

## Introduction

This was the first exercise in the 2019-20 cycle of the ABOT scheme. Participants were requested to titrate anti-A in three plasma samples against the A<sub>1</sub> red cells provided. The titrations were to be undertaken with routine methods and techniques (using those for assessing patient suitability for ABO incompatible living organ transplantation where appropriate to clinical practice), and also using a standard DiaMed technique provided, where the required resources were available.

Scores are presented on page 5 of this report along with the basis for scoring.

## Material

The following material was provided:

- Samples for Patients 1, 2 and 3, prepared from filtered fresh frozen plasma (Patient 1 and Patient 3 group O, and Patient 2 group B).
- One group A<sub>1</sub> red cell sample for titration.

Standard DiaMed techniques for DRT and IAT were provided with the exercise instructions (see Appendix 1), and these are referred to as 'standard' techniques in this report.

## Return rate / data analysis

The exercise was distributed to 99 laboratories, 38 in the UK and Republic of Ireland (ROI) and 61 outside of the UK. Results were returned by 94/99 (94.9%) laboratories by the closing date.

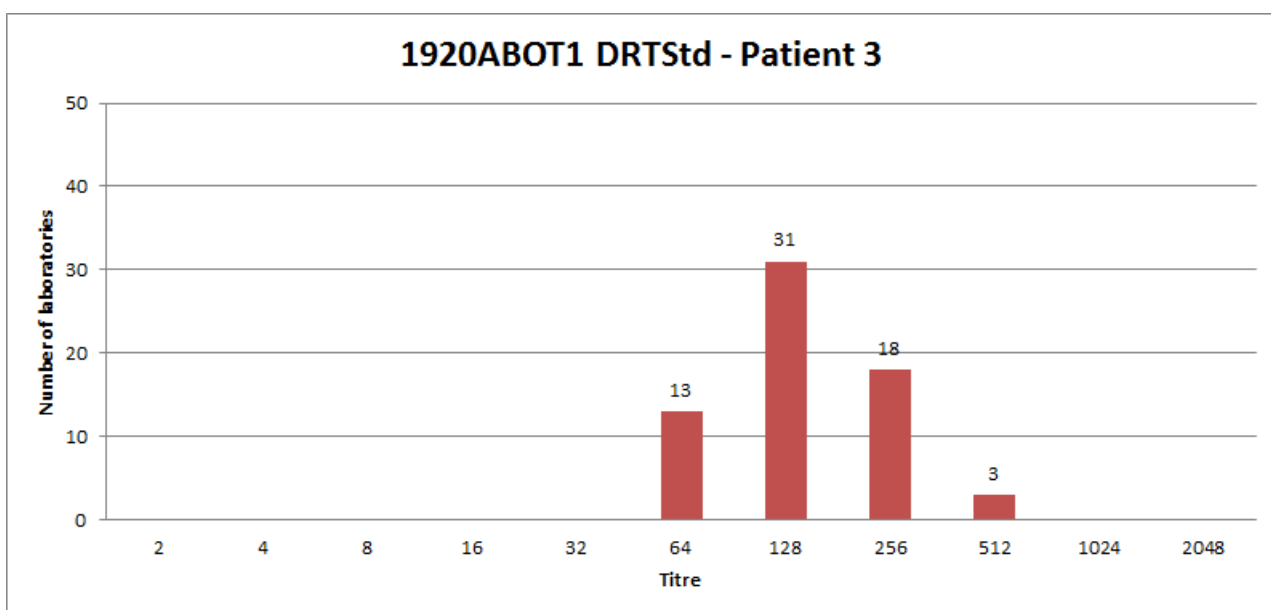
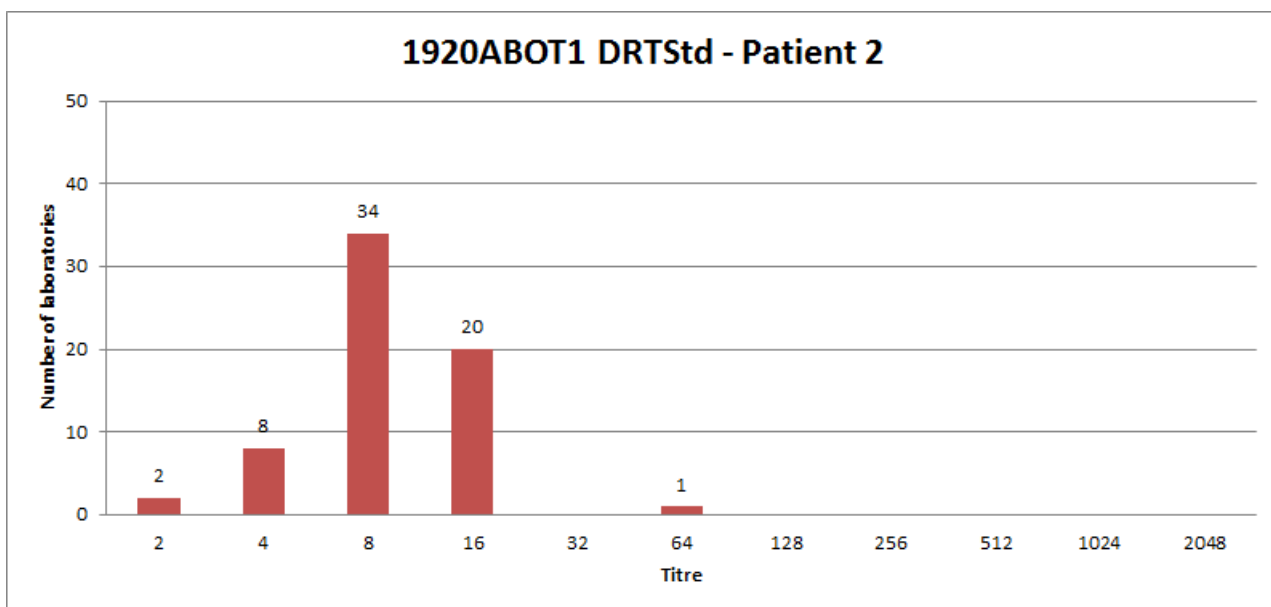
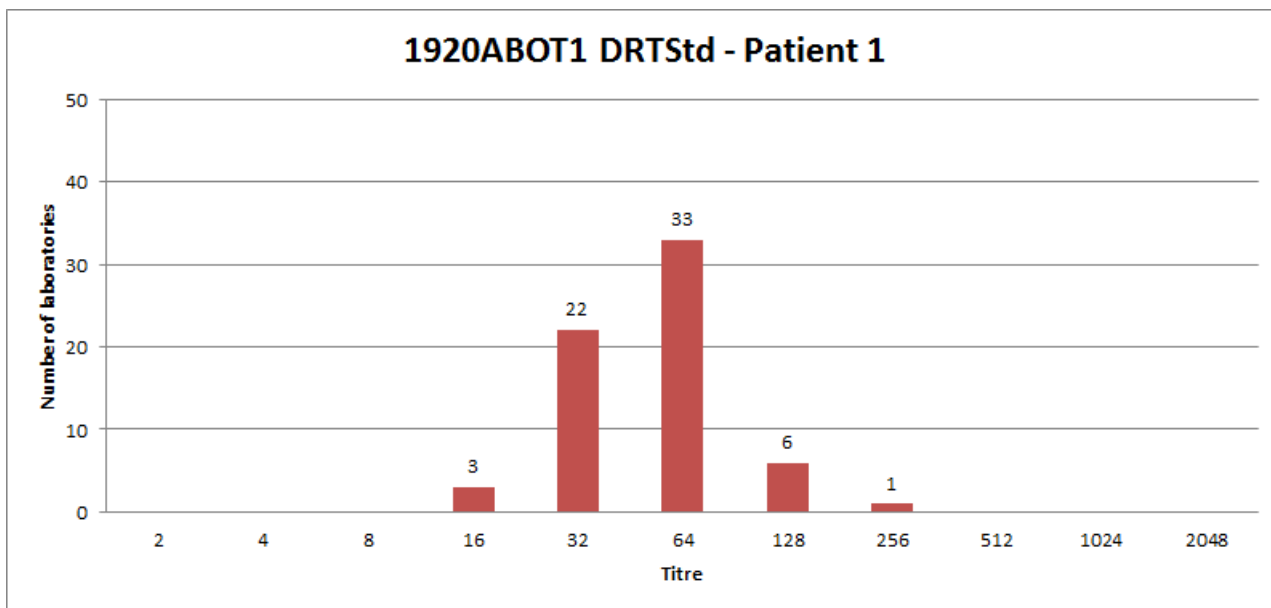
ABO titration is undertaken to support ABO incompatible transplant programmes in 73/93 (78.5%) laboratories answering the question; of these 46 support ABO incompatible renal transplant programmes.

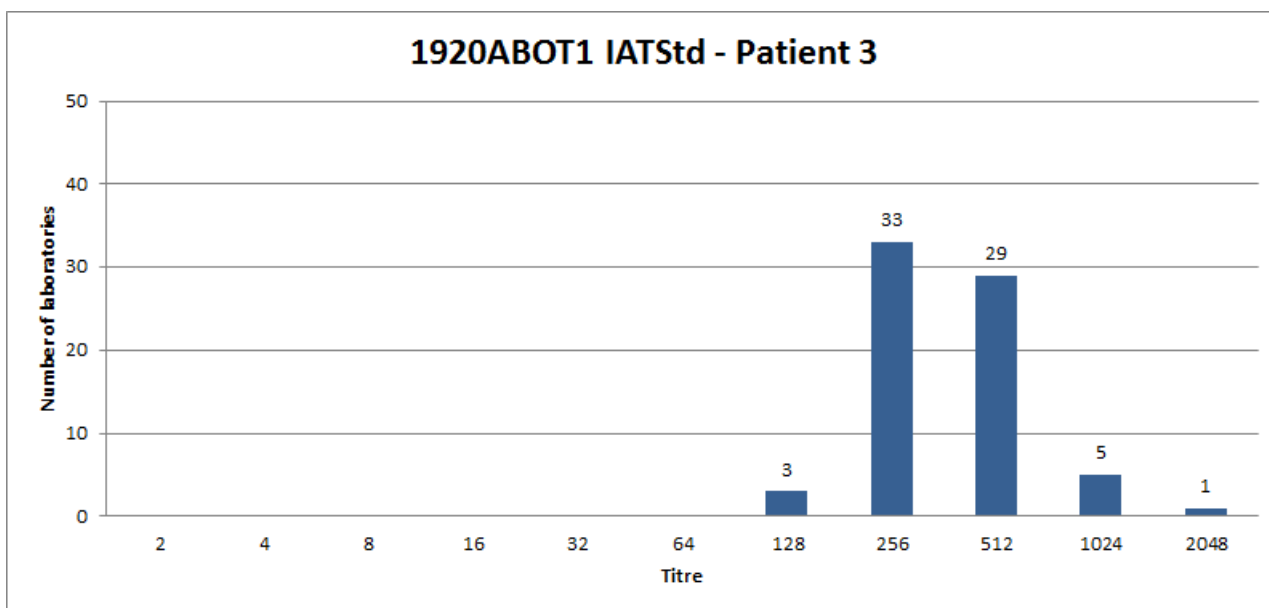
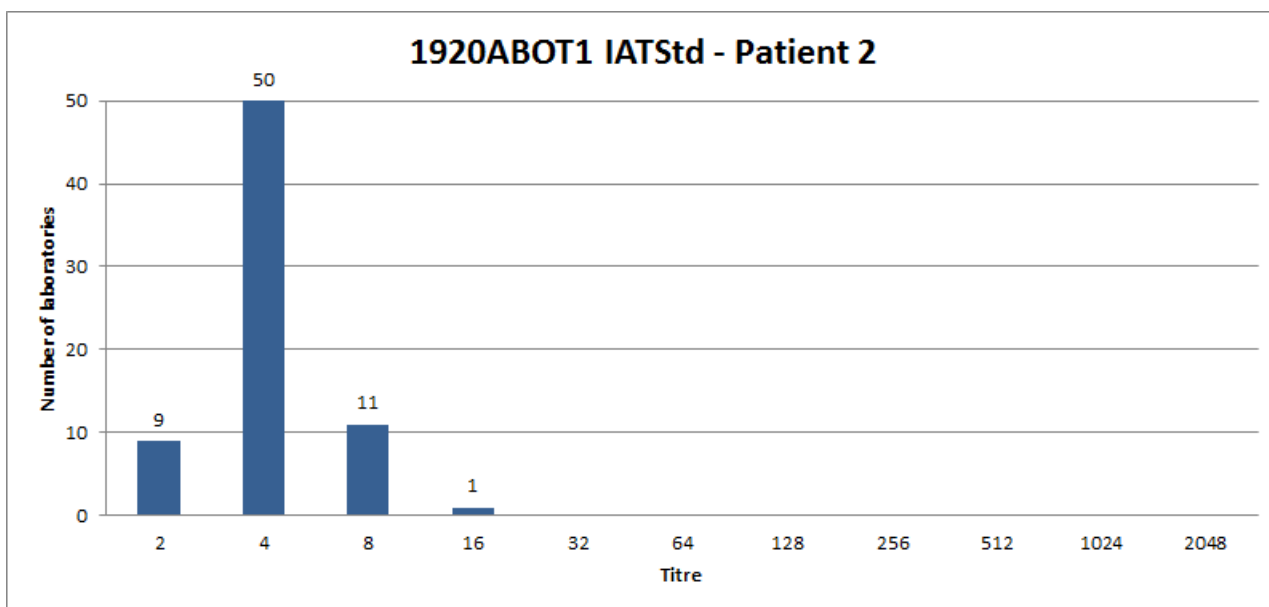
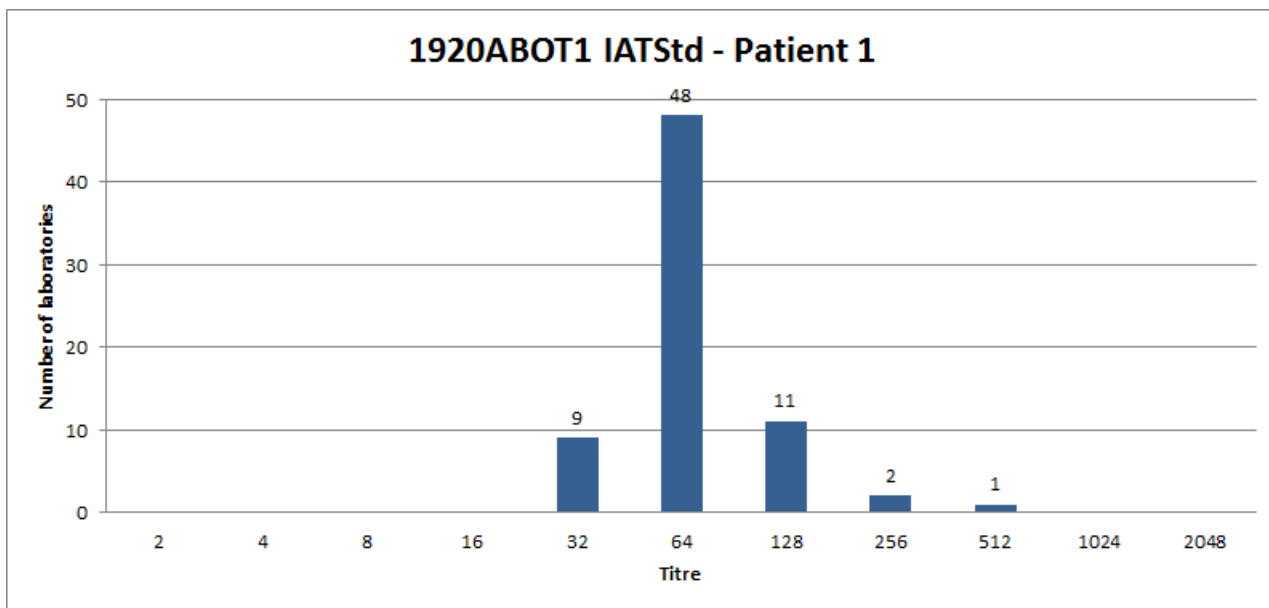
Results obtained using the 'standard' technique(s) for DRT and/or IAT were returned by 73/94 (77.7%) laboratories. Thirty nine of these also returned results for an in-house DRT and/or IAT method. Twenty one laboratories returned results for in-house methods only.

Not all laboratories tested by both IAT and DRT – the numbers of results analysed for each method are shown in Table 1.

All participants recorded satisfactory sample quality for all plasma samples.

Graphical representations of the distribution of results for DRT standard and IAT standard are shown on pages 2 and 3.





**Titration results**

Table 1 shows the method median titration results by DRT, IAT using untreated plasma and IAT using pre-treated plasma, and Table 2 shows your results.

**Table 1 - Titration median result and range, by method and technology**

Technique	Titration result (range)					
	Patient1 number of results	Patient1 median (range)	Patient2 number of results	Patient2 median (range)	Patient3 number of results	Patient3 median (range)
DRT Standard	65	64 (16-256)	65	8 (2-64)	65	128 (64-512)
DRT In-house DiaMed	11	32 (16-64)	11	4 (2-16)	11	64 (32-256)
DRT In-house BioVue	9	32 (16-64)	9	4 (2-8)	9	128 (32-256)
DRT In-house Grifols	4	32 (32-64)	4	8 (4-8)	4	128 (64-256)
DRT In-house Tube	19	32 (8-128)	19	8 (2-32)	19	64 (4-128)
DRT In-house Immucor	6	8 (8-16)	6	4 (4-8)	6	16 (16-32)
IAT Standard	71	64 (32-512)	71	4 (2-16)	71	256 (128-2048)
IAT In-house (untreated) DiaMed	4	160 (64-512)	4	4 (4-8)	4	384 (128-1024)
IAT In-house (untreated) BioVue	8	128 (64-256)	8	6 (4-32)	8	512 (256-2048)
IAT In-house (untreated) Grifols	4	64 (32-128)	4	4 (4-4)	4	256 (128-512)
IAT In-house (untreated) Tube	10	64 (8-256)	10	8 (2-16)	10	512 (64-1024)
IAT In-house (untreated) Immucor	6	32 (16-64)	6	2 (1-2)	6	256 (64-256)
IAT In-house DTT Treated (or equivalent) DiaMed	11	32 (16-64)	11	2 (0-2)	11	256 (128-512)
IAT In-house DTT Treated (or equivalent) BioVue	1	128 (128-128)	1	4 (4-4)	1	512 (512-512)
IAT In-house DTT Treated (or equivalent) Grifols	1	16 (-)	0	0 (-)	1	128 (-)
IAT In-house DTT Treated (or equivalent) Tube	4	24 (0-64)	4	0 (0-4)	4	160 (32-256)

**Table 2 - Your results (PRN 26000)**

Technique	Titration Result		
	Patient1 (Anti-A)	Patient2 (Anti-A)	Patient3 (Anti-A)
DRT Standard	32	8	64
IAT Standard	32	4	256

### Scoring for ABO titration

#### Categories of testing scored

Difference from median result for results obtained by:

1. Standard IAT
2. Standard DRT
3. Any other in-house technology with >20 laboratories testing by IAT or DRT

#### Definition of satisfactory results

Titration value within 1 doubling dilution of 'target', i.e. method median.

#### 'Scores' for 'outlying' results

- One point for each doubling dilution >1 away from 'target', e.g. if the target were 32, then one point would be incurred for results of 8 or 128, two points for 4 or 256, three points for 2 or 512 etc.
- Points will be accumulated within each category, within each exercise
- Points will be accumulated between exercises, also by category

Table 3 - Your scores (PRN 26000)

Technique	Score for this exercise <sup>1</sup>	Performance this exercise	Cumulative score <sup>2</sup>	Cumulative performance
DRT Standard	0	Satisfactory	0	Satisfactory
IAT Standard	0	Satisfactory	0	Satisfactory

<sup>1</sup>includes all three current samples

<sup>2</sup>includes nine most recent samples where results were returned (including the current samples)

Table 4 - Non-return scores (PRN 26000)

Non-return score for this exercise	Cumulative non-return score <sup>1</sup>	Your performance
0	0	Satisfactory

<sup>1</sup>includes three most recent exercises

### Performance Monitoring (UK Laboratories only)

#### Definition of unsatisfactory performance (UP)

- A total of three points within a category of testing in a single survey.
- A total of three points within a category of testing over three surveys (current and two previous for which results were returned).
- Non-return of results in two of the three most recent surveys.

#### Definition of persistent unsatisfactory performance (PUP)

- More than one episode of unsatisfactory performance in any category of testing, within 12 months.
- Two episodes of UP due to non-return of results in a 12 month period.
- One episode of UP from each of the above within a 12 month period.

## Appendix 1

### 'Standard' techniques 1920ABOT1

- Prepare dilutions of plasma in saline (PBS or NaCl) using a doubling dilution method. Make the dilutions with a minimum volume of 200µl, using an automatic pipette. Use a new tip to dispense each dilution.
- Prepare a 0.8 - 1% red cell suspension in CellStab (use ID-diluent 2 if CellStab is not available).
- Read the endpoint of the titration as the last weak reaction.

LISS indirect antiglobulin test (**IAT**) using IgG or polyspecific cards

- a. Add 50ul of cells suspended in CellStab or ID-diluent 2 to each microtube
- b. Add 25ul of each plasma dilution to the corresponding microtube
- c. Incubate at 37oC for 15'
- d. Centrifuge 10' in DiaMed centrifuge

Direct agglutination at room temperature (**DRT**) using NaCl cards

- a. Add 50ul of cells suspended in CellStab or ID-diluent 2 to each microtube
- b. Add 50ul of each plasma dilution to the corresponding microtube
- c. Incubate at RT for 15'
- d. Centrifuge 10' in DiaMed centrifuge