The role of the Consultant Chemical Pathologists.

The Consultant Chemical Pathologists have several duties, both within and outside the laboratory. A team approach to these duties should improve access to a Consultant Chemical Pathologist opinion and also evens the workload across the Consultant Chemical Pathologists.

A Duty Consultant Chemical Pathologist is usually present 09.00 – 17.00 Monday to Friday for routine and emergency issues. An on-call Consultant Chemical Pathologist is available via switchboard outside of these hours for emergency issues only. Accordingly, there is a Consultant Chemical Pathologist available 24 hours a day, every day of the year for emergency test authorization, test interpretation, further investigations and treatment.

Examples of Duty Consultant Chemical Pathologist actions (depending on available time)

Data interpretation upon being phoned

- Interpretation of abnormal results, medical advice on further investigations and treatment.
- Follow-up of significant abnormal results

Critical reporting at the point of result validation

- Critical result actions
  - Telephoning critical/abnormal results with medical advice on further investigations and treatment.
  - Telephoning medically significant sequential results
- Flagging individual abnormal results based on clinical information, that is, not automatable flags.

Data interpretation at the point of result validation

- Interpretation of abnormal results, medical advice on further investigations and treatment.
  - Commenting (free text and coded) on unusual/unexpected results.
  - Flagging trend changes.
- Follow-up of medically significant abnormal results

Reflective addition of appropriate tests at the point of result validation

- Ensuring that additional tests are offered/added on when medically appropriate:

Send away test review

- Vetting send away tests to ensure that only medically appropriate send away tests are sent away in a timely fashion.

Written laboratory queries

- Ensuring that written medical laboratory queries are dealt with in a timely fashion.

Laboratory based errors

- Log laboratory based errors that are discovered or reported as Duty Consultant Chemical Pathologist.
- Follow up medically significant lab based errors

Problematic requests

- Ensuring that requests with insufficient details (patient name/DOB/gender, requester name/location) are appropriately followed up from a medical viewpoint.

Pseudohyperkalaemia

- Identification of requests at risk of pseudohyperkalaemia

Pseudohyponatraemia

- Identification of specimens with pseudohyponatraemia

CSF xanthochromia requests

- Ensuring clinical liaison to avoid false positive results.

Determining the appearance of stored turbid samples

- Hypertriglyceridaemia can be due to different lipoprotein fractions. Determination of the appearance can inform the requester of the aetiology of the dyslipidaemia.

Protein electrophoresis opinion

- Providing a medical opinion re the interpretation of serum and urine protein electrophoresis.

Renal stone follow up

- When renal stone results are available for validation, the Duty Consultant Chemical Pathologist reviews the previous investigations and informs the requester what specialist tests (if any) need to be done.

Analytical interferences

- Providing a medical opinion when analytical interference is suspected.

Other Consultant Chemical Pathologist Activities (subject to time available)

Overseeing the adding of extra tests in line with GMC and RCPath guidance

Within Clinical Biochemistry, only medical staff can request tests. This is achieved by means of reflective (medic), reflex (computer) and delegated (BMS) requesting based on medic approved criteria:

- Reflective testing based on test results, the clinical condition and medical knowledge

- Reflex testing rules based on the test results, for example:
    - Mg for hypocalcaemia or hypokalaemia.
    - TFT for Cholesterol >8.0 if not done in last 6 months
    - TFT for Triglyceride >6.0 if not done in last 6 months

- Reflex testing based on test requested, for example:
    - 25-OH vitamin D if 1, 25 diOH vitamin D requested
    - TFTs if TPO or TRAb requestd without TFTs
    - Igs, Globulin and CRP if protein electrophoresis requested.
    - eGFR if Lithium requested
    - TFT if Lithium requested and not done in last 6 months
    - Bone profile if Lithium requested and not done in last 12 months
    - Lipid profile if Lithium requested and not done in last 12 months

- Delegated testing based on the test results, for example:
    - FT3 as per TFT validation protocol
    - Amylase when the clinical details are “Abdominal pain”

- Delegated testing based on the clinical scenario, for example:
    - Amylase when the clinical details are “Abdominal pain”

Overseeing the adding of clinical interpretative comments

- Updating coded clinical comments

- Automated clinical commenting, for example:
    - on raised glucose
    - on persistent high HbA1c from primary care "Suggest consider requesting diabetes specialist nurse review”
    - structured comments for reproductive hormones
    - raised lipids

Overseeing the detection of medically significant results

- Reviewing assay critical limits based on clinical guidelines and requirements
- Reviewing assay phoning limits based on clinical guidelines and requirements
- Reviewing autovalidation limits based on clinical guidelines and requirements
- Reviewing delta checking: Identification of medically significant results, for example,
    - New pathology - new/worsening renal function (Acute Kidney Injury)
    - Assay error due to mis-sampling, interference, poor specificity
- Reviewing assay minimum request intervals based on clinical guidelines and requirements

Medical review of current tests/activities

- Replace out of date tests and tests with no medical utility
- Establish medical utility of new tests
- Propose innovative use of established markers

Clinical audit

- Medically appropriate testing
- Audit clinical utility of tests and testing strategies.
- Audit request frequency in relation to benchmarking and requesting guidelines.
- Audit clinical usefulness of comments
- Audit clinical usefulness of add-on tests
- Audit phoning of critical levels
- Evidence of user feedback for adding of tests, comments, telephone advice and availability.

Quality

- Establishment and maintenance of clinical quality standards
- Ensure test menu is appropriate to clinical requirements
- Review assays to ensure that their performance are consistent with clinical guidelines and requirements
- Liaise with users to ensure that service is appropriate for their clinical needs
- Establish the requirements and procedures for repeat and unnecessary testing from a clinical viewpoint
- Establish requirement and procedures for adding tests to ensure that clinical needs and clinical governance aspects are adhered to
- Oversee the clinical aspects of the annual report

Analytical standards

- Ensure that methods employed are consistent with clinical requirements including NQAAP MAPS and professional societies.
- Ensure that analytical techniques use correct calibration, for example CDC for lipids; and units, for example, national toxicology guidance for drugs
- Medical review of analytical quality IQC, EQA and method comparison.

Point of Care Testing

- Comparability of laboratory methods with comparable POC tests.
- Evaluation of POC methods prior to installation.
- Maintenance, training and IQC/EQA for Point of Care Testing

Laboratory based errors

- Medically categorise and grade laboratory based errors

Clinical standards

- Production of recommendations for local use based on NICE/other national best practice recommendations (in conjunction with medical specialists).
- Devising new/alternative delivery models and quality and clinical audit of those models to assure safety and clinical governance.
- Production of clinical quality standards for Point of Care.
- Evaluation and incorporation of appropriate reference intervals or clinical decision values
- Governance meetings with GPs and practice nurses.
- Medically oversee the electronic laboratory handbook for specimen requirements
- Development & introduction of investigative protocols
- Interpretative EQA

Protocol design

- Involvement in clinical pathway design in 1° and 2° care and through the interface between the two. This includes reviewing all the Bedside Clinical Guidelines.
- Development and introduction of investigative pathways.

Medical services

- Responding to letters for medical advice: cardiovascular risk, nutrition, endocrine disorders, therapeutic drug monitoring and chronic disease management.
- Confirmation of and thus minimisation of pseudohyperkalaemia
- Running of the Lipid/Cardiovascular Risk Clinic
    - Lipid Clinic
    - FH clinic, FH register, cascade family screening and appropriate genetic testing
    - Genetic Counselling
    - Carotid intima-media testing
- Running of the Metabolic Clinic
- Running of the Clinical Nutrition Service
    - Obesity Service
    - Nutrition ward round
    - Vitamin D advice service
- Chronic disease register and management tools: Lithium, Amiodarone, etc
- Offering advice on multi-disciplinary team meetings: endocrine, bone, etc
- Patient protocols/monitoring/ward rounds.

Research and Development

- Clinical Trial investigator
- Clinical Trial support
- Research related to Clinical Biochemistry

Education

- Teaching
    - Undergraduate

    - Postgraduate
    - Primary care
    - Grand round presentations
- Foundation trainee attachments
- GP lunchtime talks or day in/out training days

Requesting and Communication of results

- Design electronic requesting with access to previous results including imaging with easy cross reference to differential diagnosis & investigative protocols
- Increase electronic availability of results
- Decrease usage of printed results
- Increase use of cumulative results

National Activities

- Professional
    - Involvement in professional and scientific organisations
- Regulatory
    -
- Training