STANTON TERRITORIAL HEALTH AUTHORITY

Yellowknife, Northwest Territories

TITLE: **Streptococcal Grouping**	**Revision Date:** 20-April-2018	**Issue Date:** 20-April-2016
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Distribution: Microbiology Test Manual	**Page:** 1 of 5	
Approved by: S. Asmussen, Manager of Diagnostic Services	**Signed by:**	

PURPOSE:

Streptex* is a rapid latex test system for use in the qualitative detection and identification of the Lancefield group of streptococci. Reagents are provided for groups A, B, C, D, F, and G covering the majority of clinical isolates. Group E streptococci are rarely isolated.

The majority of species of *Streptococcus* possess group-specific antigens, which are usually carbohydrate structural components of the cell wall. Lancefield demonstrated that these antigens can be extracted in soluble form and identified by precipitation reactions with homologous antisera.

Streptex* employs a simple enzyme extraction method. Group specific antigens are extracted from streptococci in a simple incubation step. Antigens are then identified using polystyrene latex particles, which have been coated with group-specific antibodies. These latex particles agglutinate strongly in the presence of homologous antigen, and remain in smooth suspension in the absence of homologous antigen.

SAMPLE INFORMATION:

Source	5-7 large well isolated colonies, more may be needed if colonies are very small
Storage	All reagents are stored at 2-8°C

REAGENTS and/or MEDIA:

- Streptex* Extraction Enzyme, REF#R30951001
  - Reconstitute with 11 mLs of sterile water
  - Allow to stand for a few minutes with occasional swirling
- Streptex* Polyvalent Positive Control, REF#R30164601
- Streptex* Latex A, REF#R30950601
- Streptex* Latex B, REF#R30950701
- Streptex* Latex C, REF#R30950801
- Streptex* Latex D, REF#R30950901
- Streptex* Latex F, REF#R30951101
- Streptex* Latex G, REF#330951201

SUPPLIES:

- Glass test tubes
- Disposable plastic pipette
- Disposable reaction cards
- Wooden application sticks

SPECIAL SAFETY PRECAUTIONS:

Containment Level 2 facilities, equipment, and operational practices for work involving infectious or potentially infectious materials or cultures.

- Lab gown must be worn when performing activities with potential pathogens.
- Gloves must be worn when direct skin contact with infected materials is unavoidable.
- Eye protection must be used where there is a known or potential risk of exposure to splashes.

- All procedures that may produce aerosols, or involve high concentrations or large volumes should be conducted in a biological safety cabinet (BSC).
- The use of needles, syringes, and other sharp objects should be strictly limited.

QUALITY CONTROL:

The Positive Polyvalent control should be used for negative agglutination reactions to ensure reactivity of the test latex

- Add one drop of the Polyvalent Positive Control to the non-reactive well
- Rock for 1 minute and observe for agglutination

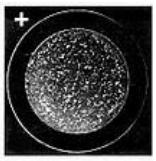
A TQC order is generated for each Lancefield grouping ordered. Results are entered in the TQC module under Resulting Worklist→MICS-All Scheduled Micro

PROCEDURE INSTRUCTIONS:

Step	Action
Performing Streptococcal Grouping	
1	Order the appropriate media for latex agglutination in result entry **LIS Codes: ^STRA ^STRB ^STRC ^STRD ^STRF ^STRG**
2	Dispense ~0.25mL of Extraction Enzyme into an appropriately labeled test tube for each culture to be grouped.
3	Using a wooden stick, select several well isolated colonies and emulsify into the extraction enzyme If a pure culture is not possible, pick from an area with as few contaminants as possible
4	Incubate for a minimum of 20 minutes at 35°C and up to an hour.
5	Re-suspend the latex reagent by shaking vigorously for a few seconds. Hold test latex vertically and dispense a drop of test latex into a circle on the disposable reaction card. Always dispense the reagent onto the card before the patient sample to prevent contamination of the reagent.
6	Mix the patient sample using a non-sterile pipette by gently drawing the patient sample suspension up and down several times. Using the same pipette, place one drop of extract beside the test latex suspension.

7	Mix the contents in each circle in the card with a stick, being careful not to create splatter. Each well tested requires the use of a clean mixing stick.
8	Rock the card gently for 1 minute.
9	Observe for agglutination without the use of a magnifier lens.

INTERPRETATION OF RESULTS:

IF	THEN
Agglutination occurs	Positive for tested antigen 
No agglutination	Negative for tested antigen – perform Positive QC procedure as above 

LIMITATIONS:

- False negatives will occur if an inadequate amount of inoculum is used
- Cross reactivity in the A, C, G test latex suspension can occur for Streptococcus Group F. Additional testing may be required.
- False positives may occur if testing is performed on non-streptococcal isolates such as *Pseudomonas*, *Klebsiella, Escherichia*

REFERENCES:

- Remel. (2011, September 27). Streptex* CLSI Instructions for Use.

REVISION HISTORY:

REVISION	DATE	Description of Change	REQUESTED BY
1.0	31Dec2013	Initial Release	Darrach (A)
1.1	15APR2014	Incubation time	Driedger (L)
2.0	31Mar16	Update of “Special Safety Precautions” to reflect risk assessment recommendations.	C. Russell