

**P-LB-003**

**USING A PREDICTIVE CONNECTIVITY TOOL TO EVALUATE AN AUTOMATED  
IMMUNOHEMATOLOGY INSTRUMENT PLATFORM TO TRACK AND ASSESS LABORATORY  
PERFORMANCE**

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# Conflict of Interest

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Tony S. Casina is a Consultant for Ortho Clinical Diagnostics

Carolina Triplett and John Bonanni are employees of Ortho Clinical Diagnostics

# Background

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- Complexity in transfusion medicine to evaluate laboratory/instrument performance
- Need to understand capability of the instrument to deliver results consistently
- Meet your commitment to provide results to patients' clinicians.
- Turnaround time (TAT) for completion of tests is the usual measure
- Evaluate the ability to meet expectations for both routine and STAT tests
- Most commercial companies provide throughput (TP) numbers /hour
- Throughput numbers based on a single test type i.e. ABO/RH grouping, antibody detection or a combined group and screen test.
- TAT often quoted on a single sample
- TP and single sample TAT are not reflective of experience in a laboratory setting

# Aim

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- A predictive connectivity tool (PCT) that utilizes instrument data has been developed
- Provides analysis of data available on demand and in routine reporting.
- In this study, the ORTHO VISION<sup>®</sup> platform (ORTHO VISION<sup>®</sup> and ORTHO VISION<sup>®</sup> Max) using the ID-MTS Gel Test<sup>™</sup> format - evaluated all connected instruments
  - ▶ over a 1-year period for TAT
  - ▶ a 2-month period for first-time yield (a measure of accepted results).
- A secondary study conducted with the ORTHO VISION<sup>®</sup> platform (ORTHO VISION<sup>®</sup> and ORTHO VISION<sup>®</sup> Max) using the ORTHO BioVue<sup>™</sup> System measured similar parameters

# Methods

- The PCT was designed to evaluate all testing data from each instrument connected to a central data source.
- Data can be assessed at an instrument level for pretransfusion testing for ABO/RH, antibody (Ab) detection, AbID, antigen typing, crossmatch, DAT and titration tests.
- The data can be parsed by
  - ▶ test, profile or an overall analysis,
  - ▶ across defined dates
  - ▶ with outputs based on average or 95 percentile statistics.
- The output analysis presents graphs
  - ▶ TAT by tests,
  - ▶ Tests/hour
  - ▶ TAT/hour
- Raw data can be exported to Excel.
- Additional functionality provides for the ability to understand first-time yield.

# Results

ORTHO VISION® and ORTHO VISION® Max - ID-MTS Gel Test™

1095

22.3 million tests across the full menu  
Average TAT 25 minutes  
97% Completed within 40 minutes

10.5 Million  
Blood Group Tests

Average TAT- 19 min.  
97% less than 33 min.

All STAT  
Group/Ab Detection

Average TAT  
31 min. / 3 cell  
30 min. / 2 cell

8 Million STAT  
Samples

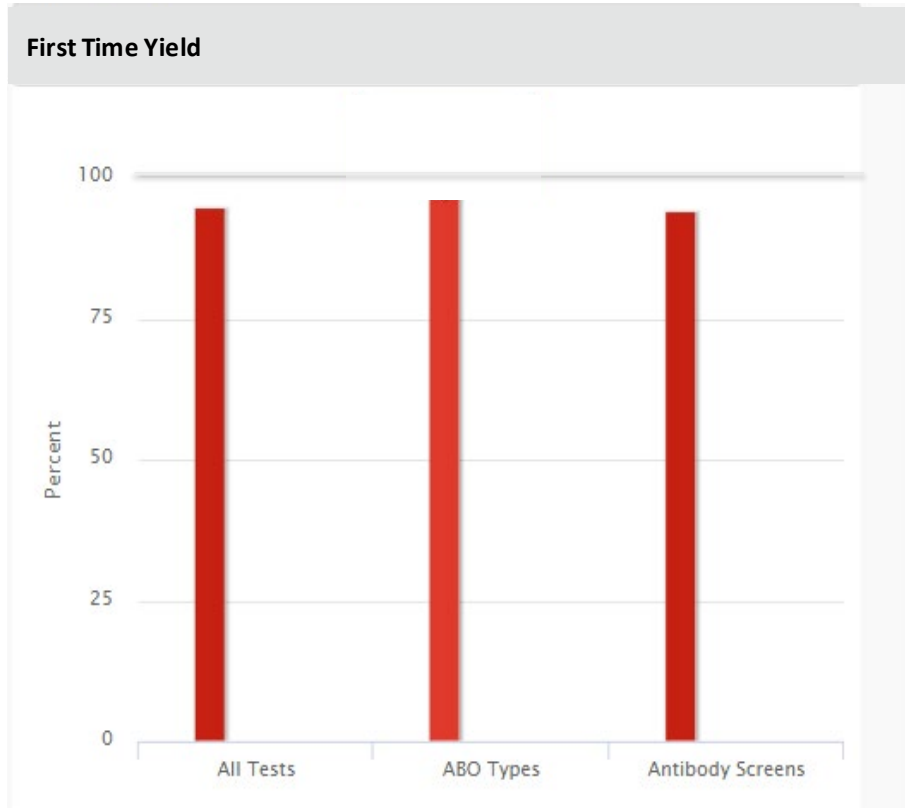
All Tests  
Average TAT- 23 min.

# Results

## First Time Yield

(Measure of Accepted Results)

Over a two-month evaluation period in 2020 more than 9.6 million tests on all connected instruments were used in a first-time yield calculation that demonstrated a 95% yield with results that were graded automatically and without further review, the first time.



# Additional Results

ORTHO VISION® and ORTHO VISION® Max – ORTHO BioVue® System

1400



27 million tests across the full menu  
Average TAT - 23 minutes  
95% Completed within 39 minutes



4.7 Million  
Blood Group Tests  
Average TAT- 19 min. for  
Std. Forward/Reverse  
Group Tests



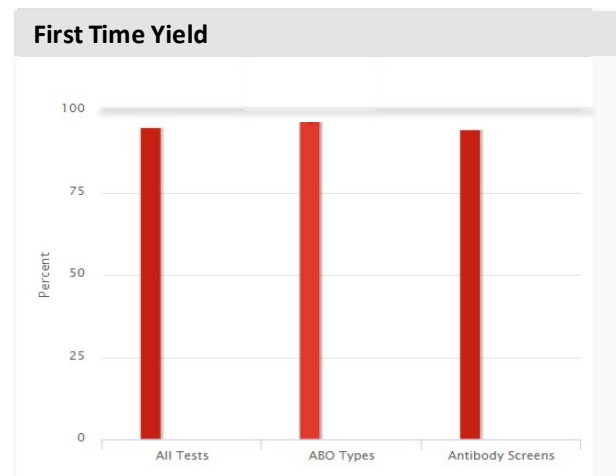
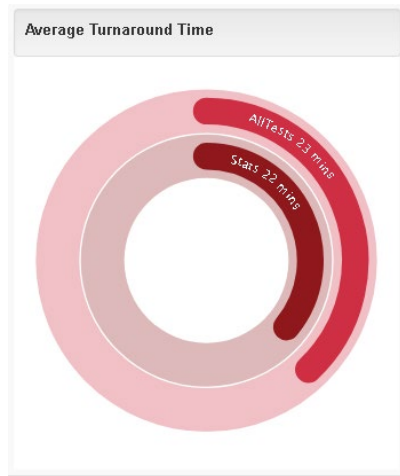
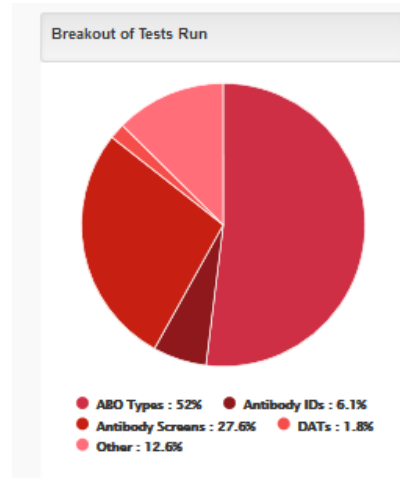
STAT  
Blood Group Tests  
on VISION  
Average TAT- 14 min. for  
Std. Forward/Reverse  
Group Tests



3.5 Million STAT  
Samples  
on VISION  
Average TAT- 20.6 min.



# Conclusions



- Predictive connectivity tool allows data to be gathered for evaluation
- Connectivity database and the analytical tool can be an effective way to evaluate the performance of the laboratory
- Feedback to lab management
  - ▶ Capability of instrumentation to manage the workload
  - ▶ TAT statistics demonstrate lab consistency in delivery of results
  - ▶ Workload and TAT by hour provide clarity on how workload managed
- High operational first-time yields provides opportunity to better utilize highly skilled staff.
- Potential to provide informative data and conclusions about instrument performance for instrument selection