

All Wales Clinical Biochemistry Audit Group

Topics covered up to January 2005

Note: Guidelines for topics marked with an asterisk * have been discussed with other clinical groups.

- 1 **Therapeutic drug monitoring** (January 1994)
Outcome: Recommended lithium therapeutic range 0.4-1.0 mmol/l.
Other suggestions made concerning units, methods, ranges etc.
Re-audit (Nov. 1996): Increased use of non-isotopic methods;
More standardisation of therapeutic ranges, but not of units.
- 2 ***Sweat testing** (January 1994)
Outcome: Standards adopted, finalised (May 1997) and circulated within Wales.
Re-audit (May 1996) showed good compliance with draft standards, although a further audit of sweat testing in young infants (April 1998) showed that there was still significant variation in the reference ranges used in Wales. Standards revised in 1999.
- 3 ***Point-of-care (near patient) testing** (May 1994)
Outcome: standards agreed. Welsh Office booklet outlining standards printed (March 1995) and distributed to GPs/hospitals. Revised guidelines issued (February 2004) under aegis of the Welsh Scientific Advisory Committee. Audit of POCT support provided by Welsh NHS laboratories to primary and secondary care undertaken in April 2004 and showed that much less support is provided to primary care users; IT links for POCT in primary care are rare.
- 4 **Lipid testing** (May 1994, reviewed January 1995)
Outcome: no standards set - great divergence of practice.
Re-audited October 2001 in the light of the Joint British Societies' guidelines for the prevention of cardiovascular disease; standards in preparation.
- 5 ***Paraprotein investigations** (January 1995)
Outcome: performance generally satisfactory, but turn round time not always adequate (recommended to be 3-4 working days). Following consultation with clinical biochemists and haematologists in Wales, standards finalised (November 2000); further revised January 2005.
- 6 ***Screening tests for Cushing's syndrome** (May 1995)
Outcome of initial survey of urine free cortisol assays (1995): problems with techniques used; identified need to review first line tests for investigating Cushing's syndrome.
Outcome of survey of testing for Cushing's syndrome (May 1996): for screening, should use tests with high sensitivity; dexamethasone suppression should be done as overnight test, with 1 mg dose; urine free cortisol should only be assayed using extraction (not direct) methods. Standards finalised (April 1998) and circulated to endocrinologists and clinical biochemists in Wales. Re-audited March 2001 and existing standards confirmed.
- 7 ***Monitoring of glycaemic control in diabetes** (May 1995)
Outcome: May 1995: wide range of techniques, precision and reference ranges;
HbA1, HbA1c and fructosamine assays in use.
February 1996: more laboratories measuring HbA1c, by HPLC.
Standards published in ACB News (May 1998) and RCPATH Bulletin (January 1999).
Re-audited in 1999: outcome, all laboratories now measuring HbA1c;
majority (10/16) reporting "DCCT-calibrated" results.
Revised standards issued June 2000 and circulated to clinical biochemists in Wales.
Further revision of standards issued March 2003 in the light of NICE guidance.
- 8 ***Performance of the oral glucose tolerance test** (March 1997)
Outcome: some divergence from WHO recommendations. Following acceptance by BDA of new WHO recommendations for diagnostic criteria for diabetes, standards finalised (June 2000) and circulated to clinical biochemists and diabetologists in Wales.

- 9 ***Biochemical investigation of the menopause & monitoring of HRT** (October 1997)
 Outcome: excessive number of tests currently done.
 Following consultation with Welsh Executive Committee of RCOG, standards finalised (November 1998) and circulated to clinical biochemists and gynaecologists in Wales.
 Re-audited in November 2002; standards re-confirmed.
- 10 ***Urine “microalbumin” assays** (January 1998)
 Outcome: survey showed wide variation in practice and a need to move towards a degree of uniformity in practice in Wales. Standards finalised (September 1998) and circulated to clinical biochemists and diabetologists in Wales. Re-audited April 2002 and standards then revised, in part to take account of recent NICE recommendations.
- 11 **Trace element assays and their use in Total Parenteral Nutrition** (January 1998)
 Outcome: practice reasonably sound, though could be improved. Standards finalised (September 1998) and circulated within Wales. Dr.A.Taylor (Guildford) carried out an audit in S.Thames region (1999) using the Welsh questionnaire/standards. Re-audited May 2003, together with an audit of general biochemical monitoring of total parenteral nutrition.
- 12 ***PSA testing** (October 1998)
 Outcome: Recommendations made concerning assay requirements and the reporting of results (age-related reference ranges, interpretation and cumulative reports). Following consultation with urologists and clinical biochemists in Wales, standards finalised (Nov. 2000).
- 13 ***Investigation of gestational diabetes mellitus** (March 1999)
 Outcome: survey showed wide variation in practice and a need to move towards a degree of uniformity in practice in Wales. Consultation with clinical biochemists, diabetologists and obstetricians in Wales showed that there is not a full consensus. Standards therefore issued as “provisional” (November 2000). Recent NICE guidance (October 2003) states that universal screening for gestational diabetes is now not currently recommended.
- 14 **Use of automated immunoassay analysers** (September 1999)
 Outcome: survey showed some variation in practice. Recommendations made about reference ranges and monitoring of assay performance. Standards finalised (June 2000).
- 15 ***Biochemical markers of myocardial damage** (September 1999)
 Outcome: Survey showed a wide variety of tests and protocols in use. Only 7/16 labs assayed Troponin (I or T) “in house”; only 1 lab used it as their first-line cardiac marker. Recommendations made that a cardiac troponin (I or T) should become the first-line test and about the timing of sample collection. Standards finalised (June 2000) and circulated to clinical biochemists in Wales, after consultation with Welsh cardiologists. Re-audited Nov. 2003 (as concern about differing reference ranges); revised standards issued Dec. 2004.
- 16 ***Thyroid function testing strategies** (November 1999)
 Outcome: Survey showed some labs. Use FT4 and TSH and some use TSH alone as first-line tests; wide variety of strategies for further tests. Standards prepared in consultation with endocrinologists in Wales and finalised in May 2002.
- 17 ***Testing for CSF xanthochromia** (April 2000)
 Outcome: Survey showed that only 4/14 labs using scanning spectrophotometry. Draft standards written (Dec. 2000); sent for consultation to clinical biochemists and neurosurgeons in Wales; now being finalised. Liaison with UK NEQAS working group via Mr.P.Thomas.
- 18 ***Investigation of Renal Stone Disease** (October 2000)
 Outcome: Survey showed that practice varies widely within Wales and only a few departments use a structured approach. Draft standards prepared in liaison with Welsh urologists and consultation with Mr.C.Samuell. Standards finalised March 2003; minor revision Jan. 2005.
- 19 **Porphyria Investigations** (March 2001)
 In the light of a survey undertaken by WEQAS, draft recommendations presented at a meeting in March 2001. Standards now finalised (March 2004).

- 20 ***Macroprolactinaemia investigations** (March 2001)
Standards prepared in 2001 following a survey and sent for consultation to clinical biochemists and endocrinologists in Wales. Standards now finalised (February 2003).
- 21 ***Investigation of Short Stature in children** (March 2001)
Standards prepared in 2001 following a survey of both laboratory and clinical practice in Wales. Standards sent for consultation to clinical biochemists and paediatric endocrinologists in Wales and now finalised (March 2003). A paper based on the survey and including the recommendations has been published in J Clin Pathol 2004; **57**: 126-130.
<http://jcp.bmjournals.com/cgi/content/abstract/57/2/126>
- 22 ***Ammonia assays** (October 2001)
Findings of a survey of laboratory practice undertaken presented at a meeting in 2001 and recommendations at another meeting in April 2002. Standards in preparation; paediatricians to be consulted before they are finalised.
- 23 **Breath testing and Investigation of Lactose Intolerance** (April 2002)
Findings of a survey of laboratory practice presented at an audit meeting in April 2002.
- 24 ***Initial Investigation of Suspected Inborn Errors of Metabolism** (November 2002)
Findings of a survey of laboratory practice presented at an audit meeting in November 2002. Draft recommendations presented at an audit meeting in May 2003. Standards in preparation; paediatricians to be consulted before they are finalised.
- 25 **Use of multiple blood gas analysers in Welsh hospitals** (May 2003)
Survey of analysers both in laboratories and in clinical areas (POCT) presented May 2003. Draft recommendations presented at an audit meeting in April 2004; standards in preparation.
- 26 ***Investigation of polycystic ovarian syndrome** (November 2003)
Findings of a survey of laboratory practice presented at an audit meeting in November 2003. Conclusions: no consensus on how to investigate PCOS; SHBG not used consistently. Draft recommendations presented at an audit meeting in November 2004. Standards in preparation; endocrinologists and gynaecologists to be consulted before they are finalised.
- 27 ***Investigation of suspected pheochromocytoma** (November 2003)
Findings of a survey of laboratory practice presented at an audit meeting in November 2003. Conclusions: variations in acid preservative used, number of samples required and assays used for initial screen. Draft recommendations presented at an audit meeting in April 2004. Standards in preparation; endocrinologists to be consulted before they are finalised.
- 28 **Investigation of Cryoglobulins** (November 2004)
Survey (based on UK NEQAS questionnaire), presented at an audit meeting in November 2004 and showed wide variations in practice. List of key recommendations to be prepared.
- 29 ***Performance of the Short Synacthen (Tetracosactide) Test** (November 2004)
Survey presented at an audit meeting in November 2004 showed wide variations in practice and that method bias was disregarded when interpreting results. Draft standards to be prepared; endocrinologists to be consulted before they are finalised.

Please contact the audit group secretary for more information about any of these audits.
E-mail: stephen.davis@pr-tr.wales.nhs.uk