Baseline investigations for a child with suspected HIV and newly diagnosed HIV

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If history and examination lead to a differential diagnosis, which includes HIV, pay special attention to:

History:

Birth:	Mode of delivery; duration of rupture of membranes; other infections eg. chorioamnionitis; birth weight; infant feeding eg. breast feeding and duration; maternal health including other STI's; and antenatal HIV test result.
Past medical history:	Previous infections (eg. oral candida); swollen lymph nodes; chronic diarrhoea; failure to thrive and nutritional history; recurrent URTIs; childhood exanthems (e.g. chickenpox, rubella); skin infections (eg warts, molluscum); severe infections; hospitalisations; transfusions and IM injections; TB risk factors; immunisations; developmental history; and sexual history (if appropriate).
Social history:	Name and relationship of adult accompanying child; who has parental responsibility; deaths of parents or siblings; significant previous caregivers; travel history; housing; and social circumstances; school attendance and performance.
Drug history:	Previous antiretroviral exposure: in-utero / peripartum / as treatment in another country; other current drugs. Children newly arrived from abroad may be on combination ARV tablets not available in this country; check with a specialist HIV pharmacist.
Examination:	Full examination including: mouth; lymph nodes; parotids; chest; liver; spleen; skin; neurology; developmental assessment, growth (ht, wt, OFC, BMI); pubertal stage (if indicated from screening in history); and BCG scar. Any signs of lipodystrophy if on treatment.

First line HIV diagnostic tests:
Infant < 18 months of age: HIV antibody test and HIV RNA PCR (preferred to HIV DNA PCR in local lab with faster results available).
* NB in the first weeks after delivery an infant at risk of HIV may have a negative RNA PCR.
Child > 18 months of age: HIV antibody test

Second line confirmatory HIV tests:
HIV RNA PCR viral load and assessment of severity of HIV disease. (If HIV known or clinically very likely then consider doing both first and second line tests together.)

See CHIVA HIV Testing guidelines:
https://www.chiva.org.uk/infoprofessionals/guidelines/testing/

HIV parameters	CD4 count and percentage HIV RNA PCR (viral load) Baseline HIV resistance including integrase resistance (and maternal resistance if an infant) HLA-B*5701
Haematology	FBC + film Sickle cell and G6PD deficiency screen (if appropriate racial group) Ferritin Consider malaria film if recently arrived from endemic area
Biochemistry	U+E, Creat Glucose TSH Vitamin D Ca, PO_4 Amylase Albumin LFT's Lipids Total protein (globulin) Urine dip (mid-stream) – if 1+ or more protein send urine protein/Cr and albumin/Cr ratio (ideally early morning sample)
Serology	Hepatitis A IgG, HBsAg, anti-HBsAb, anti-HBcAb, HCV IgG, Syphilis serology, IgG for EBV, CMV, HSV, VZV, Toxoplasmosis and SARS-CoV-2. In children over 1 year consider vaccine serology as per CHIVA vaccination guideline: Measles, Mumps, Rubella, Hib, MenC, Tetanus, serotype specific pneumococcal serology and if appropriate SARS-CoV-2 serology. NB. Low CD4 count could affect serology results
Viral PCRs	Plasma CMV PCR should be undertaken in infants & children with advanced disease HCV PCR – should be undertaken in infants at risk of exposure and those with advanced disease (this can be positive even if the child is HCV antibody negative)
Cultures	According to symptoms / travel history: Stools (including ova, cysts and parasites) / urine / throat swabs / blood cultures / malaria films / sexual health screen if appropriate
TB screening	CXR, mantoux, IGRA If active TB suspected – consider gastric aspirate, induced sputum, BAL
Clinical Investigations	BP, urinalysis, height / weight / head circumference Formal ophthalmological examination
Radiology	Baseline CXR Consider bone age (if small for age) with advice of endocrine specialist Infants / children with neurological signs, evidence of congenital infections or severe co-infection: MRI of brain
Development Assessment	Full formal baseline neurodevelopment/neuropsychology assessment if available or clinically indicated

PCP Prophylaxis

Infants < 12 months of age	**Children > 1 year of age**
If > 6 weeks and under 12 months of age, start Co-trimoxazole irrespective of CD4 count	Start Co-trimoxazole 1-4 yrs: CD4 count <15% or <500 x 10^6/L 5 yrs or older: CD4 count <15% or <200 x 10^6/L

Important: Any child that is diagnosed with HIV and was born in the UK, should be investigated as an incident and reported back to the obstetric unit where they were born, as all infant infection is potentially preventable.

Assess the child's clinical stage according to WHO and/or CDC criteria. More information on treatment of HIV infected children in the PENTA guidelines: https://penta-id.org/hiv/treatment-guidelines/

For newly diagnosed, see PENTA risk calculator, where the child's 12 month's risk of progression to AIDS and death can be checked: https://penta-id.org/education/educational-tools/