The Challenge for External Quality Assessment in Allergy

Workshops in Portugal 2006
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UK NEQAS Objectives

- To provide laboratories with an objective assessment of performance both within the laboratory and in relation to that of other laboratories
- To provide information on the relative performance of available kits and methods
- To identify factors associated with good and poor performance
- To monitor and improve the between-laboratory agreement

The primary role of UK NEQAS is education!

UK NEQAS Objectives

- The aim of UK NEQAS is to improve:
  - agreement across methods of qualitative results – **specificity**
  - agreement across methods of quantitative results - **?accuracy**

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EuroEQAS for Specific IgE

- Established in 1984
- 400 participants, 300 from outside UK

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EuroEQAS for Specific IgE

- Programme 'potentially' surveys laboratory performance in the identification and quantitation of common or clinically important IgE specificities
- Participants are invited to return data on 15 different allergens

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EuroEQAS for Specific IgE

- D1 Dermatophagoides pteronyssinus
- E1 Cat epithelium
- E5 Dog dander
- F1 Egg white
- F2 Cow's milk
- F13 Peanut
- F17 Hazel nut
- G6 Timothy grass
- I1 Bee venom
- I3 Wasp venom
- K82 Latex
- M3 Aspergillus fumigatus
- M6 Alternaria tenuis
- T3 Birch
- W6 Mugwort

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Performance Scoring

- **Qualitative** and/or **Quantitative** responses recorded for each analyte.
- **Grades** are assessed in relation to a consensus (90%) designed response.
- **Numerical data** are assessed by Variance Index Scoring.

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Validation of Samples

- The definition of the allergen specific target responses is becoming more difficult due to the proliferation of methods now available.

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Validation of Samples

- **Qualitative data –** case for reviewing use of 90% of consensus for scoring!

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Validation of Samples

- Immunoblotting can be helpful but ……..
- Peanut contains several allergenic components which are associated with distinct clinical symptoms or severity of clinical reaction

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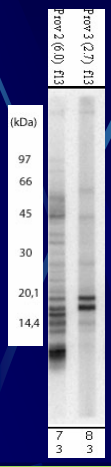
Immunoblotting Peanut



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Validation of Samples

- Cross reactivity is well established in allergy.
- Grass reactive antibodies cross react with a number of pan allergens in foods of plant origin – often without clinical food allergy.

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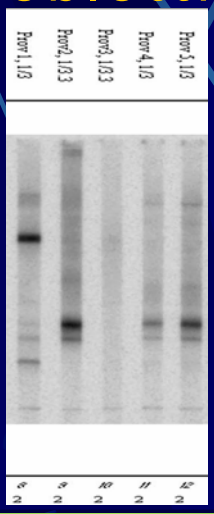
Immunoblotting Dog



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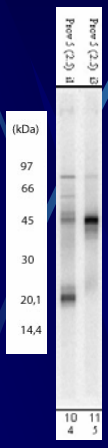
Immunoblotting Bee and Wasp



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What are ***we*** measuring?

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Performance Scoring

- The introduction of single donor sera rather than pooled material which had traditionally been distributed in the EQA programme has resulted in significant improvement of between – method agreement in Grades.
- Nevertheless, some major anomalies remain.

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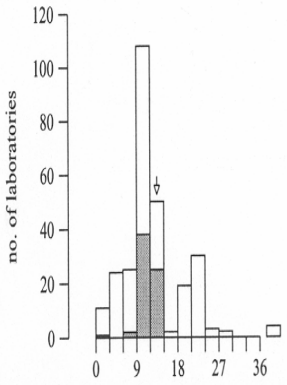
F13-PEANUT (kU/L)	n	Mean	SD	CV(%)
All methods	278	12.20	5.41	44.3
ADALTIS	4	6.70		
Bayer ADVIA Centaur	5	3.99		
DPC IMMULITE 2000	55	21.79	1.86	8.6
DYNATECH	16	4.62	1.37	29.6
HYCOR	16	12.15	2.34	19.2
OTHERS	16	19.59	34.55	176.4
PHADIA CAP	13	11.04	1.28	11.6
PHADIA CAP UNICAP	84	10.59	1.66	15.7
PHADIA UNICAP 1000	66	11.51	1.45	12.6
RIDASCREEN	2	5.89		



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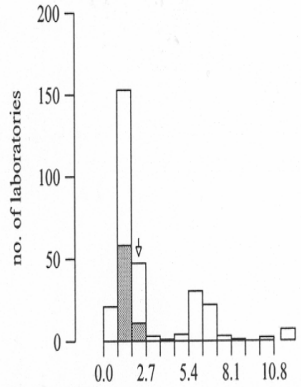
F2-COW'S MILK (kU/L)	n	Mean	SD	CV(%)
All methods	294	2.5	1.9	77.5
ADALTIS	5	1.8		
Bayer ADVIA Centaur	7	1.8	0.3	15.9
DPC IMMULITE 2000	62	6.2	0.7	11.6
DYNATECH	16	1.9	0.7	35.6
HYCOR	16	0.8	0.3	37.6
OTHERS	17	4.4	7.5	171.9
PHADIA CAP	13	1.9	0.5	25.1
PHADIA CAP UNICAP	86	1.6	0.2	14.7
PHADIA UNICAP 1000	69	1.6	0.2	12.7
RIDASCREEN	2	0.8		



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Future Programme Design:

Discussion about traditional threshold of 0.35 kU/L and possible clinical relevance of quantitation <0.35 kU/L

Scientific papers published on clinical utility of lower concentrations

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Future Programme Design:

- There will be analysis of future data to determine whether the methods available are adequately sensitive and precise for laboratories to have confidence in reporting Specific IgE concentrations in the range 0.1 to 0.35 kU/L

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Future Programme Design:

- The major challenge for EuroEQAS is to source sufficient single donor sera to satisfactorily cover a fully representative panel of allergens. This is of particular relevance in the light of increasing demand for ‘point of care testing’ systems and devices.

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Information about the programmes can be found on website **www.immqas.org.uk**

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