Table 2. Methods for assessing competency of key concepts in LC-MS/MS

Method for assessment	Example of skills evaluated
Direct observation	• Optimization of the mass spectrometer • Assessment of system suitability checks • Preparation of reagents, calibrators and QCs • Glassware washing • Maintenance of instrument and ancillary equipment • Steps to avoid contamination during sample preparation • Start-up and shutdown, emergency shutdown of instrumentation • Contacting technical support • Performing repeat injections • Determination of run acceptability • Peak identification and manual correction of peak integration • Use of PPE and engineering controls
Supervisory review of reports and documentation	• Intermediate test records • Worksheets • Trend files (e.g., QC, SST) • Recording/reporting of blind sample or proficiency testing results • Troubleshooting records • Maintenance records
Testing of 'unknown' samples	• Proficiency testing materials • Previously analyzed clinical samples • Blind samples
Written evaluation	• Troubleshooting scenarios • Correction of quality failures • Performing complex maintenance procedures • Calculations (e.g., dilution, hydrolysis, ion ratios) • Identifying problems that need to be escalated to lab leadership for further review • Backup testing procedures • Safety practices related to instrument, equipment and sample prep • Data review of reports from failed runs • Corrective action for specific instrument error messages (e.g. nitrogen failure, needle malfunction, low/high system pressure, etc.) • Corrective action for software peak integration problems involving interference, missed peaks or partial injections • Corrective action for carryover or high background due to contamination