



Final PT Report n. 3/2014

PT “Detection of *Echinococcus* sp. adult worms in the intestinal mucosa of the definitive host”

Design

Purpose	Correctly identify the presence of adult worms of <i>Echinococcus</i> sp. in a matrix made by intestinal mucosa.	
Scheme type	Single	
Participants	Public and private, European laboratories	
N. of participants	Depending on request	
Method	Not regulated	
Test method	Sedimentation and counting technique (SCT)	
PT items	Matrix	intestinal mucosa
	Item	adult worms of <i>Echinococcus</i> spp.
	N. of samples	3 for each participant
	Distribution	Immediate shipment after preparation
Subcontracted activities	PT item transport and delivery	
Results evaluation	Qualitative and quantitative	

Implementation

N. of participants	24	PT items	intestinal mucosa (ml)/ sample	6
Public laboratories	0		Ethanol 70% (ml)	6
Private laboratories	0		PT panel composition	0, 5, 20
NLR	24		Subcontractor	TNT Express
Shipping dates	17 of March, 2014			



Qualitative results

The final evaluation is only based on qualitative evaluation and is expressed as “positive” if the results of all samples are correct or “negative” if at least one result is incorrect.

Lab Code	Sample 1 (N=5)	Sample 2 (Negative)	Sample 3 (N=20)	FINAL EVALUATION
E1	Correct	Correct	Correct	Positive
E2	Correct	Correct	Correct	Positive
E3	Correct	Correct	Correct	Positive
E4	Correct	Correct	Correct	Positive
E5	Correct	Correct	Correct	Positive
E6	Correct	Correct	Correct	Positive
E7	Correct	Correct	Correct	Positive
E8	Correct	Correct	Correct	Positive
E9	Correct	Correct	Correct	Positive
E10	Correct	Correct	Correct	Positive
E11	Correct	Correct	Correct	Positive
E12	Correct	Correct	Correct	Positive
E13	Correct	Correct	Correct	Positive
E14	Correct	Correct	Correct	Positive
E15	Correct	Correct	Correct	Positive
E16	Correct	Correct	Correct	Positive
E17	Correct	Correct	Correct	Positive
E18	Correct	Correct	Correct	Positive
E19	Correct	Correct	Correct	Positive
E20	Correct	Correct	Correct	Positive
E21	Correct	Correct	Correct	Positive
E22	Correct	Correct	Correct	Positive
E23	Correct	Correct	Correct	Positive
E24	Correct	Correct	Correct	Positive



Quantitative results

Statistical analysis:

the evaluation of the PT results is performed by calculating the Z-score for each sample. The Z-score is calculated by the formula:

$$z = \frac{X_{lab} - X_{Ref}}{\hat{\sigma}}$$

where:

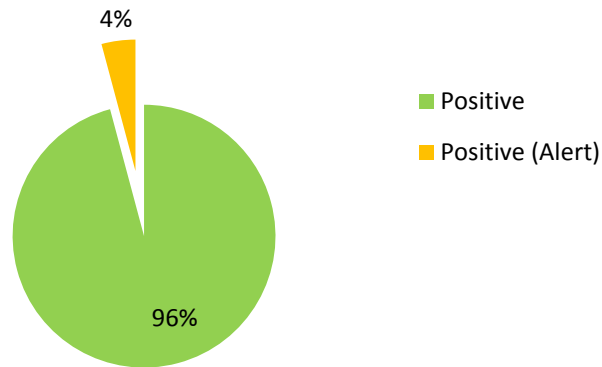
X_{lab} is the number of worms found in the sample by the laboratory

X_{ref} is the number of worms spiked in the sample

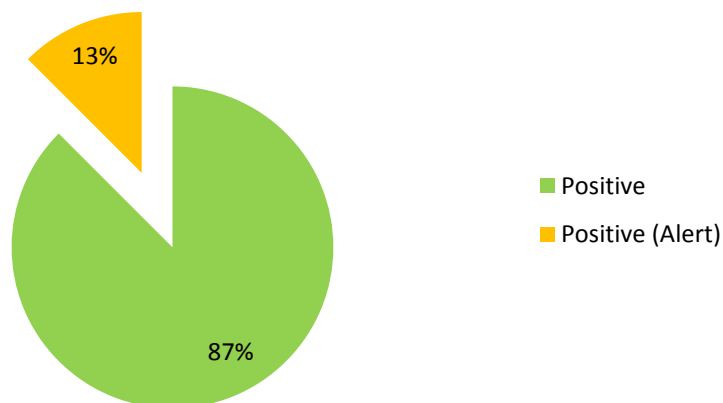
σ is the standard deviation calculated from the quantitative results obtained in the PT.

Lab Code	Sample 1 (N=5)	z-score	Evaluation	Sample 3 (N=20)	z-score	Evaluation
E1	4	-0,61	Positive	35	2,15	Positive (Alert)
E2	6	0,61	Positive	26	0,86	Positive
E3	5	0	Positive	22	0,29	Positive
E4	5	0	Positive	15	-0,72	Positive
E5	3	-1,21	Positive	14	-0,86	Positive
E6	5	0	Positive	15	-0,72	Positive
E7	5	0	Positive	20	0	Positive
E8	5	0	Positive	16	-0,57	Positive
E9	2	-1,82	Positive	10	-1,43	Positive
E10	5	0	Positive	15	-0,72	Positive
E11	2	-1,82	Positive	21	0,14	Positive
E12	4	-0,61	Positive	15	-0,72	Positive
E13	4	-0,61	Positive	9	-1,57	Positive
E14	3	-1,21	Positive	11	-1,29	Positive
E15	6	0,61	Positive	18	-0,29	Positive
E16	1	-2,42	Positive (Alert)	3	-2,43	Positive (Alert)
E17	8	1,82	Positive	19	-0,14	Positive
E18	2	-1,82	Positive	12	-1,14	Positive
E19	3	-1,21	Positive	19	-0,14	Positive
E20	2	-1,82	Positive	10	-1,43	Positive
E21	3	-1,21	Positive	2	-2,58	Positive (Alert)
E22	4	-0,61	Positive	17	-0,43	Positive
E23	4	-0,61	Positive	15	-0,72	Positive
E24	2	-1,82	Positive	10	-1,43	Positive

High infection - Sample 1 (N=5)



Low infection - Sample 3 (N=20)



Comments:

The Director
Dr. E. Pozio



Date 14 April 2014



Notes:

1. To guarantee confidentiality, participant laboratories are identified by alphanumeric codes. PT participant identity is kept confidential and bound by professional secrecy. If PT results have to be provided directly to a competent authority, the organizer shall send a written notice to inform the involved participants.
2. The organizer subcontracts PT item transport and delivery to a qualified transportation company.
3. Each participating laboratory receive a PT panel according to the PT scheme. Each PT item consists of intestinal mucosa, fixed in 70% ethanol, spiked or not with *Echinococcus* spp adult worms. The homogeneity of PT items is ensured by an accurate control of the number of worms spiked into each sample (item), made by two operators using a stereo microscope. PT items are stable for 21 days from the date of preparation (corresponding to the shipping date), provided that they are maintained in suitable conditions.
4. At the beginning of each year, the organizer draws up a PT program and makes it known by publishing it on the EURLP website (for national, international, public and private laboratories) or by email (NRLs).
5. The final report issue of each PT round shows the PT program implementation.

End of the report