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GABAPENTIN

Specimen required: **1 x Heparin NO GEL** - Sample just prior to next dose.
Department: Referred test
Therapeutic range: Therapeutic benefit is evident at plasma levels > 2 mg/L.

GAD

See ANTI GAD ANTIBODIES

GAMMA GLUTAMYL TRANSFERASE (GGT)

Specimen required: **Serum (1 x SST)**
Department: Biochemistry
Reference range: Male: < 50 IU/L
Female: < 32 IU/L
Interpretation: HIGH - Liver disease (especially obstructive), induction by ethanol and various drugs, and pancreatitis.
Comment: This Laboratory routinely performs this test as part of Liver Function Tests.

GBM AUTO

See GLOMERULAR BASEMENT MEMBRANE

GASTRIN

Specimen required: **Serum (1 x SST) - Fasting.**
Department: Referred test
Reference range: As stated on report
Interpretation: HIGH - Gastrinoma, and peptic ulcer.

GENE RE-ARRANGEMENT STUDIES (TCR AND IGH RE-ARRANGEMENT)

Specimen required: **2 x EDTA**
Department: Referred test
Note: Tests for clonality. i.e. Band T-Cell lymphomas

GENETIC DISORDERS

Specimen required: **2 x EDTA – Dedicated tubes, i.e. not to be shared with any other tests.**
Department: Referred test
Note: Molecular Biology at Princess Margaret Hospital performs several tests for genetic disorders including Cystic Fibrosis, Fragile-X. Doctors should first consult a Geneticist at PMH (9340 1525) to discuss family testing if required.

GENITAL & OTHER SPECIMENS FOR INVESTIGATION OF INFECTION (INCLUDING STD'S)

Department: Microbiology
Comment: The reason for the investigation should be marked on the request form. Organisms such as anaerobes or coliforms are part of the normal vaginal flora, and their isolation in culture from the endocervix or vagina does not reliably predict the cause of Pelvic Inflammatory Disease. However, Post Operative specimens have Anaerobic cultures performed.
If Ureaplasma / mycoplasma are requested, the specimen (dry swab) is referred for PCR. An additional dry swab should be collected for this test.
See also: MYCOPLASMA
Note: The Laboratory will supply swabs on request.
Gel swabs (Transport media with blue top) are for culture
Dry swabs (orange / white top) are for PCR

FEMALE:**Endocervical swabs – for Gonorrhoea, and Chlamydia.**

- (i) Direct smear for Gram stain (roll, rather than rub a swab from the endocervix onto a clean glass slide, and allow to air dry). Differentiate clearly from a Pap Smear slide if this is also submitted.
- (ii) Plain swab into Transport Medium, for N.gonorrhoea culture - swab to be kept at room temperature. (Note that while PCR detection is more sensitive, only culture will provide antibiotic susceptibility information.)
- (iii) Orange capped wire swab for N.gonorrhoea and Chlamydia PCR. Replace swab in dry sheath for transport. See also Urethral Swabs below and separate entry on URINE FOR MICRO CULTURE AND SENSITIVITY.

Endocervical swabs – for investigations other than STD's.

- (i) Direct smear for microscopy using plain swab.
- (ii) Plain swab into Transport Medium.

High Vaginal Swabs – for Trichomonas, Candida and Bacterial vaginosis

- (i) Direct smear for microscopy using plain swab.
- (ii) Plain swab into Transport Medium.

High Vaginal swabs – for investigations other than STD's.

- (i) Direct smear for microscopy using plain swab.
- (ii) Plain swab into Transport Medium.

Female Urethral swabs – for Gonorrhoea and Chlamydia.

- (i) Direct smear for Gram stain (roll, rather than rub a swab from the urethra onto a clean glass slide, and allow to air dry).
- (ii) Plain swab into Transport Medium, for N.gonorrhoeae culture - swab to be kept at room temperature. (Note that while PCR detection is more sensitive, only culture will provide antibiotic susceptibility information.)
- (iii) Orange capped wire swab for N.gonorrhoeae and Chlamydia PCR. Replace swab in dry sheath for transport.
See also Endocervical Swabs above and separate entry on URINE FOR MICRO CULTURE AND SENSITIVITY.

Female Mouth/Rectal swabs – as indicated by the history.

- (i) Direct smear for Gram stain (roll, rather than rub a swab from the site onto a clean glass slide, and allow to air dry).
- (ii) Plain swab into Transport Medium, for N.gonorrhoeae culture. Keep swab at room temperature.

Note: N. gonorrhoeae PCR cannot be performed from these sites, always collect a gel swab for MC&S

Vulval lesions/vesicles

- (i) Herpes simplex virus PCR: Vesicle fluid or firm swabbing of ulcer base using orange capped wire swab. Replace swab in dry sheath for transport.
- (ii) A rapid screening test for HSV is also available by immunofluorescence. Special kits are available on request from the Laboratory
- (iii) Syphilis

1. Syphilis/ Treponema pallidum	Specimen: Dry swab of ulcer/lesion for PCR
2. Chancroid (Haemophilus ducreyi)	Specimen: Swab in gel transport medium for culture and Dry swab for PCR

Vulval swabs – for investigations other than STD's.

- (i) Direct smear for microscopy using plain swab.
- (ii) Plain swab into Transport Medium.

Thinprep vials

- (i) ThinPrep vials can be used for Chlamydia, gonorrhoea PCR, HPV DNA , UREAPLAMSA / MYCOPLASMA and HSV. PCR can also be performed on brushes including the Cervex Brush.

MALE:**Male Urethral swabs – for Gonorrhoea, Chlamydia.**

- (i) Direct smear for Gram stain (roll, rather than rub a swab from the urethra onto a clean glass slide, and allow to air dry).
- (ii) Plain swab into Transport Medium, for N.gonorrhoeae culture - swab to be kept at room temperature. (Note that while PCR detection is more sensitive, only culture will provide antibiotic susceptibility information.)
- (iii) Orange capped wire swab for N.gonorrhoeae and Chlamydia PCR. Replace swab in dry sheath for transport. (See also Urethral Swabs and First Void Urine).

Penile/Urethral swabs – for investigations other than STD's.

- (i) Direct smear for microscopy using plain swab.
- (ii) Plain swab into Transport Medium.

Male Mouth/Rectal swabs – as indicated by the history.

- (i) Direct smear for Gram stain (roll, rather than rub a swab from the site onto a clean glass slide, and allow to air dry).
- (ii) Plain swab in Transport Medium for N.gonorrhoeae culture. Keep swab at room temperature.

Note: N. gonorrhoeae PCR cannot be performed from these sites, always collect a gel swab for MC&S

Male Vesicles or Ulcers.

- (i) Herpes simplex virus PCR: Vesicle fluid or firm swabbing of ulcer base using orange capped wire swab. Replace swab in dry sheath for transport.
- (ii) Herpes simplex virus culture is also available. Plain wooden shafted swab into Viral Transport Medium.
- (iii) A rapid screening test for HSV is also available by immunofluorescence. Special kits are available on request from the Laboratory
- (iv) Syphilis
 - 1. Syphilis/ Treponema pallidum Specimen: Dry swab of ulcer/lesion for PCR
 - 2. Chancroid (Haemophilus ducreyi) Specimen: Swab in gel transport medium for culture
Dry swab for PCR

GENTAMICIN ASSAY / AMINOGLYCOSIDE MONITORING

Specimen required: **Serum (1 x SST)**
 Department: Referred test
 Comment: Aminoglycosides (gentamicin, tobramycin) may be administered 8 hourly, or as a once daily intravenous dose. It is now recommended that gentamicin and tobramycin are administered as a once daily intravenous dose, in order to maximise efficacy and minimise toxicity. The patient information required for dosage calculation is:

- age
- weight (kg)
- height (cm)
- current serum creatinine
- Dose and time of last dose
- Time of blood collection if drug has already been started.

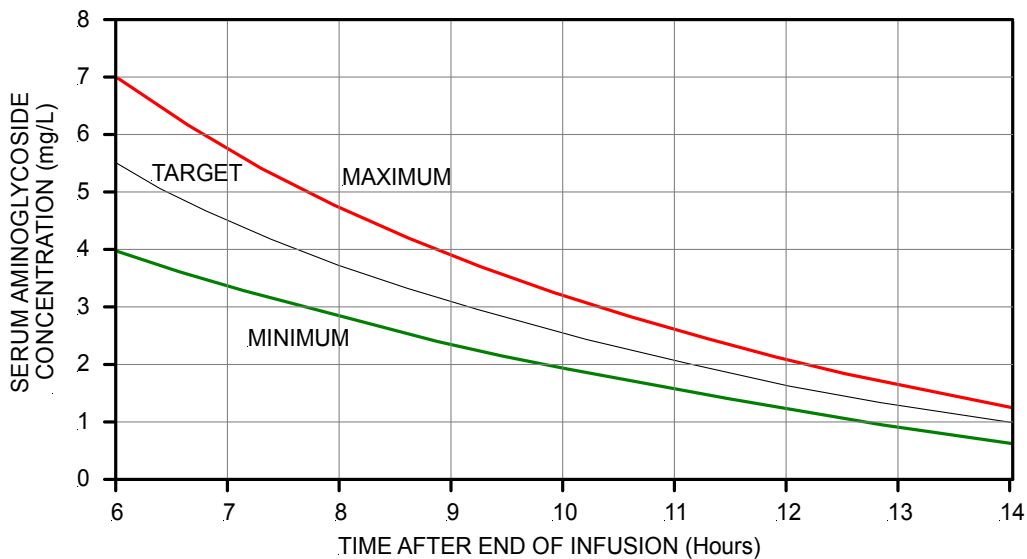
NOTE: **It is essential that the above information is collected so that valid measurements and/or adjustments can be made.**
 It is important that serum levels of aminoglycoside are monitored closely in order to avoid renal toxicity. This should be done after the FIRST DOSE and perhaps several times a week thereafter. Serum creatinine should also be monitored during a course of aminoglycoside.

AMINOGLYCOSIDE MONITORING AFTER ONCE DAILY IV DOSING:

For patients with essentially normal renal function on once daily IV administration, serum for aminoglycoside monitoring should be collected BETWEEN 6 AND 14 HOURS after the dose, and the resulting level is compared to levels on the graph indicated. If the patient's level falls between the upper and lower line, no dosage adjustment is necessary. If outside the lines, recalculate the next dose according to the following formula:
 Next dose = (target concentration / actual concentration) x initial dose.

AMINOGLYCOSIDE MONITORING AFTER 8 HOURLY IMI or IV DOSING:

Trough levels should be monitored in order to avoid toxicity. Peak levels reflect adequacy of dose.
 Trough sample: Collect serum prior to next dose.
 Acceptable trough level: < 1 mg/L
 Peak sample IV: Collect serum 30 minutes after end of infusion.
 IMI: Collect serum 60 minutes after dose.
 Acceptable peak level: > 10 mg/L



GESTATIONAL DIABETES SCREENS

See Glucose Challenge under GTT

GFR/EGFR

See eGFR

GILBERTS GENOTYPINGSpecimen required: **1 x ACD & 1 x 4.5ml EDTA**

Department: Referred test

GLIADIN ANTIBODIES (IGG & IGA)TEST NO LONGER ROUTINELY PERFORMED -
replaced by TISSUE TRANSGLUTAMINASE ANTIBODIES (TTG IGA)**GLOMERULAR BASEMENT MEMBRANE**Specimen required: **1 x SERUM (SST).**

Department: Referred test

GLUCOSE – BLOOD (GLUC OR BSL)Specimen required: **1 x Fluoride Oxalate.**

Department: Biochemistry

Reference range: Fasting: 3.5 – 5.4 mmol/L

Random: 3.5 – 5.4 mmol/L

Comment: Diabetes Australia recommends that persons aged over 35 years with risk factors, fasting or random levels above 5.4 mmol/L should be investigated further before DM is excluded.

GLUCOSE – CSFSpecimen required: **CSF.**

Department: Biochemistry

Reference range: 2.1 - 4.0 mmol/L

Interpretation: LOW - Bacterial Meningitis, Cryptococcal Meningitis, Malignancy involving the meninges.
HIGH - Sarcoidosis, Hyperglycaemia.**GLUCOSE TOLERANCE TEST (GTT)****COLLECTION STAFF**GTT Check Sheet (Form [PIBI-002](#)) must be completed before and during collection. Please contact the Duty Manager or Senior Biochemistry staff to discuss correct protocol if unsure.**MODIFIED GLUCOSE TOLERANCE TEST** (World Health Organisation 2 Hour Protocol)

- Specimen Required:
1. Collect a fasting glucose sample (**1 x Fluoride oxalate**).
 2. Give the patient 75 g load of glucose (one whole bottle of glucose drink).
(If pregnant give 75g glucose, unless the doctor specifies differently. Gestational diabetes has different cutoffs to the ones below.)
 3. Begin timing when the drink finished.
 4. Collect a one hour and two hour blood sample.
 5. Ensure times are written on all samples.

Note: Glucose load for children = 1.75 g/Kg. Please contact Laboratory first.

Department: Biochemistry

Results:	(in mmol/L)	Fasting	2 Hour Post Glucose Load
Normal		≤ 6.0	≤ 7.7
Impaired Fasting Glycemia	6.1 - 6.9		≤ 7.7
Impaired Tolerance			7.8 - 11.0
Diabetes Mellitus		≥ 7.0	≥ 11.1

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Comment For extended or modified GTT's the tests are done in accordance with requesting practitioner's wishes. For the pregnancy glucose challenge (**1 Hour Screening Test**) a 50 gram load followed by a 1 hour specimen, unless otherwise stipulated. Patient can be fasting or non-fasting for this 1 hour screening test. Test done at 24 - 28 weeks.

GLUCOSE TOLERANCE TEST WITH INSULIN

Specimen required: **Serum (1 x SST) and 1 x Fluoride oxalate**
 Department: Biochemistry
 Note: (1) Same collection procedure as GTT above with the addition of (2) below.
 (2) Please ensure a **serum sample (1 x SST) and 1 x Fluoride oxalate** sample is collected at each point of the test (Fasting, 1 hour and 2 hour samples). Insulin cannot be performed using the Fluoride Oxalate tube.

GLUCOSE - 6 PHOSPHATE DEHYDROGENASE (G6PD)

Specimen required: **1 x EDTA or 1 x Heparin NO GEL**
 Department: Haematology
 Reference range: As stated on report.
 Comment: **Specimen must be at the Laboratory within 24 hours of the bleed.**

GLUTAMINE

Specimen required: **1 x Heparin No GEL – Separate promptly and transport frozen.**
 Department: Referred test
 Reference range: As stated on report.

GLUTEN ANTIBODIES (IGG & IGA)

TEST NO LONGER PERFORMED ROUTINELY - REPLACED BY TISSUE TRANSGLUTAMINASE ANTIBODIES (TTG IGA) PLEASE CONTACT LABORATORY IF TESTING REQUESTED

GLYCOPROTIEN B II

See BETA GLYCOPROTIEN

GLYCOSYLATED HAEMOGLOBIN

See HAEMOGLOBIN A1C

G 6 P D

See GLUCOSE-6 PHOSPHATE DEHYDROGENASE

GONNORRHOEA

See GENITAL & OTHER SPECIMENS FOR INVESTIGATION OF INFECTION (including STD's)

GROWTH HORMONE (GH)

Specimen required: **Serum (1 x SST) - Fasting, Resting ~30 min.**
 Department: Biochemistry
 Reference range: Men 0-1 ug/L
 Women 0-10 ug/L
 Interpretation: LOW - Dwarfism
 HIGH - Gigantism, acromegaly, stress
 Note: 24 hour Urinary (No preservative) test for Growth Hormone is available and referred to an external Laboratory with a cost to the patient.

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