**Synacthen Test**

**Indication**
- Diagnosis of Addison’s disease, hypothalamic-pituitary-adrenal axis suppression or congenital adrenal hyperplasia.

**Preparation and precautions**
- This test can be performed at any time of the day and the patient may eat and drink normally.
- Patients should be asked to bring in all their medications, including over the counter medicines and creams. Also, check whether they have had any recent joint injections. Usual medications may be taken on the morning of the test, but individuals taking inhaled steroids, topical creams, nasal steroids, inhalers and oral steroids (for example prednisolone, hydrocortisone or dexamethasone) should be discussed first with the referring consultant. Patients taking more than 7.5mg prednisolone or equivalent are highly likely to be adrenally suppressed and so the test may not be appropriate or necessary. Patients taking oral steroids must omit them on the morning of the test but bring them with them to take as soon as the test is completed.
- Estrogen-containing medications, including the contraceptive pill and hormone replacement therapy should be stopped for six weeks prior to measuring serum cortisol. This is because estrogen induces cortisol binding globulin and leads to elevations in measured serum cortisol.

**Procedure**
- All patients should have had a 9am cortisol taken before the test is arranged. If the level is above 500nmol/L or below 100nmol/L the test is generally unnecessary and this should be discussed with the referring doctor.
- Blood samples can be taken by venepuncture however the patient should be given the option of having an indwelling gauge 20 cannula with a three-way tap.
- Using the vacutainer connector system, or a syringe, fill one plain clotted tube for cortisol (and for 17-hydroxyprogesterone where the test is being performed for possible congenital adrenal hyperplasia.) Label with patient identification, date and write: “0 mins” as time taken. An additional sample should also be taken into an EDTA bottle, centrifuged, separated and plasma frozen and stored in a freezer in case it is required for future ACTH assay.
- Inject synacthen 250μg intramuscularly.
- Take further plain clotted tube blood samples at 30 and 60 minutes after the injection. It is important to clearly mark the patient’s details, date and time of sample on each bottle (i.e. “30 mins” and “60 mins.”)
- If patient has a cannula, each time samples are taken flush the cannula with 2mls 0.9% sodium chloride and prior to taking blood samples withdraw 2mls and discard to remove the sodium chloride flush.
- If cannulated, remove cannula at end of test and patient may then take-omitted medications and go home.
- **Please note:** a short synacthen test is also possible using a baseline (0mins) and +30 minute sample. Please contact lab to discuss the appropriateness of short or long synacthen testing protocols (020 8510 7886.)

**References**
Investigation protocol adapted from:
“Endobible,” Imperial Centre for Endocrinology Press, Meeran K. et al