

The background features a vertical gradient from light purple at the top to light blue at the bottom. Scattered across the surface are numerous water droplets of various sizes, some with soft shadows, giving a fresh and clean aesthetic.

NICE but NICER

BY PATRICIA FIDDY

AUTOMATED AND MANUAL TITRES BY COLUMN AGGLUTINATION TECHNIQUE



ANTENATAL ANTIBODY TITRATION

- Some antibodies most commonly associated with haemolytic disease of the newborn (HDFN) anti-D, -E, -K Were tested and validated
- As well as the titration of anti-M (frequently occurring at our pathology)
- Antibody titration should be performed by a standardised technique

QML STANDARD TITRATION METHOD

- QML uses a modified version of the recommended national immunohaematology continuing education (NICE) method for titration.
- NICE: recommends using a pool of homozygous cells corresponding to the antibody being tested
- QML: use a single homozygous cell for the antibody being tested
- QML method valid as per RCPA surveys and bioCSL Securacell QC.
- May 2016 RCPA survey:
 - 86 labs submitted titre result
 - only 17 labs used pooled cells/ 85% of labs used a single cell for this survey



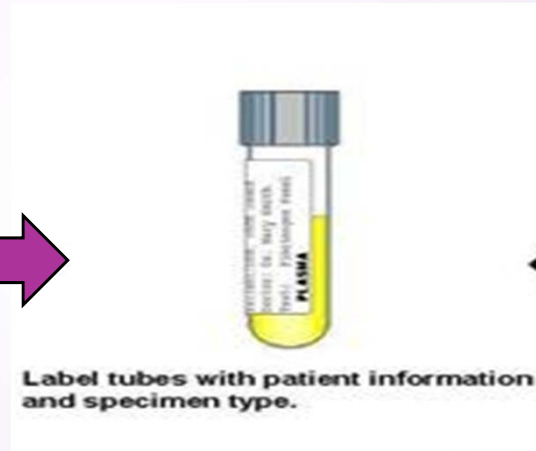
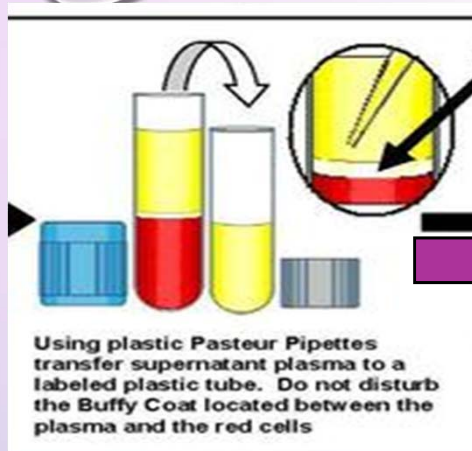
**WHY CHANGE TO AUTOMATED OR MANUAL
TECHNIQUE BY COLUMN AGGLUTINATION (CAT)**

WHY CHANGE TO AUTOMATED OR MANUAL TECHNIQUE BY COLUMN AGGLUTINATION (CAT)

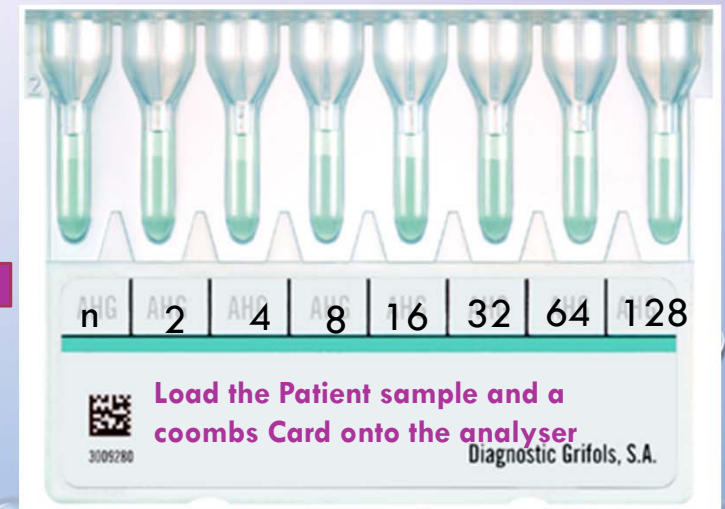
| QML Standard Titration Method | QML Automated CAT Titration | QML Manual CAT Titration |
|--|-------------------------------------|--|
| 30 min incubation | 15 min incubation | 15 minute incubation |
| Human error during testing | Automated testing | Human error during testing |
| Min 800 μ L Plasma (some for freezing) | Min 1 mL Plasma (none for freezing) | Min 200μL Plasma |
| Human error during interpretation | Result easy to interpret | Result easy to interpret |

CRITERIA FOR TITRE VALIDATION

- Automated reaction strength acceptable if identical or within 2 dilution strengths of the standard QML method
- Manual cat acceptable if identical or within 1 dilution strength when compared to automated method
- At least 20 samples had to be run and pass this criteria per antibody being tested



http://education.questdiagnostics.com/ckeditor_assets/pictures/89/content_Specimen%20Preparation%20and%20Shipping%20directions_updated%2012-6-2013.jpg



<https://www.grifols.com/documents/10192/2828340/dg-gel-card-coombs/feb97742-86b2-4164-b849-ab17928369f3?t=1432882149868&t=1418914369247>

GRIFOLS AUTOMATED TITRE

- 1 x Coombs card to which the analyser will add:
- 50 μ l of homozygous 0.8% red cell reagent to each well
- 25 μ l of pre-diluted plasma.

(Well 1 = neat plasma, well 2 = 1:2 plasma, well 3 = 1:4 plasma etc.)

- Up to 8 wells will be tested per sample
- If greater than 1:128 dilution required must pre-dilute before loading onto the analyser
- Machine will assume that any plasma sample loaded on is the 'neat'

PATIENT WITH A TITRE > 128

Sample Results

Wesley QML

Sample:

Patient:

Test: TT8

Titration: 8Tube

Test Started
11/09/2016 10:24:30

Operator
pt10

Batch
9696

Card ID: 713002170160133914

| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 |
|----|----|----|----|----|----|----|-----|
| | | | | | | | |
| 3+ | 3+ | 3+ | 3+ | 3+ | 3+ | 3+ | M2+ |
| n | 2 | 4 | 8 | 16 | 32 | 64 | 128 |

Authorised:

P

ORIGINAL PLASMA SAMPLE PRE-DILUTED MANUALLY

- To get a 1:128 DILUTION
- Took 1270 μ l of ML solution added 10 μ l of patient plasma
- Mixed sample with aid of vortex and re-loaded onto analyser

SAME PATIENT WITH PLASMA PRE-DILUTED 1:128

Sample Results

Wesley QML

Sample:

Patient:

Test: TT8

Titration: 8Tube

Test Started

13/09/2016 20:17:19

Operator

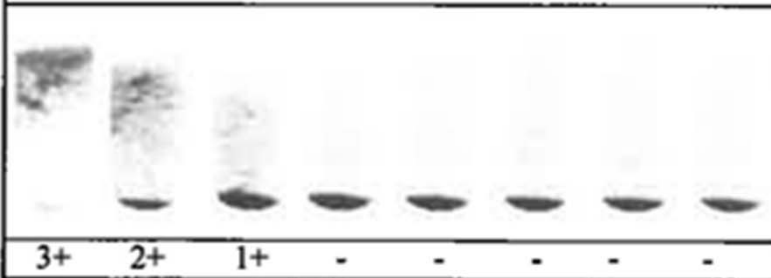
pt10

Batch

9917

Card ID: 7

| T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 |
|----|----|----|----|----|----|----|----|
|----|----|----|----|----|----|----|----|

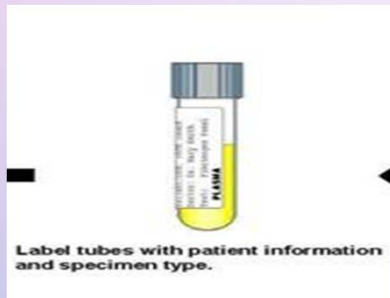


128 256 512

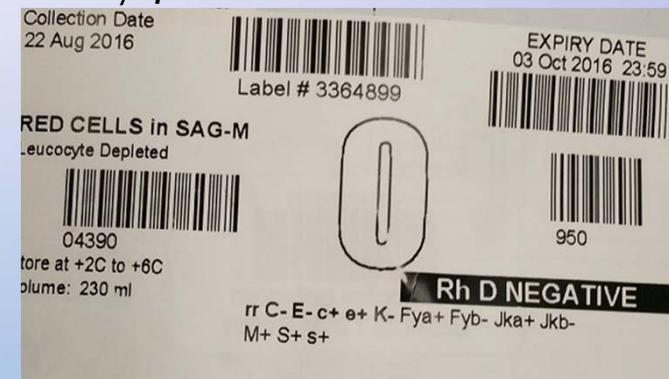
Authorised:

QML METHOD COMPARED TO 2014 METHOD AT ST VINCENTS-MELBOURNE

- Load on a single plasma sample/*Load on all master titration samples*



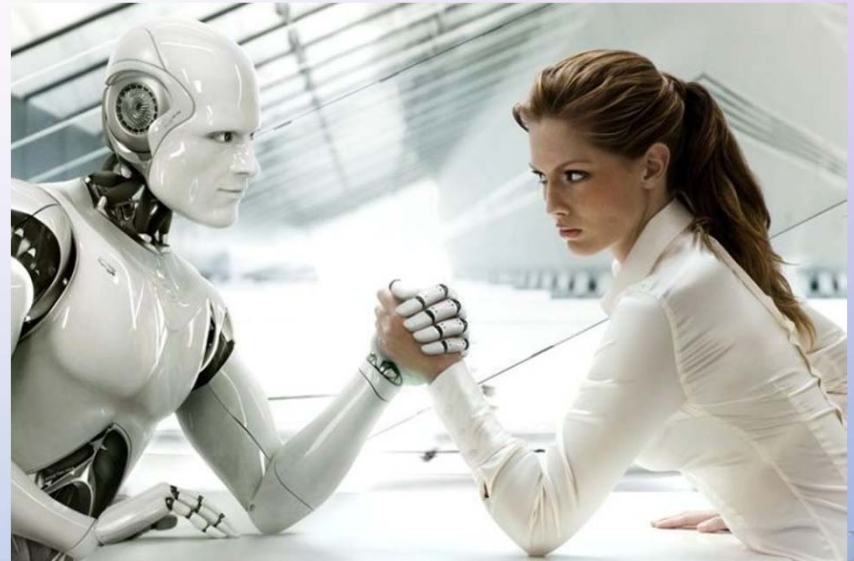
- Grifols reagent red cell from 0.8% 11 cell panel or 3 cell screen/*packed donor cell*



- Very limited phenotyped packed cells commercially available

SUMMARY

- Successful validation of CAT automated/manual for anti-D, -E, -K and -M
- Automated CAT has some limitations but overall standardised and more practical
- CAT automated or manual extremely similar



<http://www.acbforextrading.com/wp-content/uploads/2014/11/Manual-Trading-vs-Automated-Trading.jpg>

HUMAN ERROR



<http://entrepreneurialpractice.com/wp-content/uploads/2014/01/Human-Error.jpg>



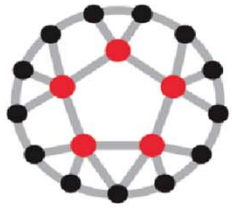
<http://blog.objectiflune.com/wp-content/uploads/2013/07/human-error-in-finance.jpg>

TIME MANAGEMENT

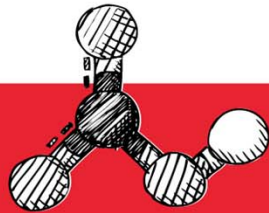
Time saved.
Time gained.



<https://paytm.com/blog/wp-content/uploads/2012/09/time-saved-2.jpg>



RCPAQAP
RCPA Quality Assurance Programs



<https://www.rcpa.edu.au/Education>

The validation
continues....



AUSTRALIAN INSTITUTE
OF MEDICAL SCIENTISTS (AIMS)

<https://www.aims.org.au/events/event/aims-haematology-discussion-group-copy-4>

Thank you!