



INTERLABORATORY COMPARISONS FOR VIRUS DETECTION IN FOOD (PT 83a)

XVIII workshop MRAMA · Rapid Methods Automation Food Microbiology
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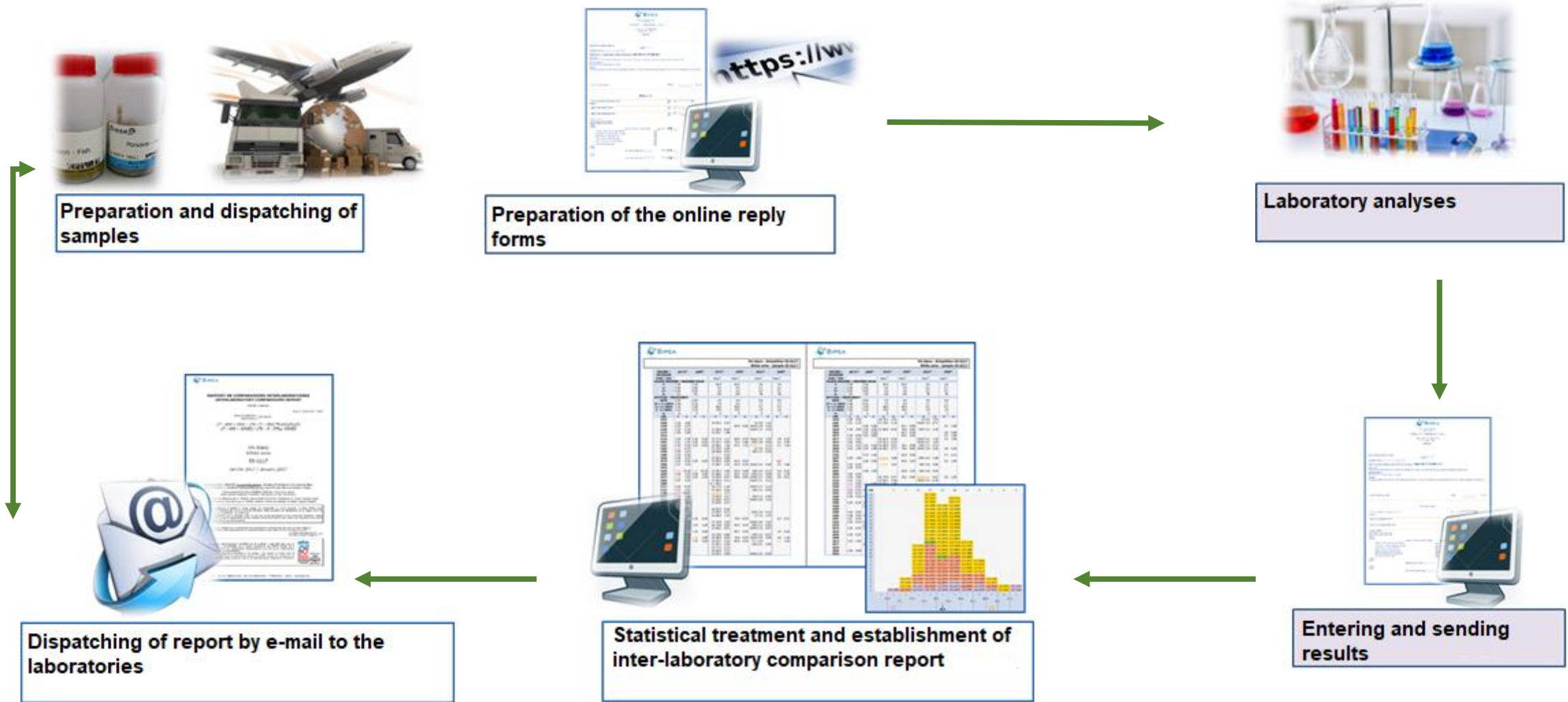


Presentation of BIPEA



https://www.youtube.com/watch?v=mDlqMyn_Lm0&t=35s

Organisation of Interlaboratory comparisons by BIPEA



Manufacturing of samples contaminated with viruses



Preparation of strawberry matrix



Frozen strawberries



Weighing 24 g of frozen strawberries per sample



Bags of strawberries are returned to the freezer until their inoculation

Preparation of calibrated secondary virus suspensions

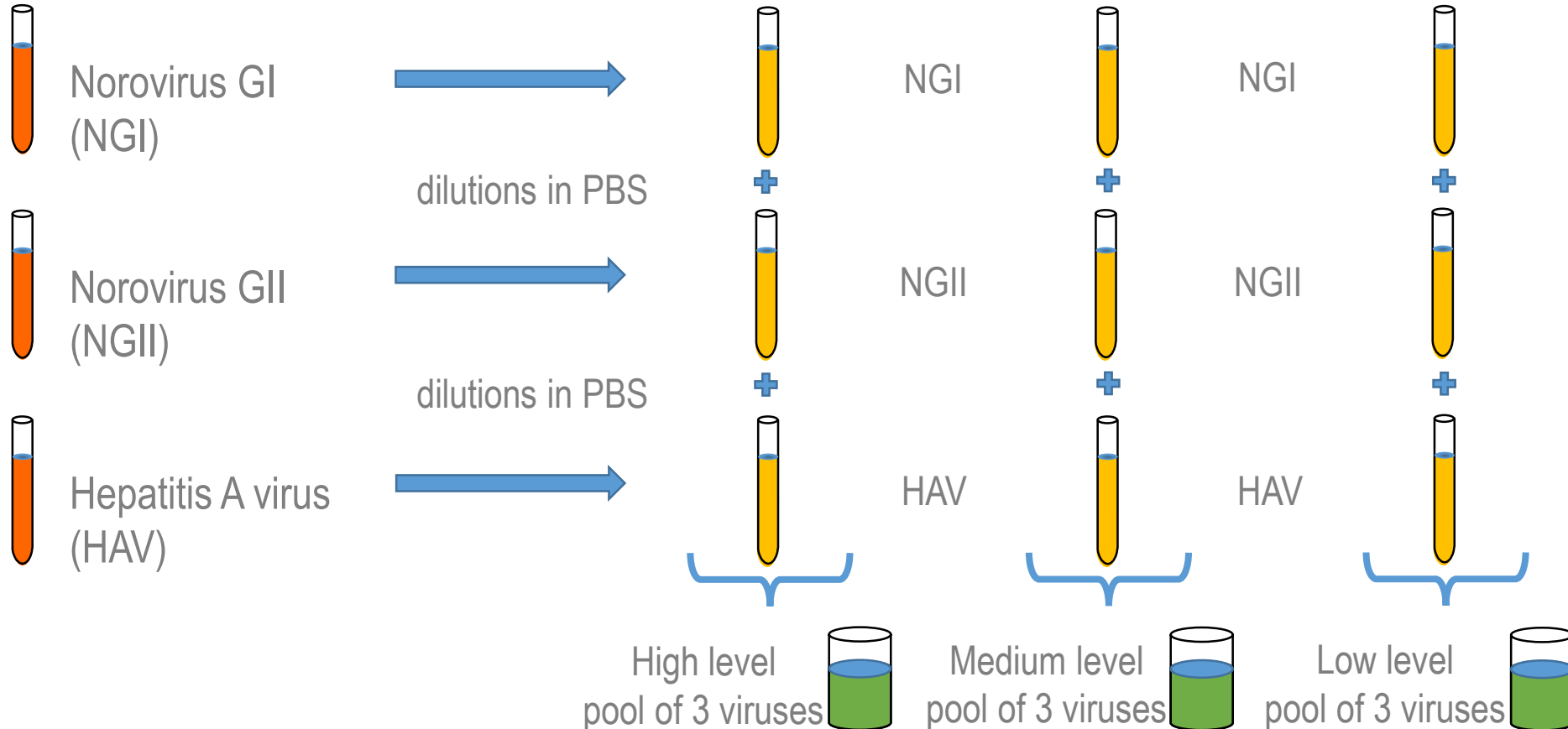
Primary suspensions with known concentrations

Calibrated secondary suspensions

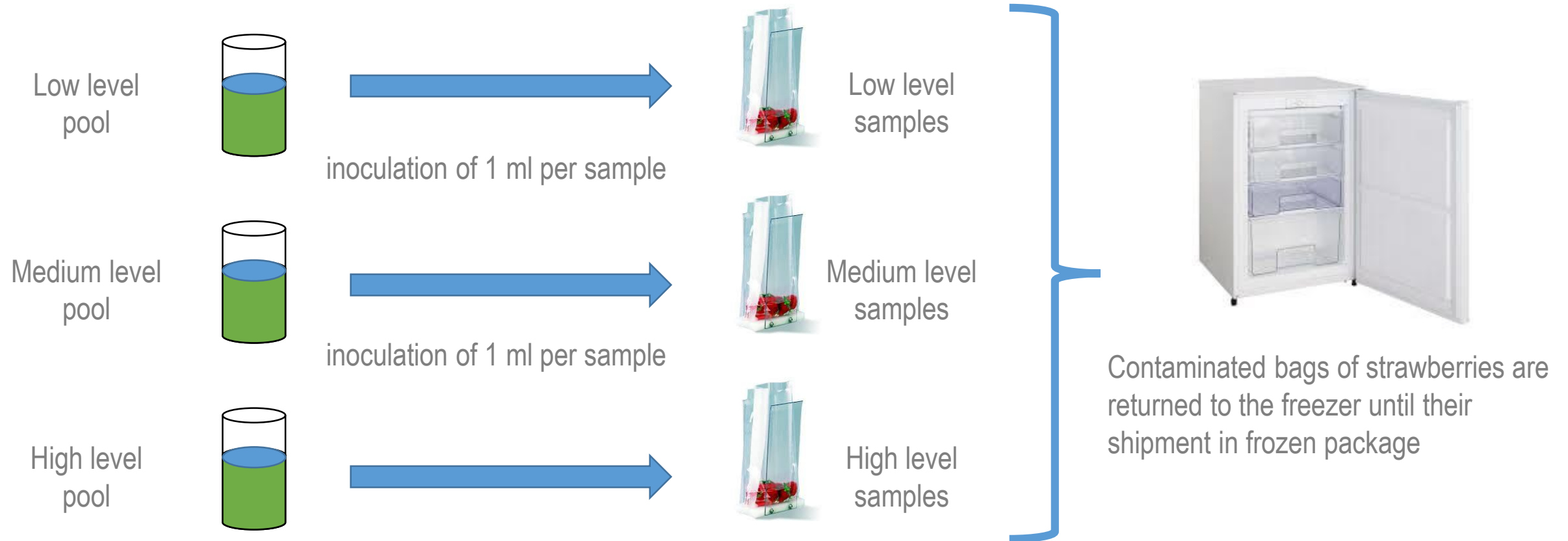
High level

Medium level

Low level



Samples inoculation



Interlaboratory comparisons for virus detection in food



PT 83a - Virus detection in food

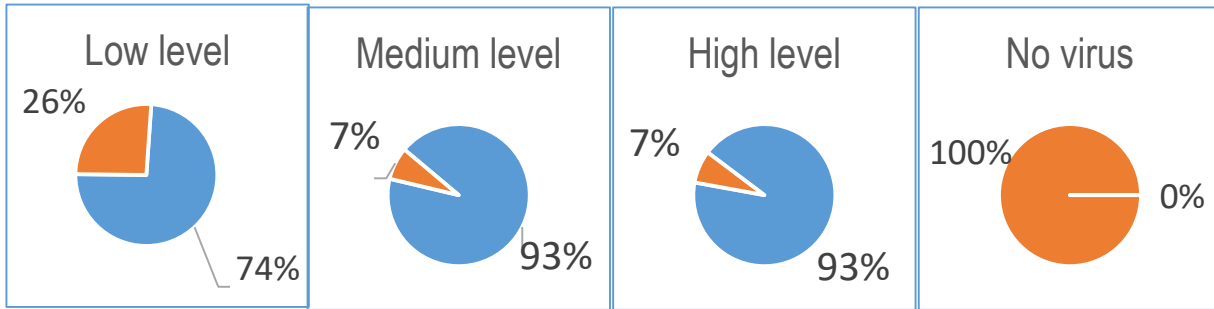
- Proficiency testing scheme created in 2017
- 1 round per annual series (January)
- Time for analysis is 4 to 5 weeks
- Analytes: Norovirus GI, Norovirus GII and Hepatitis A viruses
- Concentration ranges:
 - Level 0 : negative
 - Low level : 100 - 500 genome copies / 25g
 - Medium level : 1000 - 2500 genome copies / 25g
 - High level : 5000 - 7500 genome copies / 25g
- Expression of results:
 - Qualitative and quantitative
 - Expressed as genome copies/g : quantitative determination
 - Expressed as detected / non detected: qualitative determination

Test of January 2019

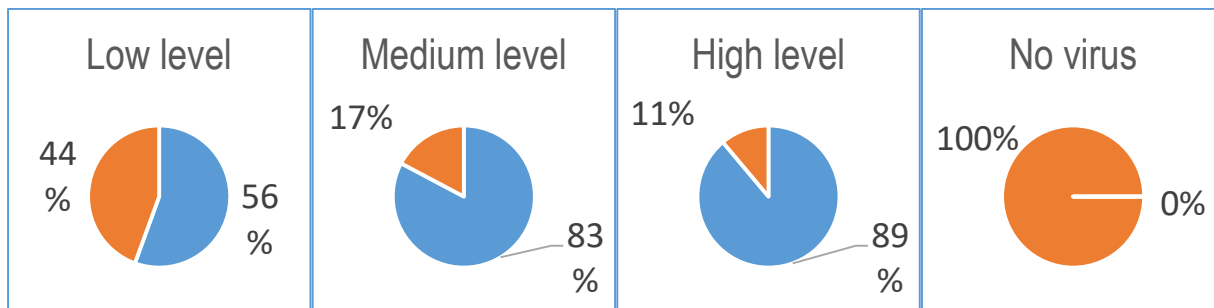
- 34 participants from Europe, Africa and America
- Matrix: Strawberry
- Shipping date: 28/01/2019
- Submission deadline: 06/03/2019
- Report: 20/03/2019

Test of January 2019: 34 participants

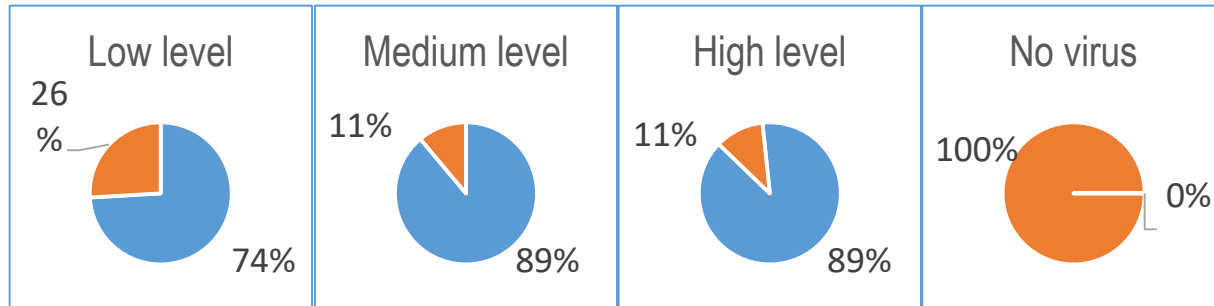
Qualitative results for Norovirus GI



Qualitative results for Norovirus GII



Qualitative results for Hepatite A



■ Detected ■ Non Detected

No assigned value for Norovirus GI and GII

Quantitative results for Hepatite A in log(genome copies/g)

Informative assigned and tolerance values

Nombre de résultats Effectif	7	2	2	3	7	Total of results
3				(I) 4129		3
2		(I) 1861		(I) 1345	(I) 4713	2
1		(I) 3412		(I) 5575	(I) 5173	1
Numéro de classe	<	1	2	3	4	>
Intervalle de classe		0,939	1,215	1,353	1,491	
		^		^	^	
		Min 0,800		Xpt 1,294		Max 1,788

Nombre de résultats Effectif	7	2	1	2	1	1	7	Total of results	
2		(I) 1861		(I) 3412				2	
1		(I) 4129	(I) 5173	(I) 5575		(I) 4713	(I) 1345	1	
Numéro de classe	<	1	2	3	4	5	6	7	>
Intervalle de classe		1,250	1,528	1,667	1,806	1,945	2,084	2,223	
		^				^		^	
		Min 0,800				Xpt 1,828		Max 2,856	

Nombre de résultats Effectif	7	2	1	1	2	1	7	Total of results	
2		(I) 1861			(I) 4129			2	
1		(I) 5173	(I) 3412	(I) 5575	(I) 4713		(I) 1345	1	
Numéro de classe	<	1	2	3	4	5	6	7	>
Intervalle de classe		1,064	1,878	2,285	2,692	3,099	3,506	3,913	
		^			^			^	
		Min 0,800			Xpt 2,545			Max 4,290	

Performance assessment of the qualitative results

Parameters	Definition	Interpretation	Considered satisfactory if
Specificity rate r_{SP} (%)	Number of negative results found divided by the total expected negative samples	Global relative overview for each laboratory to find the negative samples of the test.	= 100 %
Sensibility rate r_{SE} (%)	Number of positive results found divided by the total expected positive samples	Global relative overview for each laboratory to find the positive samples of the test.	> 66 %
Relative accuracy r_{AC} (%)	Number of true negative and positive results found, divided by the total analysed samples	Global relative overview for each laboratory to find the right conclusion for the samples of the test.	≥ 75 %

Mean performance of all the participants

Viruses	mean r_{SP} (%)	mean r_{SE} (%)	mean r_{AC} (%)
Norovirus GI	100	83	88
Norovirus GII	100	74	81
Hepatitis A	100	80	86

Overall good qualitative results

but still need improvement of the analytical performance in quantitative analysis

Thank you for your attention!

Questions?

