

Department:	Laboratory and Blood Bank (Microbiology)		
Document:	Internal Policy and Procedure		
Title:	MicroScan Walkaway Automated ID/AST System		
Applies To:	All Laboratory Staff		
Preparation Date:	January 05, 2025	Index No:	LB-IPP-140
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1. PURPOSE:

- 1.1 To establish system and set responsibilities for work.
- 1.2 To describe the policy and procedure of use of MicroScan Walkaway Automated ID/AST System in the microbiology lab.

2. DEFINITONS:

- 2.1 **The MicroScan WalkAway®-96 Automated Microbiology Systems**, are used as diagnostic tools for determining the identification and in vitro antimicrobial susceptibility patterns of bacteria isolated from clinical specimens. They are used in conjunction with MicroScan micro dilution panels that contain media, antimicrobials in serial dilutions and selected bio-chemicals.
- 2.2 **The MicroScan LabPro AlertEX System** is a computer-based expert system that analyses MicroScan microbial identification (ID) and antimicrobial susceptibility tests (AST) against a series of preconfigured and user-defined rules. These alert rules can generate alert comments and exceptions, and optionally create interpretive actions to either change the organism ID or generate "expert" AST interpretations, allowing the user to continuously monitor microbiology test results.

3. POLICY:

- 3.1 All clinically relevant bacterial isolates will be tested on the MicroScan WalkAway®96 Automated system for identification and antimicrobial susceptibility testing using appropriate panels as per manufacturer's instructions.
- 3.2 QC will be done with each new lot of panels to ensure proper functioning of the system and acceptability of test results.

4. PROCEDURE:

4.1 Panel Processing (testing patient specimen):

- 4.1.1 Before panels can be processed in the WalkAway instrument, you must:
 - 4.1.1.1 Enter panel order (s) directly in LabPro.
 - 4.1.1.2 Print 2 copies of each panel barcode
 - 4.1.1.3 Open panel package (should be inoculated within 2 hours).
 - 4.1.1.4 Affix a bar code label to each panel.
 - 4.1.1.5 Inoculate the panels with pure bacterial isolates from a clinical specimen.
 - 4.1.1.5.1 Select pure colonies & using the inoculation wand, touch 3-6 colonies as large or larger than the wand tip. and add to ID broth and vortex
 - 4.1.1.5.2 Pour the suspension into a seed tray
 - 4.1.1.5.3 Inoculate panel with prepared ID Broth within < 60 minutes.
 - 4.1.1.6 Load the panels into the WalkAway instrument within <30min after inoculation.
- 4.1.2 The WalkAway instrument processes panels in the following manner:
 - 4.1.2.1 If appropriate, the instrument dispenses oil into underlined panel wells.
 - 4.1.2.2 The instrument incubates the panels at 35° C for 2 to 42 hours, depending on the panel

type, organism type, and processing results.

- 4.1.2.3 The instrument reads each panel between 20 minutes and 3 hours after loading, depending on the panel type. This initial reading is used as a reference point to which the later readings are compared.
- 4.1.2.4 At the scheduled time and depending on the panel type, the instrument dispenses reagents into the appropriate biochemical wells and incubates the panels for an additional time period— approximately 5 to 20 minutes, depending on the panel type.
- 4.1.2.5 For Dried Overnight and Rapid Chromogenic panels, the colorimetric system guides light from an interference filter through optical fibre channels and then through the 96 wells of each panel. Light-sensitive photodiodes detect the amount of light passed through each well and generate a corresponding electronic signal for each well. N.B. The resident computer in the WalkAway instrument compares these signals to stored control values and sends the data to LabPro for calculation and analysis.
- 4.1.2.6 For Rapid Fluorogenic panels, the fluorometric system reads the level of fluorescence in the 96 wells of each panel. This system electrically quantifies the results and transmits the signals in the same manner as the colorimetric system.
- 4.1.2.7 Synergies plus panels combine fluorometric identification and colorimetric MIC testing to provide rapid test results.
- 4.1.2.8 To identify microorganisms, the WalkAway instrument measures a series of biochemicals designed for the speciation of most medically significant bacteria. The panels contain identification media consisting of substrates and/or growth inhibitors that, depending on the species of bacteria present, exhibit colour changes, increases in turbidity or changes in fluorescence after incubation.
- 4.1.2.9 To identify minimum inhibitory concentrations (MICs) for a microorganism, the panel wells contain specific concentrations of anti-microbials. The turbidity or fluorescence will be less or non-existent in wells in which the antimicrobial has inhibited growth. The WalkAway instrument compares each test well reading with a threshold value. This value is a fixed number representing a certain percentage of relative absorbency or fluorescence that corresponds to clinically significant growth.
- 4.1.2.10 As the WalkAway instrument processes panels, results are passed to LabPro for calculation and analysis. You can monitor and edit these results and request various reports on the findings. LabPro also displays any instrument errors, panel processing problems or exceptions.

4.1.3 Prepare Purity Plate.

- 4.1.3.1 Using a sterile loop, recover a small drop from the inoculation fluid before inoculating the panel. Inoculate an agar plate (any appropriate medium) for purity check. Incubate plates for 18 - 24 hours or 18 - 48 hours for yeast, at 35°C under appropriate conditions.

4.2 Maintenance:

- 4.2.1 Daily:
 - 4.2.1.1 Print QC diagnostic report.
 - 4.2.1.2 Check instrument temperature.
 - 4.2.1.3 Check water reservoir and fill if necessary.
 - 4.2.1.4 Check reagent levels and replace or refill bottles if necessary.
 - 4.2.1.5 Check reagent-dispense pressure and purge dispense lines if necessary.
 - 4.2.1.6 Check reagent-dispense lines and clean dispense tips.
 - 4.2.1.7 Clean reagent waste funnel.
 - 4.2.1.8 Check waste reservoir level and replace bag if necessary.
 - 4.2.1.9 Check oil line.
 - 4.2.1.10 Check oil level and replace or refill oil bottle if necessary.
 - 4.2.1.11 Purge oil line if necessary.
- 4.2.2 Periodic:
 - 4.2.2.1 Clean photodiode shields weekly.
 - 4.2.2.2 Clean diffuser plate weekly.
 - 4.2.2.3 Clean air intake filter monthly.

4.3 Calibration:

- 4.3.1 The WalkAway instrument automatically calibrates at start up and prior to reading panels if it has not calibrated in the previous hour.
- 4.3.2 Other events may initiate calibration, including an emergency halt or a colorimetric or fluorometric system failure.
- 4.3.3 One can also shut down and start up the instrument to calibrate during maintenance or troubleshooting.
- 4.3.4 The calibration values should remain fairly stable from day to day ($\pm 10\%$).
- 4.3.5 Fluctuations could indicate a dirty shield or diffuser plate or a component failure.

4.4 Quality Control:

- 4.4.1 The WalkAway QC Diagnostics Report provides internal diagnostics checks, a maintenance checklist, colorimetric and fluorometric calibration values, and environmental status.
- 4.4.2 The internal diagnostic checks reflect the most recently available status; some are real time, and others are not.
- 4.4.3 All information concerning the colorimeter, fluorometer, and the environmental status listed on the lower half of the report are based on the last instrument calibration performed.
- 4.4.4 The report provides a result—OK or Failed—for each diagnostic test and underlines any out-of-control calibration or environmental values.
- 4.4.5 The inference is that panel detection and panel preparation systems are functioning properly when the status is Enabled and not functioning properly when the status is Disabled.
- 4.4.6 Print a WalkAway QC Diagnostics Report at least daily to document the instrument was working properly before evaluating patient specimens.
- 4.4.7 For documentation purposes, write the corrective measure performed for each failed result.

4.5 Start-up & shut down of instrument:

4.5.1 Start up:

- 4.5.1.1 When the Walk Away instrument is turned on, the instrument status display scrolls through several messages regarding the loading and execution of WalkAway programs.
- 4.5.1.2 After the messages appear, the status display shows the time and temperature. It is recommended that the instrument be allowed to warm up for at least 1 hour before processing panels.
- 4.5.1.3 Press the power switch on the front panel of the WalkAway instrument. When power comes on, the power indicator light turns green.
- 4.5.1.4 Turn on the LabPro computer and monitor. When the Windows Desktop appears, click the LabPro Command Centre icon on the Desktop. The Command Centre appears.
- 4.5.1.5 Verify that the time displayed on the right of the Windows taskbar is correct. To adjust the time or date, double-click the time display.
- 4.5.1.6 Turn on the report printer. (For paper loading instructions, see printer manual).
- 4.5.1.7 Turn on the bar code printer. (For label loading instructions, see bar code printer manual).
- 4.5.1.8 Perform the necessary instrument maintenance.

4.5.2 Shut down:

- 4.5.2.1 Make sure the Walk Away instrument is not currently reading panels or adding reagents to panels. Listen for the usual sounds that accompany these processes
- 4.5.2.2 Press the power switch on the front of the instrument. When the power goes off, the green indicator light turns off.
- 4.5.2.3 Caution: If you are shutting down the Walk Away instrument briefly, wait at least 10 to 15 seconds before starting up the instrument again.

4.6 Loading Reagents:

- 4.6.1 The reagent dispense system consists of the reagent bottles, reagent bottle adapters, solenoids, dispense lines and tips, waste funnel, and waste bag. It is recommended that all of the reagent dispense maintenance procedures be performed in sequence every day.

4.6.2 Check reagent levels:

- 4.6.2.1 Open reagent section doors and locate the reagent bottles. Depending on the panel types used, some of the ten reagent bottles may not be used. Any unused bottles must remain in position to maintain sufficient dispense pressure.
- 4.6.2.2 Make sure each bottle used has at least $\frac{3}{4}$ inch of reagent. This should be enough reagent to last until the next daily maintenance check.
- 4.6.2.3 If a bottle has less than $\frac{3}{4}$ inch of reagent remaining, the reagent volume has dropped below the top of the T-fitting, or any precipitate appears at the bottom of a bottle, replace or refill the bottle as described in the following procedure.
- 4.6.2.4 If a bottle is empty and the attached reagent line leading into the bottle contains air bubbles, refill or replace the reagent bottle, and then manually purge the dispense line. For instructions on manually purging the lines, see "Purge the Reagent Dispense Lines."
- 4.6.2.5 If the bottle has a sufficient amount of reagent, complete the remaining tasks maintaining the reagent dispense system.

4.6.3 Add Reagents:

- 4.6.3.1 Make sure the reagent-dispense pressure is 0.0 PSI. If the dispense system is pressurized, on the WalkAway Monitor Maintenance tab, click **Depressurize dispense system**. If this button is not available, click **Pressurize dispense system**, and then click **Depressurize dispense system**.
- 4.6.3.2 Open the reagent bottle door and unscrew—counter clockwise—the reagent bottle to be replaced or refilled.
- 4.6.3.3 Refill or replace the reagent bottle. When refilling a bottle, do not fill above the shoulder of the bottle.
- 4.6.3.4 Clean any residue from the threaded area of the bottle and make sure the area is dry along the top edge.
 - 4.6.3.4.1 **Caution:** Bottles installed with wet tops may unscrew partially and cause a loss of dispense pressure.
- 4.6.3.5 Clean the bottle adapter threads and O-ring using a wet (water) swab, and dry them thoroughly. Use care not to bend the tubing.
- 4.6.3.6 Tighten the new bottle onto the adapter using the two-finger rule—that is, apply moderate pressure with thumb and forefinger only.
- 4.6.3.7 Refill or replace any other bottles as required and ensure that all bottles are securely in place. To ensure that there are no pressure leaks in the reagent dispense system, see "Check the Reagent Dispense Pressure."
 - 4.6.3.7.1 **Important:** Reagent lot numbers appear on the QC Panel Report. If you replace or refill a reagent bottle with reagent from a new lot number, update the lot number records as described in the following procedure.

4.6.4 Check the Reagent Dispense Pressure:

- 4.6.4.1 On the WalkAway Monitor **Maintenance** tab, click **Pressurize dispense system**.
- 4.6.4.2 Check the pressure in the **Dispense Pressure** area. The PSI must be within the 2.8 to 3.2 range. If the PSI is outside this range, see *Dispense pressure out of range* in "WalkAway Instrument Display Messages. If the dispense pressure is below this range, make sure all the reagent bottles are finger-tightened and then recheck the pressure.
- 4.6.4.3 Continue to the next maintenance task.
- 4.6.4.4 When maintenance is finished, press the Quick Access button or, on the WalkAway Monitor, click Lock Door to terminate access.

4.6.5 Purge the Reagent Dispense Lines:

- 4.6.5.1 Remember that reagents need to be purged only if the reagent bottles have been allowed to run dry and there are air bubbles in the dispense lines.
- 4.6.5.2 Make sure the reagent dispense system is pressurized. If not, click **Pressurize dispense system**, and then confirm that the pressure is between 2.8 and 3.2 PSI. If the PSI is outside this range, see *Dispense pressure out of range* in "WalkAway Instrument Display Messages."

- 4.6.5.3 Select the appropriate reagents to purge.
- 4.6.5.4 **Click Purge selected reagents**
- 4.6.5.5 When the purge process is complete, click **Depressurize dispense system**
- 4.6.5.6 Continue to the next maintenance task.
- 4.6.5.7 If maintenance is finished, press the Quick Access button or, on the WalkAway Monitor, click **lock Door** to terminate access.
- 4.6.6 Check the Reagent Dispense Lines and Cleaning Dispense Tips:
 - 4.6.6.1 Open the reagent dispense door and remove the reagent dispense compartment cover.
 - 4.6.6.2 Check the dispense lines and the base of the solenoids for leaks.
 - 4.6.6.3 Lift the dispense head from the waste funnel and examine the dispense head for crystallization.
 - 4.6.6.4 Wash the plastic dispense tips on the dispense head using a squirt bottle filled with 95 percent ethyl alcohol, an alcohol wipe, or a cotton-tipped applicator moistened with alcohol. Use an applicator stick to loosen debris between the dispense tips and rinse well with alcohol.
 - 4.6.6.5 When the dispense head is clean, inspect it to ensure that the reagent dispense tips extend approximately 1/8 inch beyond the dispense head. Push the lines through the dispense head to extend the dispense tips if necessary.
 - 4.6.6.6 Keep the reagent dispense door open and the dispense head removed from the waste funnel, and continue to the next procedure for cleaning the reagent waste funnel.
- 4.6.7 Clean the Reagent Waste Funnel:
 - 4.6.7.1 After cleaning the dispense tips, examine the waste funnel for residue or crystallization.
 - 4.6.7.2 Clean the waste funnel using 95 percent ethyl alcohol. Take care not to get alcohol into the alignment hole. Remove the funnel for cleaning if necessary.
 - 4.6.7.3 Reseat the dispense head firmly into the waste funnel, making sure the alignment pin is seated in the alignment hole on top of the waste funnel.
 - 4.6.7.4 Keep the reagent dispense door open and continue to the next procedure for replacing the reagent waste bag.
- 4.6.8 Replace the Reagent Waste Bag:
 - 4.6.8.1 After cleaning the waste funnel, examine the waste bag
 - 4.6.8.2 Dispose of the bag when the fluid level reaches the *Max Fill* line. *Do not let it overfill.*
 - 4.6.8.3 Install a new reagent waste bag if necessary.
 - 4.6.8.4 Keep the reagent dispense door open and continue to the next procedure for maintaining the Oil/ dispense system.
 - 4.6.8.5 If you are finished with maintenance, replace the reagent dispense compartment cover. Close the reagent dispense door and press the Quick Access button or on the WalkAway Monitor, click **Lock Door** to lock the door and terminate access.
 - 4.6.8.6 **Caution:** Before closing the reagent dispense door, make sure to replace the reagent dispense compartment cover. Without this cover, excessive light will enter the instrument, interfering with the fluorometer.

4.7 Trouble shooting:

4.7.1

Problem	Possible cause	Solution
1. All LED status lights next to tower slots flash rapidly when panel access door is open.	<p>1. The WalkAway instrument cannot determine the status of the slots—empty, completed, or in process</p> <p>2. The problem can occur if:</p> <ul style="list-style-type: none"> • The panel access door sensor has failed. • The instrument does not recognize that the door is open, for any reason. • The instrument does not recognize which tower faces the panel access door. 	<p>1. Close the panel access door.</p> <p>2. Shut down the instrument for 30 seconds and then start up the instrument again to force a bar code scan.</p> <p>3. N.B. If the problem persists, call the Technical Assistance Centre.</p>
1. Jam	<p>1. Jam messages indicate that a mechanical failure occurred while the instrument was in motion.</p>	<p>1. The instrument displays the type of jam for example, Panel grabber jam. See the corrective action for each particular jam in "WalkAway Instrument Display Messages." Basic jam resolution includes the following steps:</p> <ul style="list-style-type: none"> • Determine the type of jam. A message appears on the instrument status display. Follow the jam resolution instructions on the WalkAway Monitor. • Open the service hatch to determine the location of the read head assembly. It may be necessary to remove the front tower. • If the read head assembly is down in the reagent system area, determine if the reagent dispense head is attached to the fluorometer. • Caution: Do not open the reagent dispense door if the reagent dispense head is attached to the fluorometer because the reagent dispense lines may be pulled loose. • If necessary, detach the reagent dispense head and reseat it in the waste funnel. • If possible, determine the cause of the jam and resolve the

		<p>problem.</p> <ul style="list-style-type: none"> • Warning: Always shut down the instrument before moving the panel grabber belt. • Remove any panels that may be jammed in the read head assembly. To do this, move the panel grabber assembly belt located behind the read head assembly.
1. Panel spill in Walk Away instrument tower or Rough panel handling	1. The panel may not have been seated correctly. 2. The panel handling assembly is out of alignment.	<p>1. Decontaminate the instrument as follows:</p> <ul style="list-style-type: none"> • Shut down and unplug the instrument, and exit from Lab Pro. • Open the service hatch. • Remove any incomplete overnight panels from the Walk Away and place in an incubator. • Completely loosen the hold down wheel of the tower at the front of the carousel, and lift the tower up and out of the instrument. • Pull any available tower toward you gently to rotate the carousel. When the next tower has adequate clearance for safe removal, repeat the tower removal process, and continue until all towers are removed from the instrument. • Autoclave the towers. • Wipe surfaces inside the instrument with 70 percent isopropyl alcohol. • Caution: Do not use ethyl alcohol or chlorine bleach to wipe surfaces as these products can damage certain components such as the optical system. • Allow the instrument to air dry with the power off and the service hatch open. • When the instrument is completely dry, replace the towers, close the service hatch, plug in the instrument, turn on the power, and allow the instrument to run for 30 minutes before proceeding with normal operations.

1. Power failure	1. Not applicable.	1. Shut down the WalkAway instrument and all LabPro components immediately. 2. Wait for the power to restore before you start up the components. 3. If the instrument has been shut down more than 2 hours, let the instrument warm up for at least 30 minutes and then calibrate.
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Note:For further information, refer to MicroScan Manual of Operation.

5. MATERIAL AND EQUIPMENT:

- 5.1 Microscan combo panels & supplementary reagents

6. RESPONSIBILITIES:

- 6.1 The assigned technician/ technologist for microbiology lab.
- 6.2 The C. Pathology specialist/ consultant

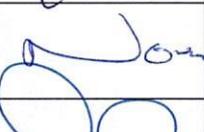
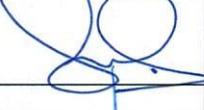
7. APPENDICES:

- 7.1 Microscan Maintenance Sheet

8. REFERENCES:

- 8.1 User's Manual, MICROSCAN

9. APPROVALS:

	Name	Title	Signature	Date
Prepared by:	Dr. Kawther M. Abdou	Consultant & Lab. Medical Director		January 05, 2025
Reviewed by:	Ms. Noora Melfi Alanizi	Laboratory & Blood Bank Director		January 08, 2025
Reviewed by:	Mr. Abdulelah Ayed Al Mutairi	QM&PS Director		January 12, 2025
Reviewed by:	Dr. Tamer Mohamed Naguib	Medical Director		January 13, 2025
Approved by:	Mr. Fahad Hazam Alshammari	Hospital Director		January 20, 2025

Appendix 7.1 Microscan Maintenance Sheet

Kingdom of Saudi Arabia
Hafar Al Batin Health Cluster
Maternity and Children Hospital



المملكة العربية السعودية
الجمع الصحي بحفر الباطن
مستشفى الولادة والأطفال

Microscan Walkaway/computer maintenance checklist

Month/year: _____

Instrument Serial Number: _____

Operator @ Initial	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Daily Maintenance																															
Print QC Diagnostic report																															
Perform tasks on QC Diagnostics:																															
Temperature																															
Reagents/Water/Waste																															
Dispense Head/ Funnel																															

Weekly Maintenance

Clean Diffuser plate																															
Clean Photodiode Shield																															
Purge reagents																															

Monthly Maintenance

Check Renok Dispense Volume																															
Run Database Optimizer																															
Restart Computer																															
Clean Air Intake Filter																															

Reviewed by: _____

Date : _____