Version 9

UNIVERSAL OPERATOR BROTH TRANSFER VALIDATION

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1. AIMS:

To assess operators ability to maintain the sterility of materials during the preparation of aseptically prepared injectable dose forms, in order to ensure that minimal bioburden is introduced.
To be a standard assessment for operators prior undertaking aseptic preparation activities, and for routine operator monitoring.

2. Background

2.1 All operators need to demonstrate competency in aseptic techniques in order that they may be entrusted to prepare aseptic dosage units safely.

2.2 A broth transfer test aids in this assessment of competency, but in itself does not conclusively prove that an operator can prepare aseptic dosage units accurately, precisely, and safely.

2.3 This can only be achieved through an objective assessment of an operator's routine aseptic technique and behaviour in a clean room.

2.4 This procedure is designed to emulate some of the manipulations routinely used in aseptic preparation and handling activities.

2.5 The procedure will test the operators ability to prevent microbial contamination of sterile materials during a variety of reconstitution and transfer manipulations

2.6 Successful completion of this test by an operator indicates the achievement of a nationally approved and transferable standard.

3. Comment on the Procedure

3.1 All aseptic manipulations can be broken down into a number of key manipulations, for example:

Withdrawing solutions from infusion bags
Withdrawing solutions from vials
Withdrawing solutions from ampoules
Addition of solution to vials
Addition of solutions to infusion bags or other containers

3.2 The procedure replicates a number of these manipulations, and although it does not describe actual dose preparation activities that will be routinely performed in all units, it does provide a reasonable, standardised, test of competence.

3.3 Some units may develop other test procedures that more accurately reflect the work undertaken, and this is encouraged, but these should be conducted *in addition* to the nationally approved Broth Transfer Validation.

4. Frequency of Test:

Initial qualification:

4.1 All operators *conducting* or *supervising* aseptic manipulations must successfully complete **THREE** Universal Broth Transfer Validations on separate occasions (days) before they are permitted to prepare aseptic dosage forms for patients.

4.2 Initial qualification must be completed within 6 weeks of undertaking the first validation procedure

Re-qualification:

4.3 All operators actively engaged in the preparation of aseptic doses for patients must successfully complete a Universal Broth Transfer Validation at least every six months. A three-monthly interval is advised.

4.4 Rotational Staff: All operators returning to the preparation of aseptic doses following an absence of one calendar month or greater, must successfully complete a Universal Broth Transfer Validation before participating in aseptic procedures.

4.5 Where the gap in aseptic practice periods exceeds 12 months, operators and supervisors must carry out the initial qualification test as detailed in 4.1 above, before they are again permitted to prepare aseptic dosage forms for patients.

5. Positive Control:

5.1 A positive control validation must be conducted annually to demonstrate the ability of the validation procedure to support growth and recover micro-organisms potentially present in the environment where the test is performed, and from the particulate contributions of the materials or operators involved.

5.2 Validated and certified culture media must be used in all tests and must be within their shelf life up to the completion of the analysis.

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Before commencing:

1. Read all of this Procedure carefully, and familiarise yourself with the diagram in particular.
2. Ensure you are fully trained in the use and operation of the isolator or unidirectional air flow workstation.
3. Read the Material Safety Data Sheets in the Unit Procedure Files, and ensure that you fully understand all aspects of the task you are undertaking.
4. Assemble all necessary equipment and ancillary materials.
5. Complete all necessary hand preparation and changing procedures, as required by local protocols.

Operator Name		Unit *		**Test Date**		Batch No. *	

* Where applicable

A. Equipment Required:

Item	**No.**	**Manu-facturer**	**Batch No.** Where applicable	**Expiry Date** Where applicable	**Assembled by**	**Checker**
Tryptone Soya Broth Vial Single-strength (Sterile)	1 x 50ml					
Tryptone Soya Broth Bag Single-strength (Sterile)	1 x 100ml					
Trypt. S. Broth Ampoule Single-strength (Sterile)	1 x 5ml					
Empty Glass Vials (Sterile) pre-labelled A, B, C,	3 x 20ml					
5ml Syringe (Sterile ;overwrapped Of the type specified in the Unit)	17					
Syringe Cap (Sterile; overwrapped Of the type specified for the Unit	5					
Standard Needle 18 or 19 gauge (Sterile)	30					
Tryptone Soya Agar Plate Sterile, pre-incubated, labelled	4 (or 5)					
Alcohol Spray or equivalent (Sterile)	3					
Alcohol Wipe or equivalent (Sterile)	10					
Sterile low-lint wipes	10					
"Sharps collector"	1					
Filter Needle (if used in local procedures)						
Dispensing pin or vent (if used in local procedures)						

100ml & 500ml TSB bags (CE marked) are available from *Baxter Healthcare Ltd*.; Ampoules may be obtained from *Phoenix Pharmaceuticals Ltd* or NHS 'Specials' Manufacturers
Plates are pre labelled with date; operators initial and location; e.g. Left Hand/Right Hand, Room/floor, LFC/Isolator

B. Entry Procedures:

Item	**Operator**	**Checker** Where applicable
1. Follow local procedures for first stage decontamination of materials into 'clean room' or isolator hatch		
2. Follow local hand preparation and changing procedure and enter work room or isolator		
3. Label, then expose the Tryptone Soya Agar plate in background environment (Clean room or Isolator Room) or follow local procedures for monitoring. (Optional)		
4. Prepare work surfaces etc. in accordance with local procedure.		
5. Critical work zone clear and permission to proceed.		
6. Follow local procedures for procedures for second stage decontamination of materials into 'critical work zone'		
7. Expose two (2) Tryptone Soya Agar plates in 'critical work zone' or follow local procedures for monitoring.		
8. Arrange or layout materials in preparation for conducting the procedure.		

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Signatures	Unit/Service Mgr	Q.C.	Ref. No:

C. Universal Broth Test Procedure:

Item	Operator	Checker Where applicable

Refer to Schematic for Stage 10 & 11 on page 5

9. Using a sterile alcohol wipe, prepare the 'additives' port of the infusion bag of single strength tryptone soya (T.S.) broth. Allow drying.		
10. Expose a sterile syringe cap. Unwrap a 5ml syringe and attach a needle, then withdraw 5ml of T.S. broth from the infusion bag. Remove needle and cap the syringe.		
11. Repeat stage 10. a further four times to accumulate 5 x 5ml T.S. broth filled syringes. Move these to one side of the critical work zone. (Dispose of sharps safely)		

Refer to Schematic for Stage 13 & 14 on page 5

12. Using a sterile alcohol wipe, prepare the 'rubber bung' of the glass vial of single strength tryptone soya (T.S.) broth. Allow drying.		
13. Unwrap a new 5ml syringe and attach a needle, then withdraw 5ml of T.S. broth from the 50ml vial, using a pressure equalisation technique, vented needle or dispensing pin*. Transfer this volume to the remaining T.S. broth in the infusion bag. Discard the needle and syringe used. (Dispose of sharps safely)		
14. Repeat stage 13. a further four times to add further T.S. broth to the infusion bag, restoring the bag volume to 100ml. Mix the contents of the bag.		

**depending on local procedures*

Refer to Schematic for Stage 16 on page 5

15. Using a sterile alcohol wipe, swab the neck of the glass ampoule containing single strength tryptone soya (T.S.) broth. Allow drying.		
16. Unwrap a new 5ml syringe and attach a needle, quill or filter-straw*, then open the ampoule and withdraw 5ml of T.S. broth from the ampoule. Transfer this volume to the empty glass vial marked 'A'. Discard the needle and syringe used. (Dispose of sharps safely)		

**depending on local procedures*

Refer to Schematic for Stage 17 & 18 on page 5

17. Unwrap another 5ml syringe and attach a needle, then withdraw 5ml of T.S. broth from the recently refilled infusion bag from stage 14. Transfer this volume to the part -filled glass vial marked 'A'. Discard the needle and syringe used. (Dispose of sharps safely)		
18. Repeat stage 17. a further two times to add further T.S. broth to the vial, to bring the final volume in the vial to 20ml.		

Refer to Schematic for Stages 19 - 22 on page 5

19. Unwrap a new 5ml syringe and attach a needle, then withdraw 5ml of T.S. broth from the recently filled vial 'A' from stage 17. Transfer this volume to the vial marked 'B'. Discard the needle and syringe used. (Dispose of sharps safely)		
20. Repeat stage 19. to add a further 5ml T.S. broth to vial 'B'. Vials 'A' and 'B' now both contain **10ml** T.S. broth.		
21. Unwrap a new 5ml syringe and attach a needle, then withdraw 5ml of T.S. broth from the recently filled vial 'B' .		
22. Transfer this volume to the vial marked 'C'. Discard the needle and syringe used. Vials 'B' and 'C' now both contain **5ml** T.S. broth. (Dispose of sharps safely)		

Item	Operator	Checker Where applicable
23. Expose the T.S. agar plate marked: 'Finger Dab - Left hand; plus the date and operator's initials'. Gently place the fingers of the left hand onto the surface of the agar. Cover.		
24. Repeat stage 23. with your right hand, using the T.S. agar plate marked: 'Finger Dab – Right hand; plus the date and operator's initials'. Cover.		
25. Remove any agar residues from gloves with alcohol impregnated swab, then remove all the filled / prepared broth containers from critical work zone.		
26. Change or clean gloves and clean the critical work zone and associated areas, in accordance with local procedures.		
27. Exit critical work zone and label the broth containers with: a) Operators' name; b) Date; c) Room or Isolator designation where the test was performed. d) Batch No.. Where applicable		
28. Transfer containers to an incubator together with the Results Form (page6). Incubate at 30-35^{0}C for 14 days.		
29. Arrange for all broth-filled containers to be inspected daily , and the results recorded on the form as detailed.		
30. Dispose of waste material in accordance with local procedures, taking particular care with "sharps".		

Daily inspection and prompt notification of any failure will allow re-test to occur promptly, reducing the time operators are restricted from aseptic preparation, Alternatively, inspect and read these items after a period of time specified in local procedures and national guidance.

NOTE: Turbidity may not be visible through the plastic wall of the syringe. Inspection procedures should include examination of the expelled broth in a clean glass beaker or equivalent on the last day of incubation.

D. Comments and Authorised Deviations:

Comment Describe any incident or event which meant the procedure was not strictly adhered to. *(e.g. dropped agar plate*, *variation of procedure*)	Operator	Checker Where applicable

E. Supervisors Inspection:

Item		Checker
31. All steps in the procedure have been carried out satisfactorily and details have been filled in correctly.		
32. Raw materials and apparatus have been removed from the work area		
33. All items have been properly labelled		

F. Further Comments:

Document approval	Date	Supersedes that dated	
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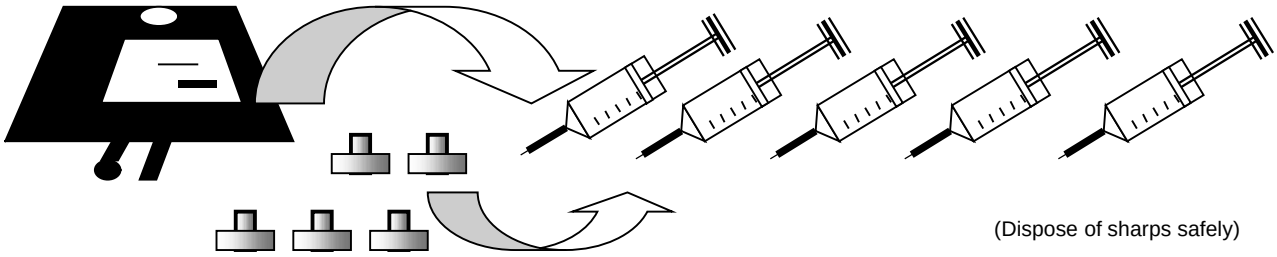
G. Schematic Representation of Universal Broth Test Procedure:

Stage: 10 & 11. Transfer from bag to syringes

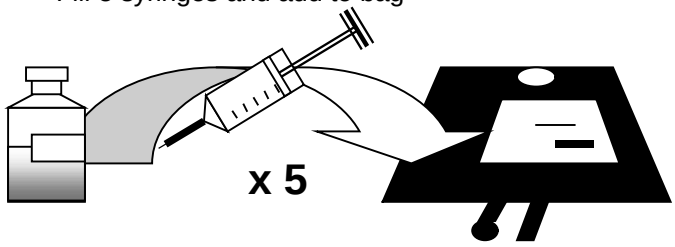
Fill 5 syringes and cap



(Dispose of sharps safely)

Stage: 13 & 14. Transfer from vial to bag

Fill 5 syringes and add to bag

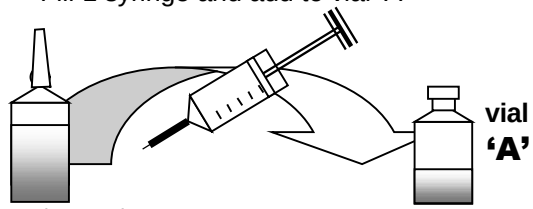


50ml broth

(Dispose of sharps safely)

Stage: 16. Transfer from ampoule to vial

Fill 1 syringe and add to vial 'A'

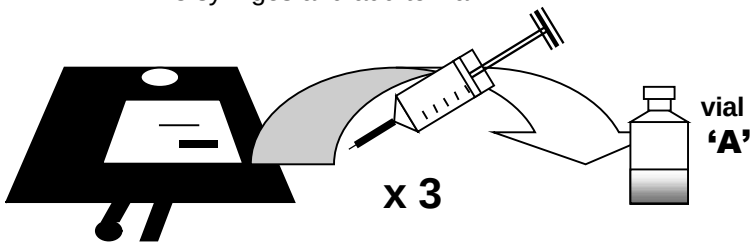


10ml ampoule

(Dispose of sharps safely)

Stage: 17 & 18. Transfer from bag to vial

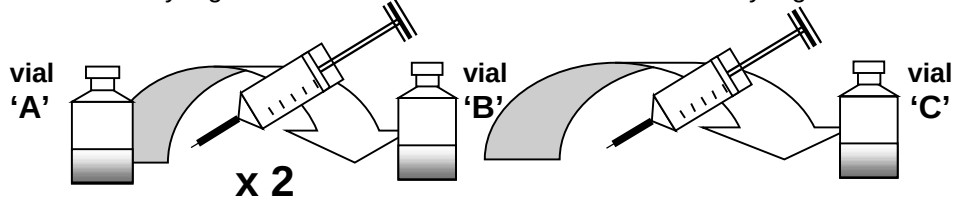
Fill 3 syringes and add to vial 'A'



(Dispose of sharps safely)

Stage: 19 & 20; 21 & 22. Transfer from vial to vial

Fill 2 syringes from vial 'A' and add to vial 'B' then fill 1 syringe from 'B' and add to 'C'.



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Results Form

Operator Name		Unit *		**Test Date**		Batch No. *	

* Where applicable

1. Environment of Test:

Section in Pharmacy where Test Performed e.g. CIVAS / TPN / CYTOs	**Workstation Type (critical zone)** e.g. Horizontal or Vertical UDAF Cabinet, BSC II or Isolator,	**Test Supervisor**

2. Details of Tryptone Soya Broth:

Manufacturer of Broth	**Batch No.**	**Expiry date**	**Operator**	**Checker** Where applicable

3. Details of Incubation:

Incubator Type & Identifier	**Incubation Details** from the chart recorder e.g. 32C +/- 2C for 14 days	**Incubation Supervisor**

4. Results:

Inspect daily:

Indicate: + for turbidity
O if clear
w/e for weekend missed record

Acceptance Criteria:
Presence of any turbidity = FAIL
All items to pass to for operator to PASS the Test
Contamination to be confirmed by microbiological identification of contaminating organism(s)
Finger Dabs: Only one colony per 2 plates is acceptable
Settle Plates: Only one colony per plate is acceptable, per Test (if completed within 4 hours)

Item	**Day** 1	2	3	4	5	6	7	8	9	10	11	12	13	14	**Pass or Fail**
Syringe 1															
Syringe 2															
Syringe 3															
Syringe 4															
Syringe 5															
Vial 'A'															
Vial 'B'															
Vial 'C'															
Large vial															
Mini-bag															

National guidance advises test centres "incubate the media for 7 days at 20 - 25C and examine for signs of growth. Gently agitate the container to ensure all surfaces are washed with medium and incubate for a further 7 days at 30- 35C"

SETTLE PLATES Plates should be read daily or after a period of time as specified in local procedures and national guidance."

Work plate 1															
Work plate 2															
Room Plate															

FINGER DAB PLATES Plates should be read daily or after a period of time as specified in local procedures and national guidance."

Left Hand															
Right Hand															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	

5. Release:

Operator | Passes / Fails | Test Signature:_____ : Date_____.

NOTE: Notify Unit Manager immediately of any failures.
If an operator fails the Universal Broth Transfer Validation, their authorisation to prepare aseptic products is to be immediately suspended.
The operator must pass a single new test within 8 weeks, or be re-validated by carrying out the initial qualification test
(3 tests on separate days, within a 6-week period).

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