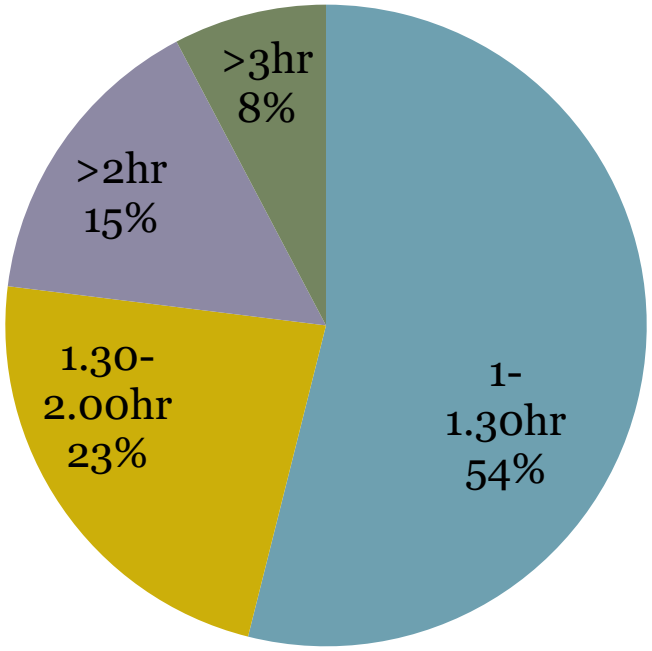


Department wise TAT of Haematology test(IPD)

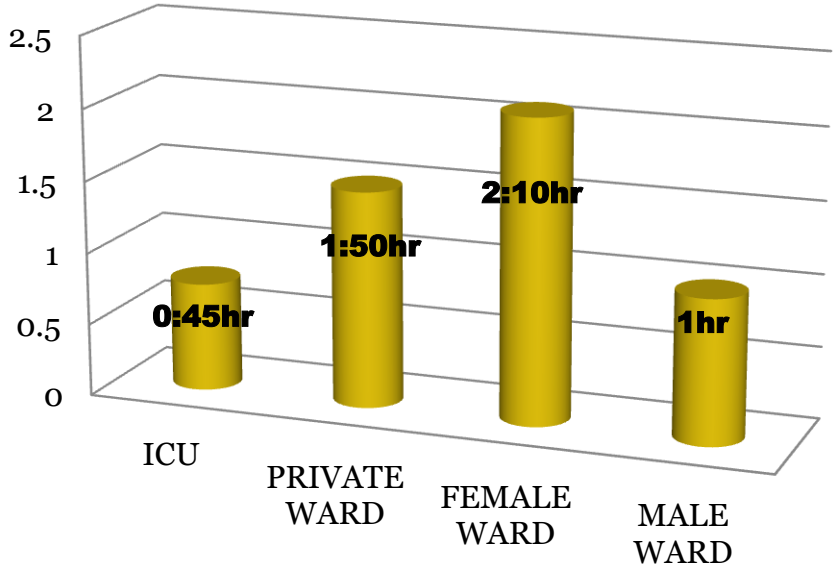


BIOCHEMISTRY :TAT for IPD Patient 2hr,7min, Standard time- 1.30 hr(n=40)

TAT Biochemistry test

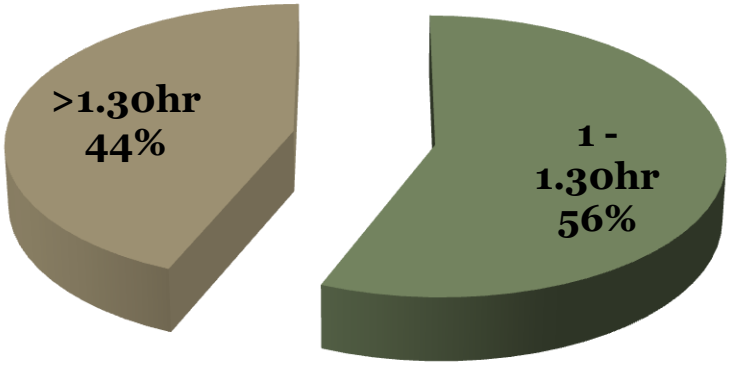


Department wise TAT IPD

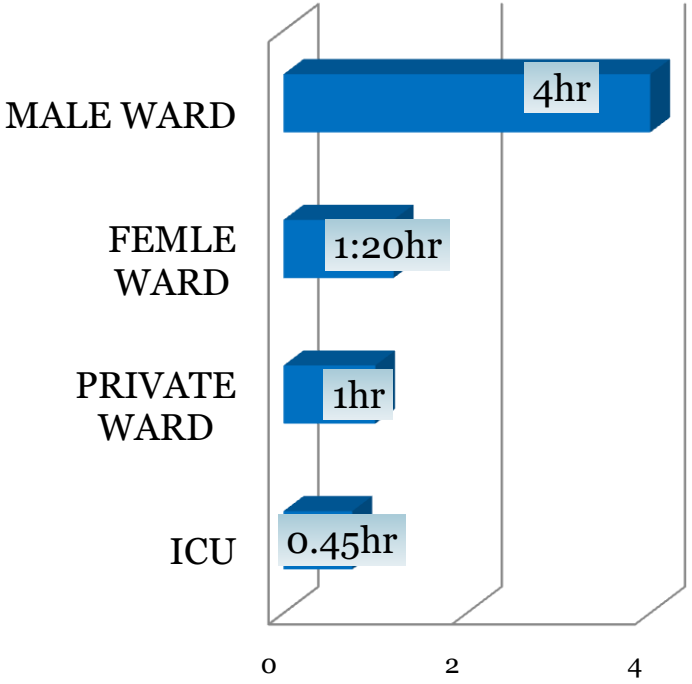


CLINICAL PATHOLOGY: TAT for IPD PATIENT 3hr,Standard TAT-1.30 hr(n=30)

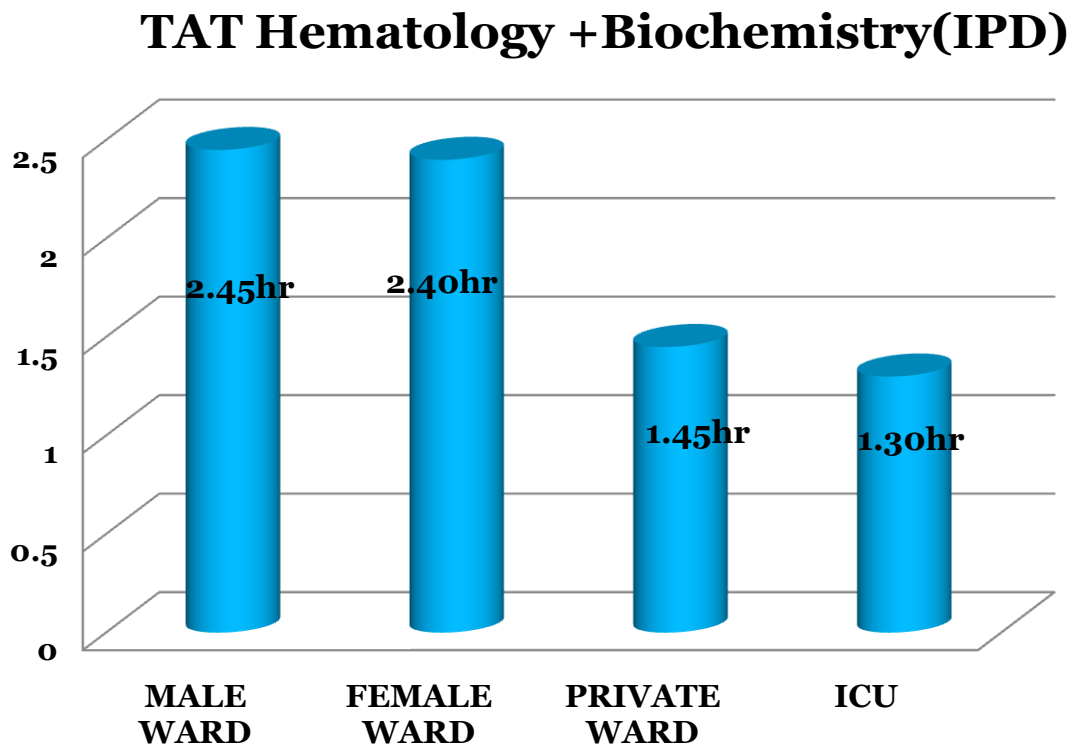
TAT clinical pathology



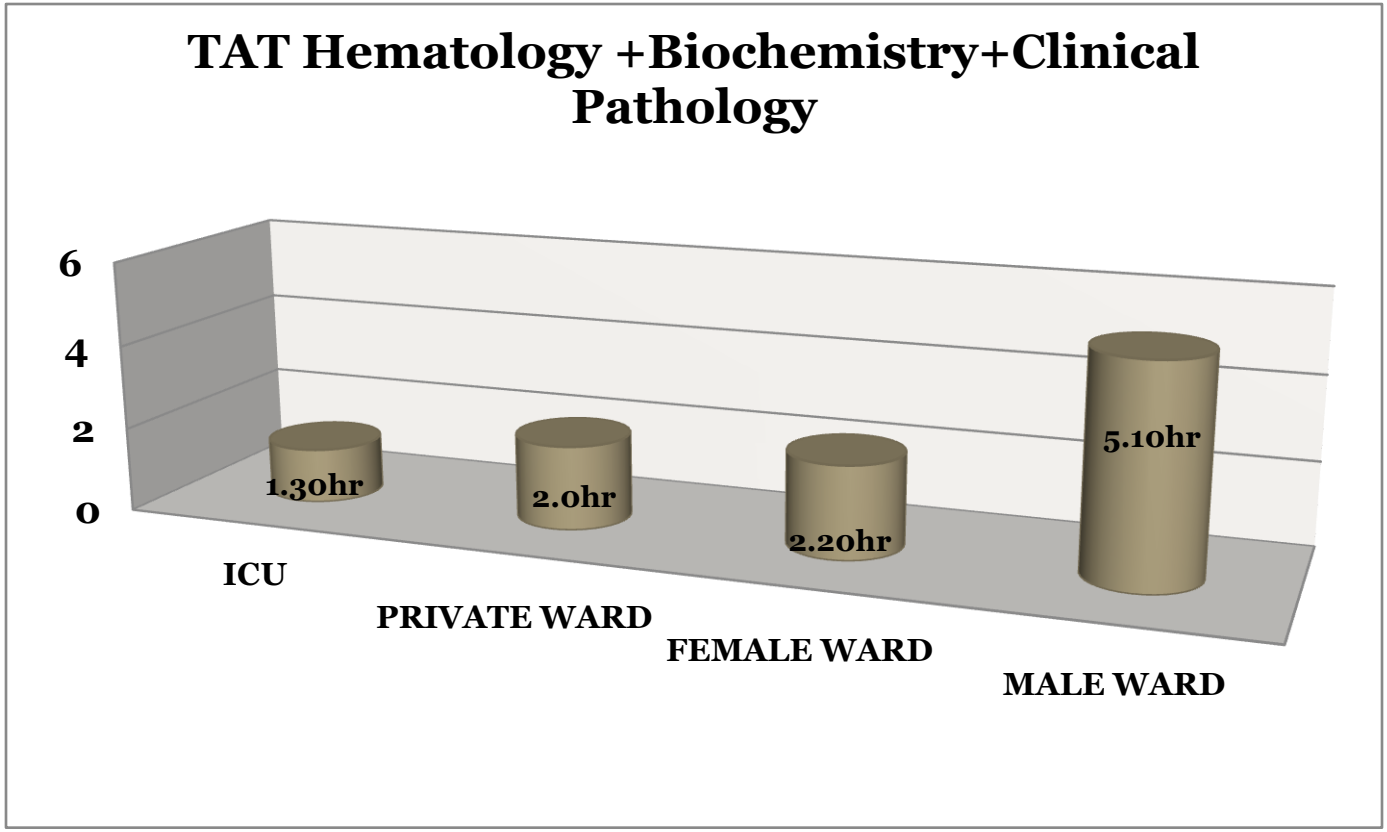
Department wise TAT



Hematology + Biochemistry test: TAT for IPD patient:2:20hr,Standard TAT-2:00hr(n=30)



HAEMATOLOGY +BIOCHEMISTRY+CLINICAL PATHOLOGY: TAT FOR IPD Patient-2:40 hr, Standard TAT- 2:00 hr(n=30)



Remapping Process of LAB (OPD)

Remapping Process of LAB (IPD)

DOCTOR advise investigation through CPOE & NURSING STAFF take sample.

nursing staff take sample from patient then ward boy takes sample to the sample collection room of lab in coolant box.

ward lady after every 10 min from lab comes and take sample to the haematology department, from sample collection room

In lab for every sample a new lab no is generated and entries like patient name and registration no is done.

sample vial kept on rotator and Sample undergone in Analyser machine & unsigned report is generated ,when there is critical values of parameters reading then slide should make ,otherwise there is no need of slide preparation of every sample.

If slide not prepared then pathologist check & write report, send to technician .report send to OPD collection counter to dept by LIS

If slide are prepared ,After slide staining , drying, slide sent to pathologist

Pathologist check each slide and write report

Report is typed and final report is sent back to the OPD report collection counter to dept

Findings:-

- Sometimes machine calibration & breakdown leads to delay in work process & cause Analytical errors.
- At haematology section machine report is generated in approx.1-1: 30 hr but manual report takes almost more than 1/2 hour due to complex process i.e.-Slide Preparation, Staining, Drying, Cause difference in TAT
- Approximately 10 samples come in coolant box at a time & no fixed ward boy in male & female ward so that wards have more TAT, cause delay.
- For every sample comes to laboratory, entry is done in computer and lab no is generated, manual entries are also done, cause delay.

Findings:-

Mixer machine is of small size, can carry 9 vials at one time cause delay.

Reports take longer time to dispatch both in OPD and IPD because delayed authorization of report. Counseling of pt. should be done

After remapping of process
Hematology, Biochemistry, Clinical Pathology TAT (200 patient sample size-100 OPD,100 IPD) ,Hematology OPD-1 hr,IPD-1:30 hr, Biochemistry OPD-1hr,IPD-1:30,Clinical Pathology OPD- 1:30hr,IPD-2 hr

Conclusion:

- Quality assurance by the aspect of IQC,EQAS, Quality indicator, Remapping of processes helps in reducing Transcription, Analytical errors, reducing TAT in NABL Lab & improvement of efficiency of lab.

Recommendation

•calibration should be at schedule time.

•Most of the times unsigned report is similar to manual reports so for cross checking send only those reports to manual check or slide preparation which has some critical values.

•There should be fixed ward lady/boy for dispatching the collected sample from Dept to laboratory & coolant box should be according to no of patient in department.

Recommendation:

- Manual entries of patient is not necessary, because for every patient lab entries & lab no is generated.
- Mixer or rotator machine should be of greater capacity so that more sample can be rotated and less electricity consumed, less time consumed.
- Online authorization- the facility for online authorization of reports should be provide to consultant to reduce the authorization time.


NABL


Thank
you