



# **A How To: Preparing IAT competency samples.**

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MLSP 6905 Capstone Project Presentation

# Project Research Question

- Shortage of blood bankers
- Lack of learning materials
- How are testing samples made?

# Literature Review / Background

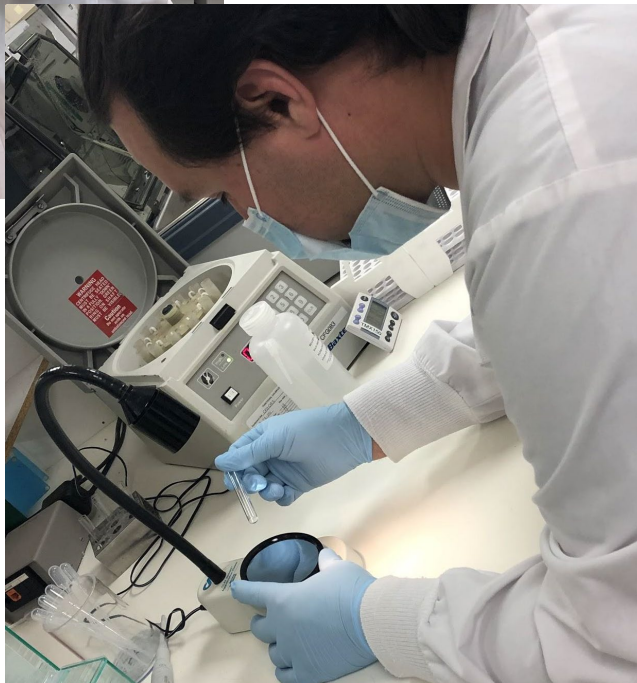
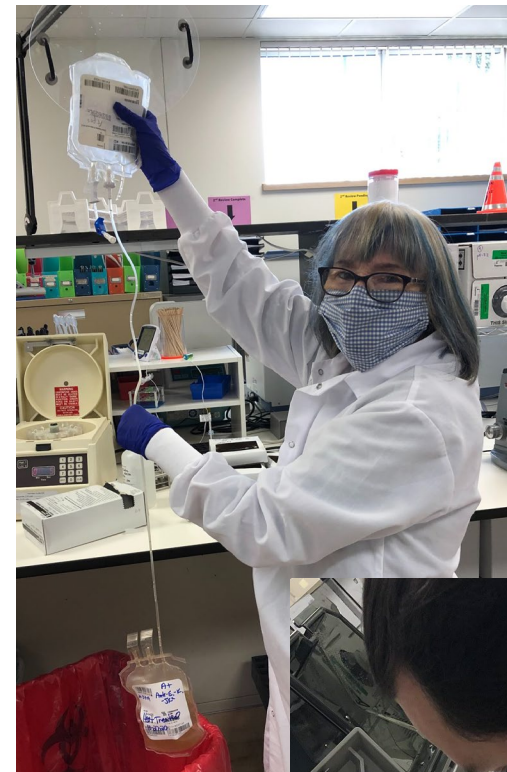
- Shortage<sup>1,5</sup>
  - few entering the field
  - many retiring
- Few published resources
  - extensive literature searches
  - few sources regarding the creation of training samples

## Grading Reactions

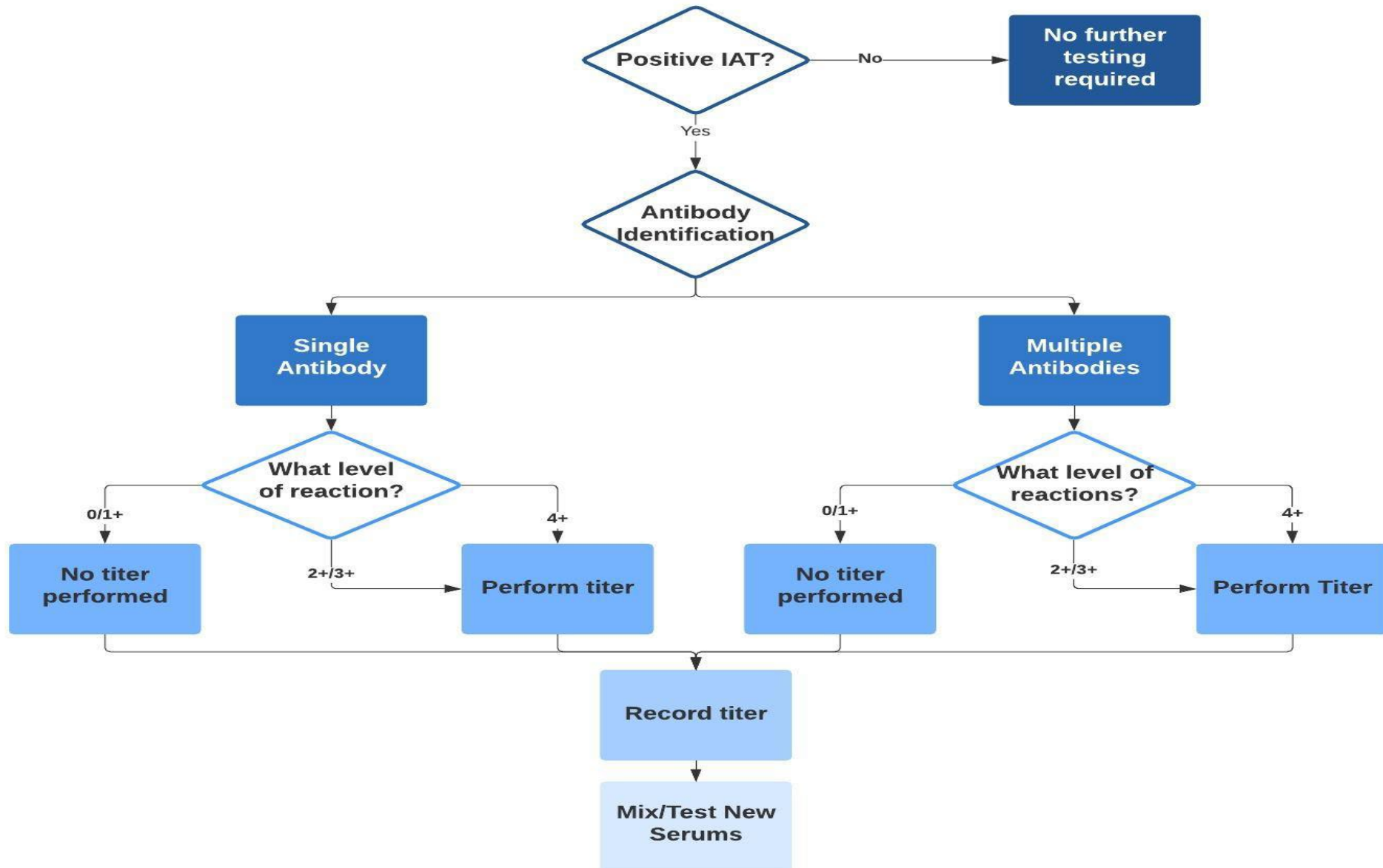
<p><b>0</b></p> <p>NO AGGLUTINATION OR HEMOLYSIS</p> <p>SCORE: 0</p>	<p><b>W+</b></p> <p>TINY AGGLUTINATES TURBID BACKGROUND</p> <p>SCORE: 2</p>	<p><b>to 1+</b></p> <p>SMALL AGGLUTINATES TURBID BACKGROUND</p> <p>SCORE: 5</p>	<p><b>2+</b></p> <p>MEDIUM-SIZED AGGLUTINATES—CLEAR BACKGROUND</p> <p>SCORE: 8</p>	<p><b>3+</b></p> <p>SEVERAL LARGE AGGLUTINATES—CLEAR BACKGROUND</p> <p>SCORE: 10</p>	<p><b>4+</b></p> <p>ONE SOLID AGGLUTINATE</p> <p>SCORE: 12</p>
					
					
					<p><b>HEMOLYSIS</b></p> <p>PH Partial Hemolysis, Some Cells Remain</p> <p>CH Complete Hemolysis, No Cells Remain</p>

## Materials & Methods




- 11 Plasma Specimens<sup>2, 3, 4</sup>
  - Heat treat
  - Test rxn in PEG
  - Titer
- 6 New Mixes
  - Test rxn in PEG
  - Dilute



## Algorithm for Sample Preparation



## Results-Serum Samples

Unit Number	Blood Type	Antibody	PEG rx	Titer
W0515 18 060624	A Pos	Fyb	3+/3+	1
W0515 12 103372	O Neg	C	 3+/3+	1
 15 38999	A Pos	K	1+/4+(IS) 4+/4+	1024
W0515 12 117825	A Pos	S	nonrx	0
W0515 19 097144	A Pos	Fya	3+/3+	4
W0515 19 003768	O Pos	E	3+/3+	16
		K		128
W0879 20 651458	A Pos	E	3+	2
		c	0/2+	1
W0515 17 107746	B Neg	D	4+	8
		C	3+	2
 W0515 20 031929	A Neg	D	4+	1024
		E	4+	8
		Jka	0/1+	0
W0879 19 801164	A Pos	E	1+/1+	did not titer
		K Thoresen	1+	did not titer

## Results- Mixed Samples

Mix#	Ratio	Antibody	PEG rxn	Dilution rxn
1	1-W0515 19 003768 3-W0879 20 701040	E	3+ (hetero)	
		K	4+ (hetero)	
		c	1+ /2+	
		Cw	4+	
		Fya	3+ (hetero)	
2	1-W0515 19 003768 3- W0515 17 107746	E	4+ (hetero)	3+
		K	4+ (homo)	4+
		D	4+	4+
		C	4+ (hetero)	2+
3	1- 15 38999 3- W0515 19 097144	Fya	4+ (homo)	3+
		K	4+ (hetero)	4+
4	1- W0879 20 651458 1- W0515 18 060624	E	4+ (hetero)	
		c	2+ (homo)	
		Fyb	2+ (homo)	
5	1-W0515 19 097144	C	1+ / 4+	





## Discussion / Conclusion

- Simple process
- Samples made to span testing realm
  - Single antibodies
  - Multiple antibodies
- Develop relationship with Reference Laboratories

# Study Limitations / Next Steps

## Limitations

- Time
- Number of samples
- Antibodies
- Cells

## Next Steps

- DAT
- Mixed Field
- Fetal/Maternal Hemorrhage
- Elutions

## References

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4. Judd, W. J., Johnson, S. T., Storry, J., & Judd, W. J. (2008). *Judd's methods in immunochemistry*. Bethesda, MD: AABB Press.
5. Mehallow, C. (2020). Unsung Blood-Bank Heroes Ensure Safe Blood Supply. Retrieved December 08, 2020, from <https://www.monster.com/career-advice/article/Blood-Bank-Specialist-Jobs>

## Thank you

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# Questions?