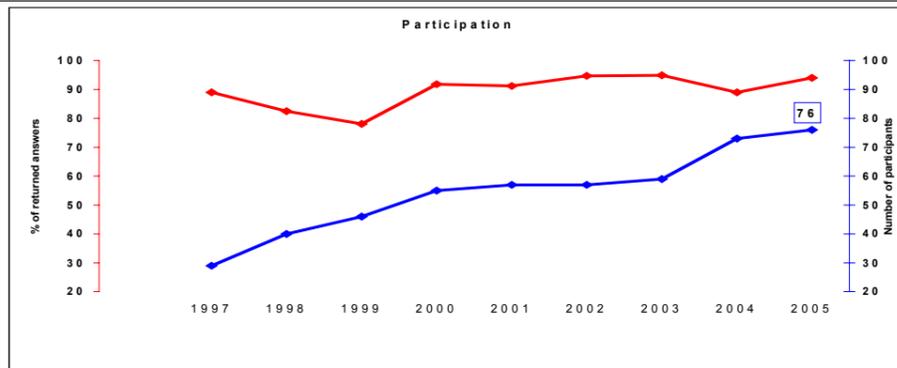


MICROSCOPIC DIAGNOSIS OF *PLASMODIUM FALCIPARUM*: A 9 YEARS' EXPERIENCE WITH EXTERNAL QUALITY CONTROL ASSESSMENT (EQA)

AIM: TO ANALYSE EQA RESULTS FOR THE DIAGNOSIS OF *P. FALCIPARUM* FROM GIEMSA STAINED SMEARS (THIN BLOOD FILMS) SENT TO PARTICIPANTS.

The Quality Control Center Switzerland (CSCQ) is a non-profit organisation which offers external proficiency testing programs to bioanalytical laboratories. Since 1997, the CSCQ has been organising external quality control assessments (EQA) for blood parasitology. The control material consists of stained smears which are sent to the participants. A brief anamnesis is provided with the samples. After receiving the results, the CSCQ edits a survey report which includes the expected results, the results obtained by the participants, the acceptable values and recommendations of an external expert. Private and hospital laboratories as well as medical practices participate in these surveys. Such surveys aim at monitoring the quality of the analyses and therefore at detecting the problems in the results and at assisting the labs to improve. Together with the quality improvement procedures, these surveys form the basis of quality assurance. The CSCQ guarantees the strict confidentiality of the identity and the results of each participant. More than 70 participants currently take part in this program. In this poster, only *P. falciparum* positive slides are discussed.

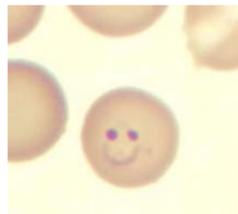


From 1997 to 2005, 50 thin coloured slides were sent to participating laboratories for determination of blood parasites. 22 slides were positive for *Plasmodium falciparum*. The average participation to these surveys exceeded 90%.

1. Results, questions and answers

	Participant diagnosis (%)	
	Infected red blood cells: 1.0%	Infected red blood cells: 2.0%
<i>P. falciparum</i> (correct diagnosis)	57 %	37 %
<i>P. malariae</i>	4 %	18 %
<i>P. ovale</i>	21 %	16 %
<i>P. vivax</i>	8 %	12 %
<i>P. falciparum</i> + <i>P. malariae</i>	2 %	-
<i>P. falciparum</i> + <i>P. ovale</i>	4 %	-
<i>P. falciparum</i> + <i>P. vivax</i>	2 %	2 %
<i>P. falciparum</i> + <i>Leishmaniae</i> sp.	-	2 %
<i>P. malariae</i> + <i>P. ovale</i>	-	2 %
<i>P. ovale</i> + <i>P. vivax</i>	2 %	4 %
<i>Babesia</i> sp.	-	6 %

1.1 EXAMPLES OF RESULTS



1.2 DOES THE PARASITE STAGE INFLUENCE THE RESULTS?

Species	Survey date	n	Infected red blood cells	Parasite stages	Correct diagnosis (%)
<i>P. falciparum</i> Thin blood films	1997	29	0.2 %	Young trophozoites	83
	1998	40	14 %	Young trophozoites	100
	2000	51	2.0 %	Old trophozoites and Maurers' dots	37
	2002	57	1.0 %	Old trophozoites and Maurers' dots	57
	1999	36	3.0 %	Young + old trophozoites and Maurers' dots + Gametocytes	47
	2002	53	0.5 %	Young + old trophozoites and Maurers' dots + Gametocytes	90
	2005	69	11.0 %	Young + old trophozoites and Maurers' dots + Schizonts	78
	1999	31	rare	Gametocytes	29
	2004	69	many	Gametocytes	98

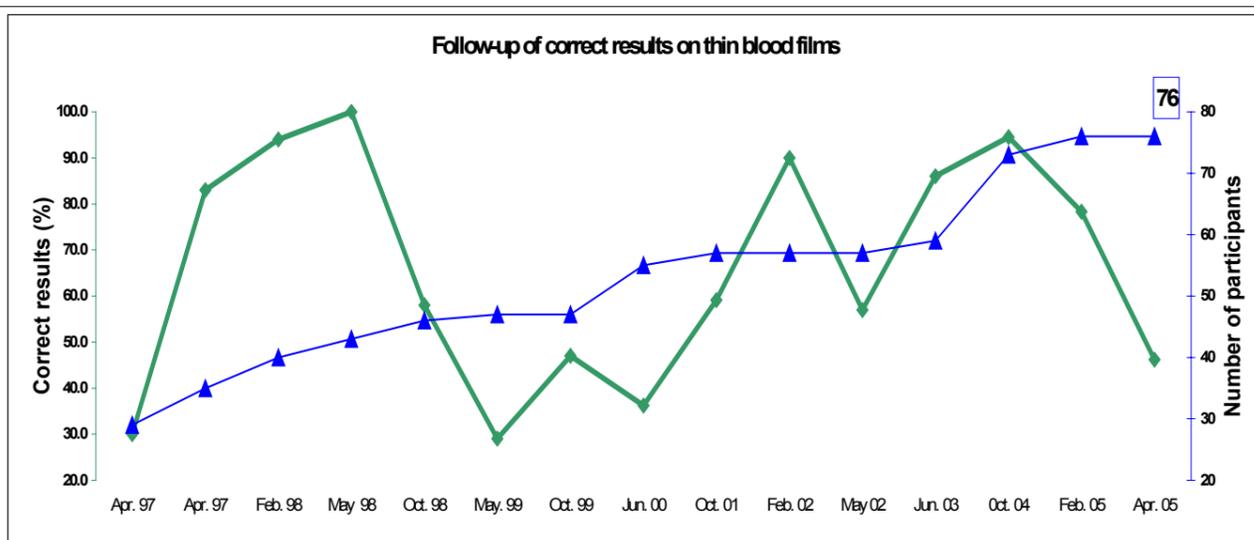
⇒ YES

1.3 IS THERE A DIFFERENCE IN THE RESULTS OBTAINED BY A PROFESSIONAL LABORATORY OR BY A LAB IN A MEDICAL PRACTICE?

	Expected results <i>Plasmodium falciparum</i> Type of slides: thin blood films		
	Laboratory		
	Private	Hospital	Medical practice
Average correct results in % (range)	82 (55 – 91)	82 (70 – 95)	80 (50 – 95)
Average returned answers (range)	20 (19 – 21)	24 (20 – 38)	10 (8 – 11)

⇒ NO

1.4 DO COMMENTS AND RECOMMENDATIONS GIVEN IN THE SURVEY'S REPORT IMPROVE THE RESULTS?



⇒ NO

2. Conclusion

THERE ARE SEVERAL REASONS THAT COULD EXPLAIN THE INSUFFICIENT RESULTS.

Weak self-assurance.

Incomplete knowledge of: parasite biology, identification criteria and malaria disease.

3. Recommendations for improved results

TO PARTICIPANTS	<ul style="list-style-type: none"> Continuous training Referral experts Well documented reference slides
TO THE CSCQ	<ul style="list-style-type: none"> Maintaining a personalised service (disponibility, advice, survey improvement ...)