



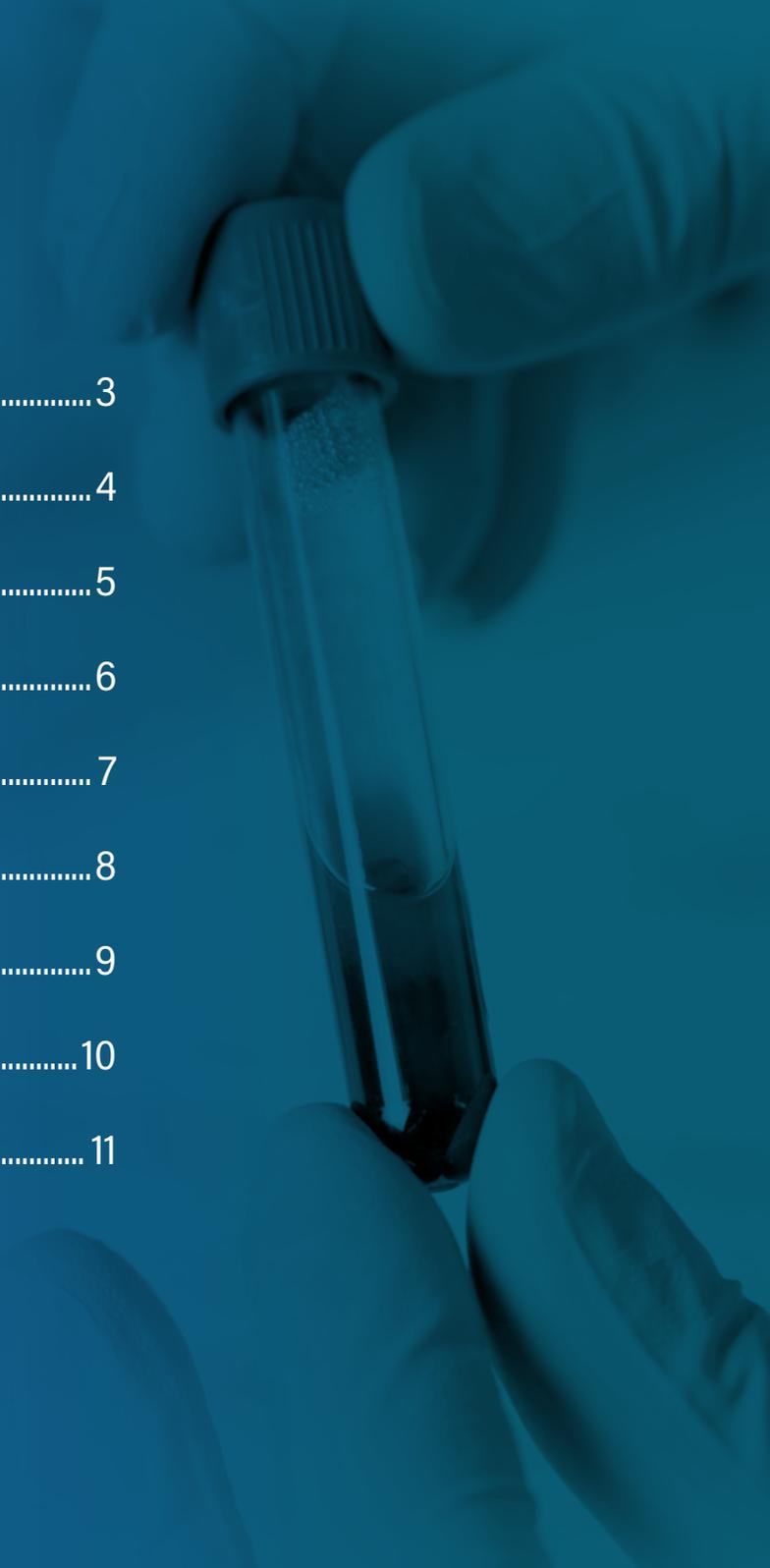
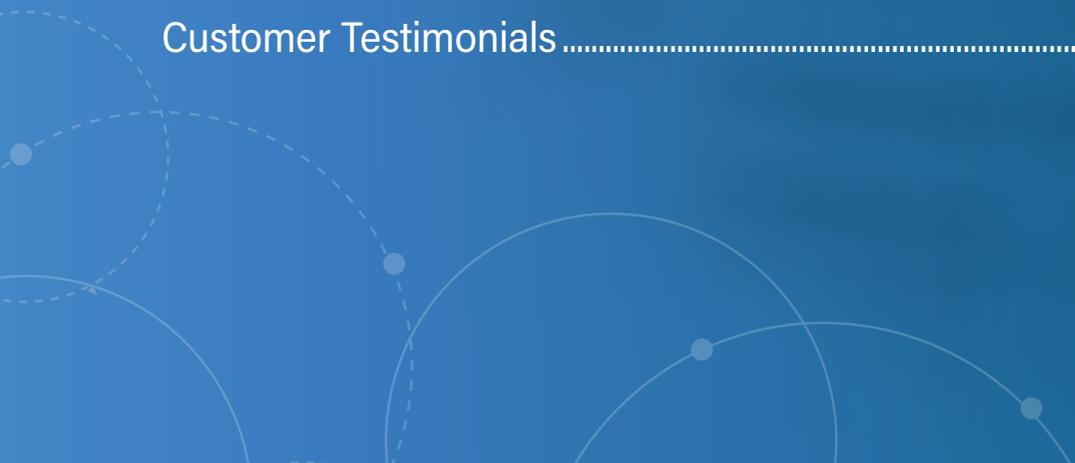
Quick Guide to LC-MS/MS Workflows in Clinical Diagnostics

Waters

THE SCIENCE OF WHAT'S POSSIBLE.™

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Introduction

As a clinical diagnostic laboratory, quickly providing the broadest range of tests with the best accuracy and selectivity is key, but many challenges can stand in the way.

Current laboratory techniques can suffer from cross-reactivity and skew results, reagent kit availability for new tests can be slow, and sample preparation is often too manual.

At Waters, our mission is to help you enhance your laboratory services by unlocking the potential of science. With our innovative clinical diagnostic solutions and scientific knowledge, we partner to help you improve the lives of patients around the world.

Benefits of LC-MS/MS in Clinical Diagnostics

Improving results and increasing laboratories' testing menus for better patient care is the goal for clinical diagnostic laboratories around the world. In order to meet these goals, clinical diagnostic laboratories around the world are implementing LC-MS/MS as an alternative technique in their laboratory.

It provides many improvements over traditional techniques, such as:

- **Selectivity**
Improve accuracy of results
- **Analytical Sensitivity**
Measure low levels for difficult patient samples and analytes
- **Multiplexing**
Implement multianalyte panels from one injection
- **Time to Market**
Perform testing not on the market
- **Flexibility**
Bring tests into the lab quicker



SELECTIVITY

ANALYTICAL SENSITIVITY

MULTIPLEXING

TIME TO MARKET

FLEXIBILITY

Overcoming Application Challenges

Ensuing accurate and precise results in a clinical diagnostic laboratory is essential to improving patient health.

Today many therapeutic areas on traditional techniques can suffer from cross-reactivity of interferences, making quantitating samples problematic.

With the power of LC-MS/MS, you can solve challenges in areas like endocrinology, therapeutic drug monitoring, toxicology, metabolic disorders, and many more.



Read our **Application Data Brief Notebook** to learn about the analytical capabilities of Waters LC-MS/MS technology.

CLINICAL TOXICOLOGY

- Amphetamines
- Benzodiazepines
- Cathinones
- Opioids

ENDOCRINOLOGY

- Biogenic Amines
- Protein / Peptide
- Steroid Analysis
- Vitamin D

METABOLIC DISORDERS

- Adrenal Steroids
- Amino Acid Profile
- Carnitine Acylcarnitine profile

THERAPEUTIC DRUG MONITORING

- Antibiotics
- Antidepressants
- Antifungal
- Immunosuppressant

Choosing a System for Your Laboratory

Choosing the right system for your analysis isn't always easy. With so many systems available, how do you know which is the right one for you?

To figure that out, consider the following:

- Which type of analysis you want to perform
- How many different analyses you will perform on one instrument
- What concentration levels you would like to achieve

The table to the right can help determine the right solution for your lab, and our team of experts are here to help you choose the right system for your requirements.



Read this infographic to learn about LC-MS/MS clinical diagnostics and how to expand your clinical capabilities with the MasTrak solution portfolio.

Which type of analysis would you like to perform?



Routine analysis with a high sample volume of one analyte at normal concentrations

ACQUITY™ UPLC™ I-CLASS PLUS WITH XEVO™ TQD IVD SYSTEM

- Perform routine multi-analyte analysis
- Achieve high selectivity for the most common tests
- Maintain uptime with proven robustness
- The optional Column Heater is ideal for dedicating your system to a single type of analysis with optimal column temperature
- An optional 10-plate capacity Sample Organizer keeps your analysis running even when you are away



Multiple analysis (i.e. steroids or therapeutic drug monitoring (TDM)) on one system

ACQUITY UPLC I-CLASS PLUS WITH XEVO TQ-S MICRO IVD SYSTEM

- Increase testing capabilities with a wide dynamic range
- Obtain low level analytical sensitivity for difficult analysis
- Improve accuracy with high selectivity
- The optional Column Manager enables you to perform multiple analyses on one instrument, so you can connect multiple columns with automatic switching



Analysis requiring extreme sensitivity, like estrogens at very low levels

ACQUITY UPLC I-CLASS PLUS WITH XEVO TQ-XS IVD SYSTEM

- Achieve accurate results at low concentrations
- Quantitate analytes in complex matrices
- Increase in-house esoteric testing capabilities

Ensuring an Effective Workflow

An efficient workflow is key in a clinical diagnostic laboratory. Shortage of laboratory personnel and high volume of samples can make it challenging to keep up with the day-to-day routine.

With clinical solutions from Waters, you can connect your informatics and LIMS solutions seamlessly with the MassLynx™ LIMS interface to improve the data workflow.

Reagent sets like the Masstrak™ IVD Calibrator and Controls minimize technician time while improving precision.

With fit-for-purpose consumables like Oasis™ and ACQUITY™, you can increase analytical sensitivity and results accuracy.

Automation solutions like Andrew Alliance™ help your lab save time, minimize errors, and eliminate manual pipetting.



Implementing LC-MS into Your Lab

Thorough site preparation is required before the installation of any new LC-MS/MS system.

To many laboratories, this may seem to be a time consuming and daunting step, one that's tough to manage appropriately along with high-volume workloads, staffing shortages, and lack of expertise.

The good news is that Waters is here to help, with comprehensive resources – including site preparation checklists and pre-installation guides – as well as expert personnel to conduct lab inspections and provide necessary recommendations.



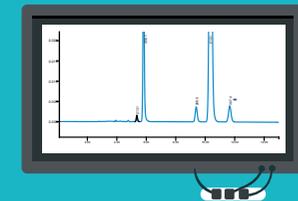
Watch these videos to learn more about the Waters Application How-to Series.



Read this infographic to learn more about Waters LC-MS/MS site preparation.

The Key to Clinical LC-MS Success: Site Preparation

Thorough site preparation is required before the installation of any new LC-MS system. To many laboratories, this may seem a time consuming and daunting step that cannot be managed appropriately amidst high-volume workloads, staffing shortages, and lack of expertise. The good news is that Waters is there to help. Ultimately, inadequate site preparation could nullify the warranty on your instrument, so it is important to get this step right.

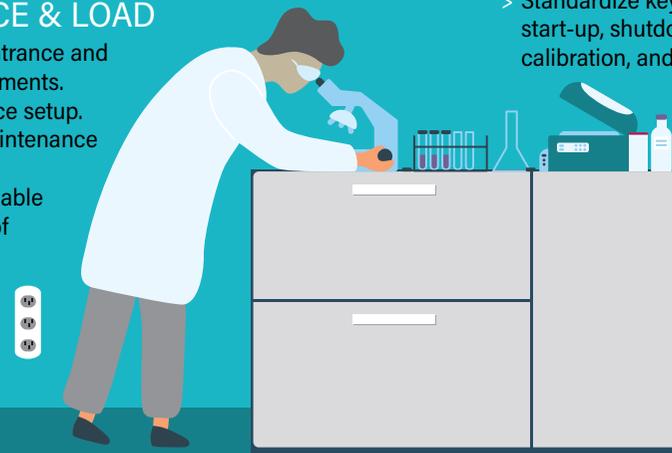


KEY USERS

- > Advanced LC-MS systems benefit from a single or a few key users.
- > Standardize key protocols: start-up, shutdown, calibration, and cleaning.

EVALUATE SPACE & LOAD

- > Ensure laboratory entrance and space meets requirements.
- > Ergonomic workspace setup.
- > Enough room for maintenance and ventilation.
- > Workbench must be able to support the load of the equipment.



Ensure Uptime with Flexible Service Offerings

Your clinical diagnostic laboratory makes decisions every day that impact human health and wellbeing, and 70% of medical decisions are based on lab results.¹ Operating within highly-regulated laboratories requires instrumentation that supports making decisions quickly, confidently, and within regulatory compliance.

Unexpected downtime puts a halt to that decision-making. You can safeguard against lost productivity and unexpected downtime from poor system performance. With instruments optimized for performance and compliance, your lab can spend more time on what matters most—your patients and their health.

Ensure your laboratory runs smoothly with FlexCHOICE™: mySystem Coverage Solutions for Clinical Laboratories.



Read this brochure to learn more about the FlexCHOICE mySystem Coverage Solutions for the Clinical Diagnostics Laboratory.

FlexCHOICE Service and Support with PM and Qualification is the preferred option for Regulated Laboratories.

FlexCHOICE COVERAGE OPTION COMPARISON

Parts and Service Feature	PM Only Option	Service and Support Only	FlexCHOICE Service and Support with Performance Maintenance	FlexCHOICE Service and Support for Regulated Laboratories
Performance Maintenance	●	—	●	●
Labor and Travel	For PM visit only	For covered parts only	●	●
Remote Technical Support	●	●	●	●
Motor and assemblies	—	●	●	●
Power Supplies	—	●	●	●
Printed Circuit Boards	—	●	●	●
Vacuum Pumps	—	●	●	●
Lasers	—	●	●	●
Lamps	●	—	●	●
Plungers	—	—	●	●
Seals and O-rings	—	—	●	●
PM kits	●	—	●	●
Firmware	●	—	●	●
Qualification Services	Optional	—	Optional	●
Additional Performance Maintenance	—	—	Optional	Optional
Ion Source Cleanings	—	—	Optional	Optional

¹70% of medical decisions are based on lab results, Quest Diagnostics, 2014

Partner with an Experienced Vendor

When adopting LC-MS/MS into your lab to improve your results, partnering with a vendor with experience and dedicated to clinical diagnostics is of utmost importance. At Waters, we have a long history in clinical diagnostics and continue to evolve to meet customer needs. We have a dedicated team of personnel so you can be assured you are in good hands.

Dedicated Clinical Diagnostic Teams at Waters

- Service and Support teams to ensure customer success
- Research and Development teams to advance innovation
- Sales and Marketing teams to provide knowledgeable information

OUR MISSION IS TO HELP YOU PROVIDE BETTER PATIENT CARE



Watch this on-demand webinar to understand how we value the partnership with our customers.



Customer Testimonials



Dr Emma Walker
Consultant Clinical Scientist
Imperial College Healthcare

“Waters has been with us throughout our LC-MS journey here in our laboratory. Their guidance and support have been invaluable in helping us to establish our service, and in helping us to develop it over time.

We had fantastic support from Waters, to ensure that we were fully equipped and supported from the very beginning. We also had support from the Waters clinical team, who really understood the needs of the clinical lab.”



[Read the Select Science Article here.](#)



Brett McWhinney
Supervising Scientist
Pathology Queensland

“We’ve had a strong relationship with Waters Corporation for 25 years, and they always have good ideas to meet our needs. From formulation to implementation, their experience and knowledge has helped us to reduce assay development timescales massively.”



[Read the Select Science Article here.](#)



Dr. Pippa Goddard
Consultant Clinical Biochemist
Women’s and Children’s Hospital, Birmingham

“The robustness of Waters’ platforms, and their user-friendly interfaces, make the process of introducing new metabolites relatively simple, once the standards have been verified and validated.”



[Read the Select Science Article here.](#)



#LCMS4BetterCare

Take the next step and [contact us](#) today!

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