

この調査と併せて行われている付帯調査では、年間測定件数と分布 1、2、3 の実数、自機関測定か外注か、検査結果報告の際のコメント、内部精度管理の実施状況などを調べ、集計している。この集計結果は、精度管理の向上のみならず、労働衛生行政の基礎資料としても役立てられている。

## 2. 諸外国における労働衛生に関する健診の精度管理の現状

### ドイツ

Erlangen-Nurnberg 大学を中心に、1982 年より、Round Robin 法による精度管理調査が行われている。血中金属 (7 種)、血中有機溶剤 (5 種類)、血中有機塩素系化合物 (12 種類)、尿中無機物 (14 種)、尿中有機物 (11 種類) が対象である。それぞれ 2 種類の濃度を測定する。調査は 1 年に 1 度で、2 種類の濃度とも、Mean  $\pm$  3 SD 内の値であれば、1 年間有効の証明書が出される。結果の通知例を表 5、図 1 に示す。

その他、一般の臨床検査を対象とした Deutche Gesellschaft fur Klinische Chemie (DGKC) による精度管理、Institute for Standardization and Documentation in the Medical Laboratory (INSTAND) による精度管理もある。後者では年 6 回の調査が行われている。

### イギリス

1973 年より、Surrey 大学、Robens Institute を中心に外部精度評価調査が行われていた。血中、尿中金属濃度について、3 種類の濃度を測定し、Mean  $\pm$  3 SD を基準として点数をつけ評価した。調査は、毎月 1 回行われた。その後、1995 年より、調査は、臨床検査全般を対象とした United Kingdom National External Quality Assessment Schemes (UK NEQAS) に引き継がれた。労働衛生関係の検査では、血中鉛・カドミウム (2 種類の濃度)、血中、尿中エタノール等 (1-3 種類の濃度)、血中亜鉛、銅、アルミニウム、セレンウム、金、水銀等 (3-4 種類の濃度) について、いくつかの部門ごとに分かれて行われる。調査は毎月行われる。世界各国から数多くの検査施設が参加している。

その他、やはり一般の臨床検査を対象したものではあるが、Wales External Quality Assessment Scheme (WEQAS) による精度管理もある。

参考: Workplace analysis scheme for proficiency (WASP):

政府機関の Health & Safety Laboratory により、年 4 回調査され、Good, Satisfactory, unsatisfactory の 3 段階の評価がされる。ただし、ヒトでの検査項目が対象ではなく、環境中の金属、シリカ、NO<sub>2</sub>、有機

物などを対象とする。

#### フランス

Institut National de Recherche et de Securite (INRS) によって、外部精度評価が行われる。2種類の濃度の検体を測定し、測定値が limit of goodness (Mean  $\pm$  3 SD) と limit of acceptance として設定された範囲にあるかどうかで、それぞれ点数化される。調査は、年6回行われる。

#### デンマーク

National Institute for Occupational Health によって行われている。5つの濃度のサンプルが用いられ、年に2回調査している。

その他、一般臨床検査の外部精度評価は、Dansk Institut for Ekstern Kvalitetssikring for laboratorier i Sundhedssektoren (DEKS) (Danish Institute for External Quality Assurance for Laboratories in the Health Sector) で行われる。

#### スペイン

Instituto Nacional de Seguridad e Higiene en el Trabajo (INSHT) により行われる。3つの濃度サンプルにより、毎月行われ、Mean  $\pm$  2 SD を基準としている。

一般臨床検査の外部精度評価は、Spanish Society of Clinical Biochemistry and Molecular

Biology (SEQC) によって、毎月、あるいは、年4回行われる。

#### オランダ

Leiden 大学病院の Toxicology Laboratory が中心になって、行われる。3つの濃度のサンプルにより、年4回行われる。Mean  $\pm$  3 SD が基準である。

#### ベルギー

政府機関 Scientific Institute of Public Health (旧 Institute of Hygiene and Epidemiology) によって、1993年から、血中鉛、カドミウム、セレン(94年から)などの血中濃度測定について外部精度評価を行っている。重金属については、3つの濃度のサンプルを用いて、年4回調査している。

#### アメリカ

Accutest、American Proficiency Institute といった non-profit organization による一般臨床向けの外部精度評価がある。いずれも、年3回調査が行われる。また、Bio-Rad External Quality Assurance Services といった commercial のもの(2週間毎に実施)、New Jersey、New York、Pennsylvania など州政府によるもの(年3回)がある。この他、CDC はいくつかの項目に絞って実施している。例えば、血中鉛の場合(CDC

Blood Lead Laboratory Reference Systems)、年4回の調査を行っているが、これは、労働衛生というよりも、むしろ小児の鉛中毒に対処するものであると思われる。

参考：Proficiency Analytical Testing (PAT) : American Hygiene Association と CDC の National Institute for Occupational Safety and Health (NIOSH) とが合同で行う。NIOSH が 1972 年に開始したのが始まりである。4種類の金属、結晶シリカ、3種類のアスベスト繊維、15種類の有機溶剤などから、毎回いくつか選ぶ。ヒトから得られたサンプルの測定ではない。濃度は4種類用い、年に4回行われている。Mean  $\pm$  3SD が基準である。

#### D. 考察

職域健康診断における労働衛生検査についてわが国で現在行われている外部精度評価は、優れた実績をあげていると考えられる。また、そのシステムも、諸外国のシステムと比べて、全く遜色のないものであるといえる。それどころか、同じ物質の検体サンプル（濃度）数は多く、また異常値を定める基準も厳格でさえある。しかしながら、調査の回数は年1回であり、通常3、4回、あるいは多いところでは月毎に調査する諸外国の例に比べると、少ないと

いえるかもしれない。従って、諸外国と比較した場合、職域健康診断における労働衛生検査に関するわが国の外部精度評価については、調査の簡略化と実施回数の増加が、今後の検討課題になりうるものと思われる。

#### E. 結論

職域健康診断における労働衛生検査について、その精度管理、特に外部精度評価に関して、我が国の現状および国際動向を調査し、概説した。我が国の外部精度評価はシステム、実績とも非常に優れたものであるが、諸外国のシステムと比較すると、今後、調査方法の簡略化と実施回数の増加を検討する必要性が示唆された。

(参考資料)

各国の外部精度評価

[http://www.phppo.cdc.gov/mlp/pdf/EQA/eqa\\_list.pdf](http://www.phppo.cdc.gov/mlp/pdf/EQA/eqa_list.pdf)

#### F. 健康危険情報

特になし

#### G. 研究発表

##### 1. 論文発表

和田 攻、柳沢裕之、栗原伸公：定期検診はこのままでよいか、総合臨床 52:40-43、 2003.

#### H. 知的財産権の出願登録状況

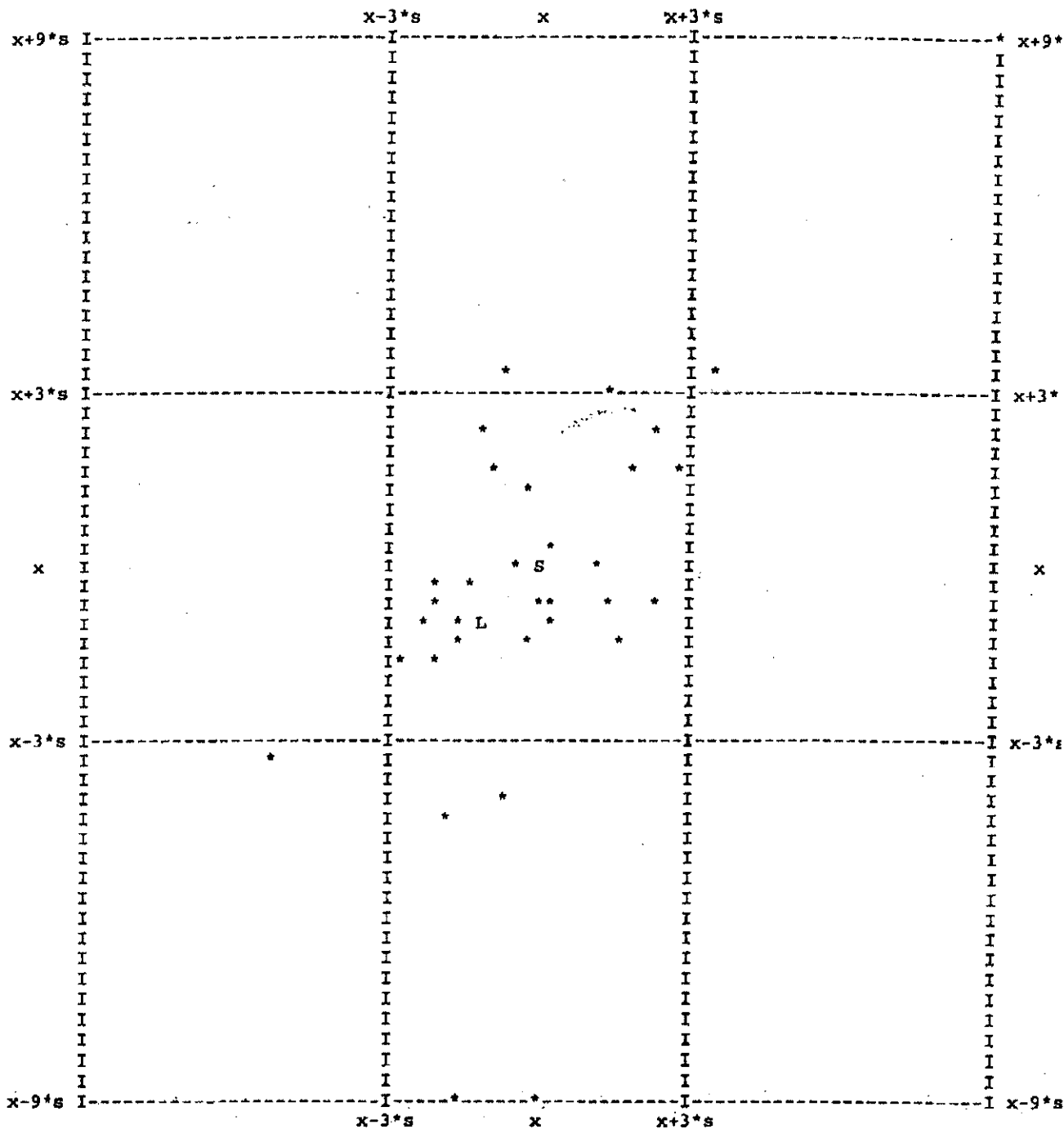
特になし

Occupational medical field

LAB No.: Dr.

( 39) TCA-U

	Reference value	SD	tolerance range		your result
	x	s	x-3*s	x+3*s	
Sample A:	28.0200	1.5683	23.3000	32.8000	26.50
Sample B:	89.2526	4.5599	75.5000	103.0000	85.70



	Sample A	Sample B
Your result	: 26.5000	85.7000
No. of participants	: 28	28
No. of results within the 9*s-range	: 27	26
Mean of results within the 9*s-range	: 27.7000	87.3731
SD	: 3.01	11.72
CV %	: 10.85	13.41
Both results within the 3*s-ranges	: 20 LAB(S)	
Both results outside the 9*s-ranges	: 1 LAB(S)	

表1 参加数および外部機関委託率

項目	報告数 (参加率)	自機関測定数 (率)	委託機関数 (率)	受託機関数
P b - B	337 (99.4%)	57 (16.9%)	280 (83.15%)	25
	324 (99.1%)	60 (18.5%)	264 (81.5%)	26
	312 (99.4%)	59 (18.9%)	253 (81.1%)	25
A L A - U	336 (99.1%)	55 (16.4%)	281 (83.6%)	23
	323 (98.8%)	58 (18.0%)	265 (82.0%)	26
	311 (99.0%)	56 (18.0%)	255 (82.0%)	24
H A - U	337 (99.4%)	69 (20.5%)	268 (79.5%)	30
	325 (99.4%)	72 (22.2%)	253 (77.8%)	30
	311 (99.0%)	71 (22.8%)	240 (77.2%)	31
M H A - U	337 (99.4%)	69 (20.5%)	268 (79.5%)	30
	325 (99.4%)	72 (22.2%)	253 (77.8%)	30
	311 (99.0%)	71 (22.8%)	240 (77.2%)	31
T T C - U	332 (97.9%)	36 (10.8%)	296 (89.2%)	18
	323 (98.8%)	43 (13.3%)	280 (86.7%)	19
	310 (98.7%)	42 (13.5%)	268 (86.5%)	20
T C A - U	328 (96.8%)	35 (10.7%)	293 (89.3%)	18
	318 (97.2%)	40 (12.6%)	278 (87.4%)	19
	307 (97.7%)	39 (12.7%)	268 (87.3%)	20
M A - U	336 (99.1%)	67 (19.9%)	269 (80.1%)	30
	323 (98.8%)	70 (21.7%)	253 (78.3%)	29
	311 (99.0%)	68 (21.8%)	243 (78.2%)	28
H D - U	335 (98.8%)	31 (9.3%)	304 (90.7%)	20
	323 (98.8%)	34 (10.5%)	289 (89.5%)	20
	309 (98.4%)	33 (10.6%)	276 (89.4%)	20

上段 (太字) : 第15回 (平成13年11月) 結果

中段 : 第14回 (平成12年11月) 結果

下段 : 第13回 (平成11年11月) 結果

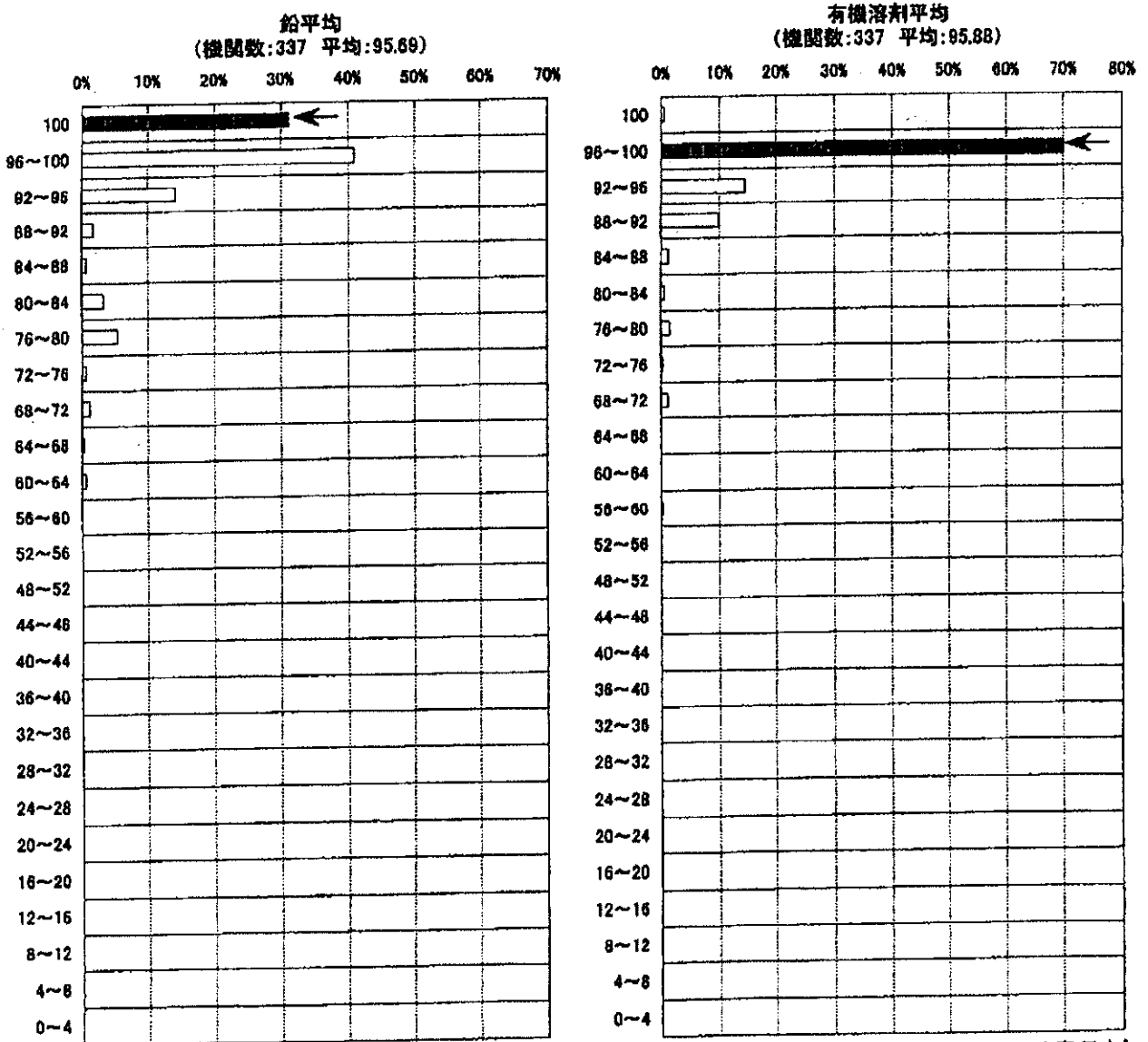
表 2

平成13年度 第15回鉛・有機溶剤に係る生体試料検査に関する精度管理調査 評価点一覧表

機関コード : \_\_\_\_\_ 機関名 : \_\_\_\_\_

項目名	外部機関コード	測定方法	測定値 (上段: 試料値 下段: 貴機関の測定値)									評価点					過去の評価点													
			①	②	③	④	⑤	⑥	⑦	⑧	⑨	①	②	③	④	⑤	回収率	再現性	PI	評価点 (44点)	偏差点 (100点)	第14回	第13回	第12回						
Pl-B	067	1-1	5.8 4.0	8.8 9.3	9.0 12.1	11.8 12.1	24.4 26.8	27.7 26.8	28.3 28.8	28.3 30.1	28.3 31.7	3	3	3	3	3	3	3	3	3	8	8	6	4	4	44	100.0			
ALA	057	3-4	0.8 0.8	1.8 1.8	2.0 2.2	2.2 2.8	2.8 4.9	2.8 4.9	11.7 8.9	12.7 12.8	14.2 14.7	3	3	3	3	3	3	3	3	3	8	8	6	4	4	44	100.0			
HA	057	4-1	0.28 0.28	0.48 0.31	0.50 1.13	1.11 1.13	1.81 2.01	2.09 2.09	2.88 2.88	2.88 3.19	3.19 3.71	3	3	3	3	3	3	3	3	3	8	8	6	4	4	43	97.7			
MHA	057	4-1	0.20 0.20	0.31 0.29	0.38 0.46	0.44 0.46	0.55 0.81	0.81 0.81	1.72 1.72	1.72 1.72	1.80 2.21	3	3	3	3	3	3	3	3	3	8	8	6	4	4	44	100.0			
TTC	057	5-1	8.8 8.7	21.4 27.4	27.4 203.0	212.8 212.8	240.0 241.8	241.8 242.8	211.8 181.8	228.8 228.8	240.2 248.8	3	3	3	3	3	3	3	3	3	8	8	6	4	4	44	100.0			
TGA	057	5-1	5.2 5.3	30.8 43.4	41.2 49.4	21.4 21.4	81.2 81.9	108.8 107.1	142.8 151.1	151.8 153.2	181.8 212.8	3	3	3	3	3	3	3	3	3	8	8	6	4	4	43	97.7			
MA	057	6-1	0.28 0.28	0.51 0.72	0.70 0.72	0.81 0.82	1.41 1.51	1.81 1.81	1.81 1.93	2.80 2.80	2.80 3.80	3	3	3	3	3	3	3	3	3	8	8	6	4	4	43	97.7			
HD	057	8-1	0.5 0.5	1.2 1.1	1.5 1.8	2.0 2.0	2.8 3.8	2.8 7.8	2.8 13.4	12.7 16.1	18.2 16.1	3	3	3	3	3	3	3	3	3	8	8	6	4	4	40	89.8			

表 3 平成13年度 第15回鉛・有機溶剤に係る生体試料検査に関する精度管理調査 評価点ヒストグラム  
 機関コード : \_\_\_\_\_ 機関名 : \_\_\_\_\_



■の部分(矢印←)が表示されている部分が貴機関の評価結果を示す位置です。未測定的项目については表示され  
 縦軸は100点換算の評価点で、横軸は件数の比率を表しています。  
 縦軸(96~100)は「96点以上100点未満」を示しています。

表 4 評価合計点の平均±標準偏差の年度別一覧表

回	年月 / 項目	Pb-B	FEP	ALA-U	HA-U	MHA-U	TTC-U	TCA-U	MA-U	MFA-U	HD-U
第1回	昭和63年10月	84.4±22.96	81.2±26.56	90.0±14.96	90.0±18.96	81.6±30.86	90.4±17.76	85.2±18.20	90.4±16.88	---	---
第2回	平成元年2月	88.4±18.80	85.2±13.96	91.6±13.20	90.0±15.40	88.8±23.00	93.6±15.48	92.8±15.76	86.8±22.36	---	---
第3回	平成元年10月	93.6±13.16	90.8±14.36	91.2±13.24	88.8±18.32	88.0±21.16	92.4±9.68	91.2±9.76	87.2±18.76	---	---
第4回	平成2年10月	94.8±12.76	88.9±18.11	86.8±18.24	93.6±13.52	94.8±13.76	86.8±19.36	89.6±21.76	94.4±13.68	91.6±17.72	91.2±13.36
第5回	平成3年10月	93.4±15.13	83.1±22.92	79.0±21.54	90.7±15.61	92.3±17.07	86.8±19.59	88.7±18.43	93.1±15.23	88.1±21.59	83.3±22.06
第6回	平成4年12月	91.3±13.98	---	90.5±12.96	89.1±14.02	93.7±9.86	94.2±13.15	96.0±13.91	88.0±11.45	92.8±14.66	---
第7階	平成5年12月	91.8±13.11	86.5±14.08	93.5±11.85	96.0±7.33	95.0±9.99	94.7±11.43	93.7±11.84	95.5±8.24	95.2±12.70	92.7±15.15
第8回	平成6年12月	94.6±10.70	89.8±13.46	94.3±11.04	94.7±8.65	96.5±9.95	93.6±8.03	93.6±8.75	96.6±8.09	94.6±13.24	93.3±12.53
第9回	平成7年12月	93.1±14.26	---	87.0±18.65	94.1±11.88	95.2±11.10	86.9±11.28	92.1±13.19	94.2±13.12	---	89.2±14.05
第10回	平成8年12月	92.6±10.9	---	92.5±10.5	95.9±11.5	96.0±12.0	85.3±15.9	87.5±16.8	96.1±10.9	---	86.9±15.3
第11回	平成9年12月	94.6±9.2	---	93.2±9.2	94.2±8.7	93.9±9.7	95.5±8.9	97.3±6.9	93.2±8.9	---	96.0±8.0
第12回	平成10年11月	91.1±11.3	---	91.5±11.7	96.5±6.4	96.7±10.8	92.8±9.8	96.4±9.6	96.8±8.1	---	96.0±10.2
第13回	平成11年11月	94.7±9.55	---	95.1±9.81	95.7±9.93	95.6±12.09	95.5±10.35	94.9±10.92	95.0±10.77	---	92.4±13.24
第14回	平成12年11月	94.0±9.35	---	97.1±8.66	96.8±9.56	94.9±8.27	94.9±8.71	95.2±8.74	95.2±7.35	---	93.3±8.25
第15回	平成13年11月	95.6±8.15	---	95.9±9.41	96.1±6.00	96.4±7.87	95.4±11.25	94.8±8.62	96.6±7.99	---	96.0±7.57

表 5 Prof. Dr. H. Drexler

on behalf of

German Society of Occupational Medicine and Environmental Medicine e. V.

Round Robin 26

2000/01

c/o Institute for Occupational, Social and Environmental Medicine

Schillerstr. 25 and 29

D-91054 Erlangen / Germany

LAB No.: 582

Occupational medical field

Parameter	I	evaluation	I	your result	I	ref. value	I	tolerance range	I
	I		I		I		I		I
( 36) Phenol-U	A	I	+	I	17.4000	I	18.389	I	13.600 - 23.200
	B	I	+	I	55.8000	I	57.242	I	44.100 - 70.400
( 39) TCA-U	A	I	+	I	26.5000	I	28.020	I	23.300 - 32.800
	B	I	+	I	85.7000	I	89.253	I	75.500 - 103.000
( 44) N-Methylformamide-U	A	I	+	I	4.8000	I	4.871	I	3.300 - 6.500
	B	I	+	I	13.2000	I	13.826	I	10.700 - 17.000
( 45) 2,5-Hexandione-U	A	I	+	I	3.5000	I	3.811	I	2.800 - 4.800
	B	I	+	I	6.6000	I	7.236	I	5.500 - 9.000



Inventory Of External Quality Assessment Programs

Country/ Region	Program Name	Contact / E-mail	Address	Web Site	Affiliation	Specialties	Challenge Frequency	Participant Type/Numbers	Fee	Notes
Argentina	Programa Buenos Aires (ProgBA)	progba@cemic.edu.ar	Galvan 4102, 1431 Buenos Aires, Argentina, Phone +54 11 4546 8254, FAX + 54 11 4543 4240? 4546 1142	www.cemic.edu.ar/ NVESTIG/progba. htm	Academic	Chemistry, Hematology, Immunology/Serology, Newborn Screening	Monthly	Public and private laboratories in Argentina and other parts of Latin America/ 381	Yes	Established in 1979
Argentina	Programa de Evaluación Externa de Calidad (PEEC)	dmpeec@netverf.com.ar	Calle 6 #1344, La Plata (1900), Argentina Phone - +54-221-4231 Fax - +54-221-4232021	www.fba.org.ar		Clinical Chemistry, Hematology, Parasitology, Bacteriology, Serology, Urine Coagulation, Instrumental Control, Immunology, Blood Gases, Therapeutic Drug Monitoring, Endocrinology, Tumor Markers, Newborn Screening, Mycology, HIV Viral Load	Depending on the specialty, from monthly to twice a year.	3350 laboratories Public and private hospitals, private laboratories, manufacturer's laboratories, high and low complexity) at national level.	Yes	Participation in International Schemes from WHO through respective specialties in Clinical Chemistry, Hematology, Parasitology and Bacteriology. Syphilis scheme from CDC. The Web site is in Spanish but translated link in English is under construction.
Australia	National Serology Reference Laboratory Quality Assessment Program (NRL QAP)	chris@nrl.gov.au	National Serology Reference Laboratory, 4th Floor, Healy Building, 41 Victoria Parade, Fitzroy VIC 3065 Phone-(03) 9418 1111 Fax-(03) 9418 1155	www.nrl.gov.au/		Immunology - HIV, HCV, and HTLV Serology, Measles and Rubella serology, Chlamydia trachomatis Microbiology - HIV and HCV nucleic acid testing Molecular Infectious disease	2 - 3 times per year with up to 10 challenges	Australia		accredited to ISO Guide 25 and certified to the ISO9001 standards
Australia	RCPA Quality Assurance Programs PTY Limited	s.bryant@shon.com.au	207 Albion Street, Surry Hills NSW 2010, Australia - Phone- 61 2 8356.5800 (program office), 613 9594.4310 (Prof. Bryant) Fax - 61 3 9594.2061 (Prof. Bryant)	www.rcpaqap.com	Professional	Chemistry - General, Tox, Endocrine, Gases, Urine, Biogenic Amines, Neonatal Bilirubin, CO-oximetry, IGF 1/C Peptide, Glycohaemoglobin, Near Patient Testing, Porphyrias, Lipids, Drugs and Antibiotics, Tumour Markers, Urine Pregnancy, Alcohol/Ammonia, Vitam	3-24 times per year, depending upon module	Varies from program to program from 20 to 600 Australia, New Zealand, International	Yes	
Belgium	Belgian Official EKE schemes	jean-claude.libee@iph.fgov.be	Scientific Institute of Public Health, Clin Biol. Dept., J. Wytsmastraat 14, B-1050 Brussels, Belgium Phone 322 642 55 27 Fax- 322 642 56 45	www.iph.fgov.be/ linBioIUK/index.h tm	Government	Chemistry, Immunossays, Immunohematology, Immunology, Virology, Microbiology, Parasitology, Flow cytometry, Sperm analysis, Allergens Hematology - Coagulation				

Country/ Region	Program Name	Contact / E-mail	Address	Web Site	Affiliation	Specialties	Challenge Frequency	Participant Type/Numbers	Fee	Notes
Belgium	HIV-1 Genotyping Proficiency Testing Program	Paula McKenna@virc olab.com	VIRCO, Gen. De Wittelaan L 11B/4, B-2800, Mechelen Phone - 32 15 286 320 Fax - 32 15 286 346	www.vircolab.com	Commercial: Vircol	Microbiology - Virology (nucleotide sequencing)	3 times per year	International, open and voluntary	No	
Bolivia	Egas Clin Chem Bolivia	carcam@albaros.edu bo			Chemistry					
Brazil	Citomeidia Imagens	petrodiss@citomeidia.o rg.br		www.citomeidia.org br		Cytology				digital pictures sent via internet
Brazil	Egas Brazil		Quality Control Comission, Sociedade Brasileira de Patologia Clinica, Departamento de Patologia Clinica da AMB, Rua Dois de Dezembro, 78, CEP 22220-040, Rio de Janeiro, Brazil Phone 55 21 205-3491, FAX 55 21 205-3386			Bacteriology, Chemistry, Coagulation, Hematology, Immunology, Parasitology				
Brazil	PELM: Programs of External Quality Control	control@psinet.com br	Rua Ana Neri, 416 Beaticas, 20911-440, Rio de Janeiro - RJ, Brasil Phone - 55 21 3891.9900 Fax- 55 21 3891.9901	www.control- lab.com.br		Chemistry - General, Tox, Urine Hematology - Basic Coagulation Microbiology - Bacteriology, Mycology, Mycobacteriology Immunology, Immunohematology				
Brazil	PICQ-MM: Programs of Incentive to Quality Control	sbp@sbp.org.br	Rua Ambrosina de Macedo, 79, 04013-030, S. Paulo - SP, Brasil Phone - 55 11 5571.5298 Fax - 55 11 5572.5349	www.sbp.org.br		Anatomic Pathology	4 times per year, send 8 cases by CDROM	150	Yes	
Brazil	PNCG - National Program of Quality Control	pnccq@pnccq.org.br	Rua Vicente Licinio, 95 Tijuca, 20270-902, Rio de Janeiro - RJ - Brasil Phone - +55 21 2568 1141 Fax: +55 21 2569 8925	www.sbatc.org.br		Chemistry - Urinalysis Cytology Hormones and Lipoor, Immunology, Tumor markers and Drugs, Microbiology		1900 Brazil, Paraguay	Yes	

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Canada	Canadian Immunology Quality Assessment Program (CIQAP)	Frank_Mandy@HC- SC OC CA	Health Canada LCDC, 0603B1 Tunney's Pasture Ottawa, Ontario K1A 0L2	www.HC- SC.OC.CA/PPHB- DGSPSP/NLHI- LNIV/index.html	Government	HIV Immunology	6 Time per year	Clinical laboratories from the Canadian HIV Trials Network (CTNY) 50		
Canada	CEQAL	dsecombe@ceqal.co m	307-2083 Alma St., Vancouver, BC, V6R 4N6, Canada Phone - (604) 222-1355 (Ext. 4) Fax - (604) 222-1373			Andrology Chemistry - General, Lipids (lipid reference methods) Hematology, Transfusion Medicine, Clinical Microscopy, Diagnostic Immunology, Microbiology - Bacteriology, Mycobacteriology, Mycology		500 - Canada, mandated in 4 provinces, also some US labs		
Canada	Clinical Microbiology Proficiency Testing (CMPT)	cmp@interchange ub c.ca	CMPT, Room 328A, 2788 Heather Street, Vancouver BC Canada V5Z 1M9 Phone - 604.875.4685 Fax - 604.875.4100 e-mail - cmp@interchange.ubc.ca	www.cmpt.ca		Microbiology - Clinical Bacteriology, Gram stain, Mycology, Parasitology, Water Bacteriology	4 send-out per year. Variable number of samples per send-out	National, some international mandated and voluntary	Yes	
Canada	College of Physicians and Surgeons of Alberta	Imelnik@cpsa.ab.ca	900 Manulife Place 10180-101 Street, Edmonton, Alberta T5J 4F8 Phone - (780) 970- 6208 Fax - (780) 420- 0651	www.cpsa.ab.ca		Hematology - Basic, Coagulation, Immunohematology	6 - 12 challenges per year depending on specialty	239 (public and independent)	Yes	
Canada	DigitalPT	dsecombe@HealthM atrx.com	HealthMentr, #307-2083 Alma St., Vancouver, BC V6R 4N6	www.digitalPT.co m	Canadian External Quality Assessment Lab	Andrology Chemistry - General, Lipids (lipid reference methods) Hematology, Transfusion Medicine, Clinical Microscopy, Diagnostic Immunology, Microbiology - Bacteriology, Mycobacteriology, Mycology				
Canada	Le Centre de toxicologie du Quebec (INSPQ)	ctq@inspq.qc.ca	Centre de toxicologie, Direction de la toxicologie humaine, INSPQ, 945 Wolfe Avenue, Sainte- Foy, G1V 5B3 Quebec, Canada Phone: 418-654- 2254	http://www.ctq.qc.ca/ a/		Toxicology - trace metals in blood, serum, and urine				

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Canada	QMPLS - Quality Management Program - Laboratory Services	webmaster@qmpls.org	Quality Management Program-Laboratory Services, 1510 - 250 Bloor Street East, Toronto, Ontario M4W 1E6	www.qmpls.org		Chemistry - Basic, Enzymes, Lipids, Endocrine, Tox, Maternal Serum Screening, POCT Immunology, Immunohematology, Microbiology - Bacteriology, Mycology, Parasitology, Virology Genetics - Molecular, Cytogenetics	2 to 4 times per year, varies by specialty and subspecialty			
Canada	Quality Assessment Program for Measures Relevant to HIV/AIDS (QASI)	Frank_Mandy@HC-SC.GC.CA	Health Canada LCDC, 0603B Tunney's Pasture Ottawa, Ontario K1A 0L2	www.HC-SC.GC.CA/PPHB-DGSPSP/NLHI-LNIV/index.html	Government	HIV Immunology	Twice per year	Laboratories in 46 countries/ 150		
China (People's Republic of China)	CNEQAS -Chinese National External Quality Assessment Schemes	cnccl@mx.cei.gov.cn	EQA Laboratory, National Center for Clinical Laboratory, IDahua Road, Dongdan, Beijing Hospital Compound, Beijing 100730, P.R. China Phone - 8610-65273025 Fax - 8610-65132969	www.clinet.com.cn	Government	Chemistry - Basic, Enzymes, Lipids, Dry Chemistry, Endocrine, Carcic markers, Tumor markers, Special Protein, Neonatal Screening, Urinalysis Hematology- Basic, Coagulation, Flow Cytometry, Microbiology	2 to 3 times per year, varies by specialty and subspecialty	National, open voluntary	Yes	accredited to ISO Guide 25
China (People's Republic of China)	Eqas China	clab@publicz.sta.net	Shanghai Center for Clinical Laboratories, 3/120 Tan An Road, Shanghai 200052, China FAX 86 21 6283 0935			Bacteriology, Chemistry, Coagulation, Hematology, Immunology				
Congo, Democratic Republic	Eqas INRB Congo	INRB-Congo@MAF.org	Director, Institute de Recherche Biomedicale, Av. Des Huitenes, Kinshasa, Congo Phone 00243 88 43349			Chemistry, Coagulation, Hematology, Immunology, Microbiology				
Cuba	Eqas CECMED-MINSAP Cuba	secal@cecmad.sld.cu	CECMED-MINSAP, Calle 23 Nol 177, Ciudad de la Habana, CP-10600, Cuba			Chemistry, Hematology				
Cuba	External Quality Assurance and Assessment Program (EQAAP)	ecexterno@cie.sld.cu	Immunoassay Center, PO Box 11600, Calle 134 y Ave. 25, Rpto. Cubanacán, Playa, Havana, Cuba. Phone - 28-25-42 28-29-29 Ext 205 Fax -28-65-14			Immunology - Infectious disease, inborn metabolic disease, Immunooassays	Monthly (Quantitative assays 2 controls and Qualitative assays 8 controls)	116 - National (mandated); some international (voluntary)		Program started in 1988. Participation in some International Schemes.

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Cuba	NEQAS Cuba		National Reference Laboratory, Hnos. Amejinas Hospital, San Lazaro 701, Havana 3. Cuba Phone 53 7 635072, FAX 33 7 335036		Chemistry					
Czech Republic	SEKK-EQA	sekk@sekk.cz	SEKK spol. s r.o., Bartolom jska 90, 530 02 Pardubice, Ceska republika, and P.O. box B35, 530 02 Pardubice, Ceska republika Phone - 420-40-6530 230 Fax - 420-40-6530 824	www.sekk.cz	Chemistry, Hematology - Immunohaematology, Immunology					
Denmark	Dansk Institut for Evtrem Kvalitetsikring for laboratorier i Sundhedssektoren, DEKS (Danish Institute for External Quality Assurance for Laboratories in the Health Sector)	adam.uldall@deks.dk	54 M1, Hertlev Universitets Hospital, DK- 2730 Denmark Phone - 454488 3310 Fax - 454453 5369 e-mail: deks@deks.dk,	www.deks.dk/						website is in Danish - DEKS provides essentially all surveys in Denmark, but most of the schemes are purchased abroad (from Dr. Uldall)
Egypt	Eqaas Egypt		Central Health Laboratory, 19 Shaikh Riban Street, Falaky, Cairo		Chemistry, Coagulation, Hematology					
Eritrea	Eqaas Hem Eritrea		Ministry of Health, Central Health Laboratory, Abiot Street 83, P.O.B. 1686, Asmara, Eritrea		Hematology					
Ethiopia	Eqaas HIV Ethiopia	etsa@erth.healthnet.or	Ethiopian Health and Nutrition Research Institute, Addis Ababa, Ethiopia Phone 00251 1 731522 FAX 00251 1 754744		HIV					

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Europe	ERNDIM EQAS - The European Research Network for the evaluation and improvement of screening, diagnosis and treatment of Inherited Metabolic Disorders External Quality Assessment Schemes	baudouin.francois@luc.ac.be	Phone - 44 114 271 7404 (Dr. Bonham) Fax -44 114 276 6205 (Dr. Bonham) e-mail: sstemj@vip.solis.co.uk	www.ernimqa.nl/		Chemistry - Metabolic disease assays	7 schemes, quantitative schemes shipped once per year, qualitative schemes 2-3 times per year	total of 220 primarily European countries, some offered worldwide	Yes	
Finland	Institute of Occupation Health		Biomonitoring Laboratory, Arinatie3, SF-00370 Helsinki, Finland Phone- 358-0-558961 Fax- 358-0-556157			Chemical Exposures - Mandelic acid, Phenol, Trichloroacetic acid, Methylhippuric acid				
Finland	LABQUALITY EQAS	mauri.keinanen@labquality.fi	Labquality, Ratamestarinkatu 11, FIN-00520, Helsinki, Finland Phone - 358 9 2293 3230 Fax -358 9 2293 2310	www.labquality.fi		Chemistry - General, Lipids, Hormones, Andrology, Tox, Tumor Markers, Urine Andrology Hematology - General, Coagulation Immunology Instrumentation Microbiology - Bacteriology, Virology, Parasitology Histopathology Cytology- Anatomic Pathology - Genetics- C	1 to 6 times per year	2280 labs in 1999 - International (32 countries in 1999)	Yes	ISO 9002 certified since 1996
Germany	DGKC - Deutsche Gesellschaft für Klinische Chemie (German Society for Clinical Chemistry)	info@DGKC-online.de	Referenzinstitut für Biomalytik (Reference Institute for Bioanalytics), Im Mujjembach 52a, D-53127, Bonn Phone - 0228/21 50 25/26 Fax - 0228/21 15 29	www.dgkc-online.de		Chemistry - General, Tumor markers, lipids, urine, blood gases, Tox Immunology - Immunohematology Hematology - Coagulation, Molecular Pathology, Photometer control				
Germany	INSTAND, Institute for Standardization and Documentation in the Medical Laboratory	instand@uni-duesseldorf.de	INSTAND d. V., Ubierring 2D, D-40223, Dusseldorf Phone - 49(0)211 1592130 Fax - 49(0)211 159213-32	www.instand-ev.de		Chemistry - General, Tox, blood gases, tumor markers, hormones Hematology - General Coag. Immunology, Immunohematology Microbiology - Bacteriology, Mycology, Mycobacteriology, Parasitology, Virology, Genetics, POCT	6 times per year		Yes	Reference Method Values
Hungary	QualiCent		University of Szeged, Biochemistry Dept., Szeged, Hungary		Academic	Chemistry, Microbiology			Yes	

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India	Eqas AIIMS India		Pathology Department, All India Institute of Medical Sciences, Ansari Nagar, New Delhi 110 029, India			Bacteriology, Hematology					
India	Eqas Clin Chem India		Department of Biochemistry, Postgraduate Institute of Medical Education and Research, Chandigarh - 160012, India FAX 0091 416 32103			Chemistry					
India	Eqas Microbiology India	abraham@cmc.ernet.in	Christian Medical College Hospital, Department of Clinical Microbiology, Ida Sudder Road, P.O.B. 3, Vellore, Tamil Nadu 632004, India Phone 91 416 22101 FAX 91 416 32103			Microbiology					
India	Eqas Varansi India		Pathology Department, IMS, BHU, Varanasi 221 005, India			Chemistry					
Indonesia	Eqas Bacteriology Indonesia		Persahabatan General Hospital, Jl. Persahabatan No. 1, Rawamangun, Indonesia			Bacteriology					
Indonesia	Eqas Indonesia		Ministry of Public Health, Provincial Health Laboratory, Jl. Sederhana No. 5, Bandung - 40161, Jawa Barat, Indonesia			Bacteriology, Chemistry, Coagulation, Hematology, Immunology, Parasitology					Other Provincial laboratory locations include: Ngadinegaran, Palembang, Semarang, Surabaya, and Yogyakarta
Indonesia	Eqas Jakarta Indonesia		Center for Health Laboratory, MOH, Jalan Hr. Rasuna, Said Block X5, Kav. No. 9, Jakarta 12950, Indonesia Phone 62 21 5201 590 FAX 62 21 5225 589			Bacteriology, Chemistry, Hematology, Immunology, Parasitology					

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Iran	Eqs Clin Chem Iran		Central Laboratory for Quality Control, Clinical Laboratories Specialists Association, P.O.B. 14155-1746, Tehran, Iran FAX 98 21 931568			Chemistry				
Iran	Eqs RLI Iran		Reference Laboratory of Iran, Bo-Ali Hospital, Tehran, Iran FAX 98 21 3796373			Bacteriology, Chemistry, Hematology				
Ireland	IEQAS, Irish External Quality Assessment Schemes	ieqas@eircom.net	IEQAS, P.O. BOX 4157, Dublin 14, Ireland	www.ieqas.ie/ www.hiteqa.demon. co.uk		Chemistry - General, myocardial markers, blood gases, HbA1C Hematology		49 - Ireland (over 80% of all Irish hospital labs)		
Ireland, UK	HTEQA - Histopathology Technology External Quality Assessment		7 The Elms, Ringmer, east Sussex, UK, BN8 5EZ			Histopathology				
Italy	Bio-Dev, VEQ Europa	info@biodev.com	S.S. Sempione, 32 20015 S. Lorenzo di Parabiago, Milan, Italy Phone: +39 0331.555989 a.r. FAX: +39 0331.552418 a.r.	www.biodev.com	Commercial	Chemistry, Hematology, Coagulation, Microbiology				
Italy	Gyatedi Hemoglobin External Quality Assessment Scheme	diaglabspec@manarini .it	Manarini Diagnostici, Marketing Linea Diabete, A. Menarini Diagnostico, Via Lungo l'Elma 7, 50015 Grassano, Firenze, Italy Phone - 055 56 80 394 Fax 055 56 80 905	www.glicata.org		Chemistry - Hemoglobin A1c only	2 times per year		Yes	Cycles noted for 1999 and 2000, unclear if this is a continuing program



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Italy	IMMUNOSURVEY EQA-15 (External Quality Assessment Immunology Schemes) Italian name - Programma di Valutazione Esterna di Qualità (VEQ) in Immunometria	angelo.maggio@eqa- is.org.it	Medical Systems S.p.A. Via Rio Torbido, 40, I- 16165, Genova, Italy Phone - program office: 39 010 83401 Dr. Maggio: 39 010 8340 277 Fax -39 010 8340311 Office email: veq@medicalsystems.it	www.eqa-is.org	Commercial Medical Systems S.p.A. (Medical Systems S.p.A. is a member of EQALM, European Committee for External Quality Assurance programmes in Laboratory Medicine and ECLM, European Confederation of Laboratory medicine)	Chemistry - Immunology, TORCH, allergen specific and total IgE, prenatal markers Immunology, Immunohematology	4 times per year since 1998 (10 schemes in 2001)	540 - Open & Voluntary - Italy plus San Marino and Vatican City	No. Primarily education al and non- profit PT service	Medical Systems S.p.A. established in 1977, is ISO 9002 certified since 1998 for Commercialisation of in vitro diagnostic reagents and systems, pre and post sales assistance and training courses for users of the commercialised systems
Japan	JAMT - Japanese Association of Medical Technologists External Quality Survey Program		Japanese Association of Medical Technologists: Omori-ku 4-10-7, Ota- ku, Tokyo #143-0016, Japan Phone - +81-3- 3768-4722 Fax - +81-3- 3768-6722	www.jamt.or.jp	Organization: Japanese Association of Medical Technologists	Chemistry, Hematology, Immunology, Microbiology, Cytology, Blood banking, Anatomic Pathology, Microscopy, Clinical Physiology	Chemistry: 1900, Hematology: 1900, Immunology: 1800, Microbiology: 1200, Cytology: 1200, Blood Bank: 1200, Anatomic Pathology: 800, Microscopy: 1900, Clinical Physiology: 1400 - Japan	Yes		
Japan	JARCL - Japanese Association of Registered Clinical Laboratories External Quality Survey Program		JARCL, Nibaracho 5, Chiyoda-ku, Tokyo #102- 0084, Japan Phone - +81- 3-3262-2326 Fax - +81-3- 3234-9669		Organization Japanese Association of Registered Clinical Laboratories	Chemistry, Hematology, Immunology, Microbiology	Chemistry: 310, Hematology: 310, Immunology: 270, Microbiology: 130 Japan - restricted to Registered Clinical Labs	Yes		

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Japan	JMA - Japan Medical Association External Quality Survey Program	Higashi@po.med.or.jp P	EQSP Committee Motokomagome 2-28-16, Bunkyo-ku, Tokyo #113- 8621, Japan Phone . +81- 3-3946-2121 Fax . +81- 3-3946-6295	www.med.or.jp		Chemistry, Hematology, Immunology, Immunohematology, Microbiology		2600 - Japan	Yes	
Jordan	EqaS Bacteriology Jordan		Director, Central Laboratory, MOH, P.O.B. 910382, Amman 11191, Jordan			Bacteriology				
Jordan	EqaS Clin Chem Jordan		Dept. of Biological Sciences, Faculty of Sciences, University of Jordan, Amman, Jordan			Clinical Chemistry				
Jordan	EqaS Immun Jordan		Laboratory Directorate, MOH, P.O.B. 511, Amman 11118, Jordan			Immunology				
Kenya	EqaS Clin Chem Kenya		College of Health Sciences, P.O.B. 19676, Nairobi, Kenya			Chemistry				
Kenya	EqaS Microbiology Kenya		AMREF, P.O.B. 30125, Wilson Airport, Nairobi, Kenya, Phone 2542 506112			Bacteriology, Hematology, Parasitology				
Korea, North (DPR)	EqaS DPR Korea		Department of Treatment and Prevention, Ministry of Public Health, Pyongyang, North Korea			Chemistry				

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Korea, Republic of	Korean External Quality Assurance Scheme (KEQAS)	jqkim@plaza.snu.ac.kr	Department of Clinical Pathology, Seoul National University Hospital, 28 Yongon-dong, Chongno-gu, Seoul 110-744, Korea Phone - 82-2-760-3326 Fax - 82-2-764-6542, 745-6653			Chemistry - General, TDM, urine, inborn errors of metabolism, Hematology, Immunology, Immunohematology, Microbiology/Molecular biology, Inborn errors of metabolism	Range 10-2, Clinical Chemistry(10 trials), Diagnostic hematology(3), Diagnostic Microbiology(3), Diagnostic Immunology(3), Blood Bank(3), Urinalysis and Routine Microscopy(2), TDM(2), Immunoassay(2), Molecular Biology(2), Inborn Error of Metabolism(2)	300 - National Voluntary, but recommended by the Government	Yes	
Lithuania	EQA-PKU - External Quality Assurance for molecular genetic testing for Phenylketonuria	vaidutis.kuinskas@mfvu.lt	Phone - 320-2-365195 Fax - 320-2-365199	www.genetichuma.na.lt/MOLGENT... pages/eqa-pku.htm		Chemistry - PKU only	New program to begin pilot testing in second half of 2001	Pilot test with 10-15 European laboratories		
Malawi	HIV Reference Laboratory (HIV EQAP)	abamaba@sdnp.org.mw	HIV Reference Laboratory, Queen Elizabeth Central Hospital, P.O. Box 30142, Chichiri, Blantyre 3, Malawi			Immunology - HIV, HBsAg and (VDRL/RPR/TPHA) Serology	Twice yearly	62 Laboratories - ( 29 Government laboratories, 28 Private laboratories 2 Police and Military, 2 Estate clinics, and 1 Project laboratory) National		
Malaysia	Eqas Clin Chem Malaysia		Division of Biochemistry, Institute for Medical Research, Kuala Lumpur 50588, Malaysia			Chemistry				
Mauritius	Eqas Clin Chem Mauritius		Central Health Laboratory, Canados, Mauritius Phone 00230 4257118 FAX 00230 4245848			Chemistry				

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Mexico	Eqas Mexico		Asociacion Mexicana de Bioquimica Clinica (AMEC), Torres Adalid 508, Colonia del Valle, 03100 Mexico, D.F. Phone 52 687 84039529			Bacteriology, Chemistry, Hematology, Parasitology				
Mozambique	Programa Nacional de Garantia de Qualidade de Diagnostico de HIV (PNPQ-HIV)	stakserg@yahoo.com	Department of Immunology-Instituto Nacional de Saude (NIH) - Ministry of Health - Maputo, P.O. Box 264 Mozambique Phone - 258- 1-431103 Fax -258-1- 431103			Immunology, Medical Virology, Molecular Infectious Disease				Testing primarily HIV, but includes other retroviruses and vaccine preventable diseases
Myanmar	Eqas Myanmar		National Health Laboratory, 35 Hmaw Kun Teik Street, Yangon, Myanmar			Chemistry, Hematology, Immunology, Microbiology				
Namibia	Eqas Namibia	lsdodos@iwnn.com.na	Deputy Director of Laboratory, P.O.B. 277, Windhoek, Namibia			Hematology, Parasitology				
Nepal	Eqas Nepal		National Public Health Laboratory, Teku, Kathmandu, Nepal			Chemistry, Hematology, Microbiology				
Netherlands	CLB Viral Diagnostic Laboratory Viral Quality Control (VQC)		Plesmanlaan 125 1066 CX Amsterdam The Netherlands Phone - +31 20 512432 Fax - +31 20 512528			HIV-1 RNA (quant), HCV (quant), CMV (quant), Parvovirus B19 (quant), HA V (quant), HSV (quant), Chlamydia trachomatis (quant)	1X per year			
Netherlands	ECAT EQAP - European Concerted Action on Thrombosis Extremal Quality Assessment Program	P.Meijer@ecat.nl	ECAT Foundation, PO Box 2215, 2301 CE LEIDEN, the Netherlands Phone - 31.71.5181496 Fax - 31.71.5181330	www.ecat.nl		Hematology -Coagulation Genetics - Molecular tests for Thrombosis Molecular biology	Coag is 4 times per year and molecular biology 2 times per year	325 - (July 2001) Worldwide	Yes	This programme started in 1993 as an European EQAS but now operates worldwide. The programme is mainly focused on laboratory tests involved in the screening for thrombophilia