What should you know?
Neurological evaluation

- Very important
- Practical exams!!!!!!
Make the link

- General
- Head
- Face
- Neck
- Limbs
- Trunk
- Primitive reflexes
- Other systems

- History
- General impressions
- Higher functions
- Head and face
- Cranial nerves
- Neck and back
- Signs of raised intracranial pressure
- Motor system
- Sensory system
- Basal ganglia
- Cerebellar function
- Autonomic system
- Markers
- Developmental assessment
Developmental delay

Poor School Progress
How do children present

- Children < 6 years of age
  - Developmental delay
- Children > 6 years of age
  - Poor school progress
Poor School Progress
Aspects to keep in mind

Learner

Educational System

Parents
School system

- Poor attendance
  - Truancy
  - Hospital
  - Political unrest

School
- Motivation
- Results

Teacher
- Absent
- Numbers
- Methods
- Learner/Teacher
Parents

Circumstances at home
- Absent parents
- Alcohol
- Abuse
- Discipline
- Marital problems
- Over protection

Expectations
Learner

**Psychosocial aspects**
- Depression
- Anxiety
- Behavioral problems
- Hunger
- Alcohol
- Schoolphobia
- Neglected children

**Physical health**
- CNS
- Hearing and vision
- Epilepsy
- Medication
- Syndromes
- Chronic disease

**Intellectual development**
- IQ (MR)
- Learning disabilities
  - Dyslexia
  - Dyscalculi
  - Dysgraphia
- ADHD
Attention-Deficit Hyperactivity Disorder (ADHD)
Diagnosis of ADHD

- DSM IV criteria
- Aspects:
  - Hyperactivity
  - Inattention / Distractibility
  - Impulsivity / Disinhibition
- Subtypes:
  - Predominantly hyperactive
  - Predominantly inattentive
  - Combines
Treatment

• Behaviour modification

• Medication
  • Stimulants
    • Methylphenidate/Ritalin: Know everything!!!
  • Non-stimulants
    • Anti-depressants
      • SSRI
        • Imipramine
    • Mood stabilizers

• Diet in some cases
What you should know

- Seizures in childhood: Everything
- Epilepsy
  - Seizure types
  - Epilepsy syndromes
  - Treatment
    - Drugs: Side effects
- Febrile seizures
Headache in Children
Know

What questions to ask

What to look for

When to worry

Special investigations indicated
Paediatric Stroke
Classification

- Embolism of cerebral vessels
- Thrombosis
  - Arterial thrombosis
  - Venous thrombosis
- Cerebral haemorrhage
Management

- Stepwise approach
- Thorough history
  - Trauma
  - Drug ingestion
  - Developmental status
  - MR
  - Regression
  - Seizures
  - Family history
Management

- Examination
  - Skin
    - Birth marks
    - Abnormal pigmentation
    - Nodules
    - Rashes
    - Signs of trauma
  - Cardiovascular system
    - Murmurs
    - Abnormal heart sound
    - Blood pressure
    - Head and neck bruits
- Fundi
  - RP
  - Haemorrhages
  - Papilloedema
- Refer
Cerebral Palsy
Know!!!!!

- Upper Vs Lower motor neurone lesion
- Definition
- Classification
- Co-morbidities
Early Signs of CP

- Poor cry or high pitched cry
- Tonic bite
- Poor head control
- Truncal hypotonia
- Sparse movement
- Asymmetry of movement
- Spontaneous clonus
- Motor developmental delay
- Abnormal movements
Clinical Presentation

- Upper motor neurone signs
- Delayed gross motor milestones
- Increased tone
- Contractures
- Primitive reflexes integrate later
- Pathological reflexes
- Limbs may be hypertonic and with abnormal posture
Co-morbidities

- Mental retardation
- Learning difficulties
- Speech problems
- Oral hypersensitivity and drooling
- Feeding problems
- Constipation

- Reflux
- Visual and hearing impairment
- Orthopaedic problems
- Behavioural problems
- Epilepsy
- Perceptual problems
Movement Disorders
Know?

- Definitions
  - Tics
  - Chorea
  - Athetosis
- Criteria for Tourette
- Sydenham’s Chorea
Floppy Infant
Know?

- An Approach
Developmental Regression in Children
Know?

- Be able to recognised and refer
Autism
What is autism?

Pervasive developmental disorder (PDD)

Autistic spectrum disorder (ASD)

Language disorders

Strange children?
Definition

Impaired communication

Stereotypic behaviour and mannerisms

Abnormal social interaction

Behavioural disorder
Aetiology

Tuberous sclerosis

Metabolic disorders

Encephalitis

Praeder Willi
Pathophysiology

- No definitive explanation
- Several biological factors
  - Genetic association
  - Recurrence risk of 30.7%
  - No single gene identified
  - But clear association with neurocutaneous syndromes
Histology

- Changes in
  - limbic system
  - cerebellum
Brain volume

• Volkmar
  • Increase in brain volume: 10%
• Overgrowth
  • Dysregulation of pruning and apoptosis
  • Extra tissue not functionally integrated
Psychological models

- Weak central coherence
  - Disjointed and piecemeal internal social world
- Executive dysfunction
  - Poor self regulation
  - Difficulties with change
  - Ineffective problem solving skills
  - Poor planning
Prevalence

- National Autism Plan for Children (NAPC) in UK
  - 5-6 per 1 000
- Why the increase?
  - Greater awareness?
  - Concept of ASD vs. Categorical Condition?
  - Inclusion of patients with autistic features?
  - Change in diagnostic methods?
South Africa

- Census of 2001:
  - 4.4 million children 0-4 years
  - Implication 5 000-6 000 per life year
  - 500-600 per life year per province!!

- Facilities?
General facts

- Mean age of diagnosis: 4.6 years
- Challenge to identify < 3 years
- Careful diagnosis important
- Early intervention may improve long-term outcome
Life cycle

• Repetitive behaviour
  • Less common in
    • Very young children
    • High functioning adolescents
    • Adults

• Social abnormalities
  • More common in
    • Preschool children

• Executive functioning
  • More common in older individuals
Role of the primary health care practitioner

Adapted for South African circumstances
Red flag signs

Identify parental concerns and alerting features relevant to autism

- Communication
- Socialization
- Behaviour
Concerns about communication

• No response when name is called
• Cannot express what he wants
• Language delay
• Does not follow instructions
• Appears if not listening
• Does not point towards things
• Lost words
Concerns about socialization

• Social smile absent
• Prefers to play alone
• Seems independent
• "Early with things"
• Gets things for themselves
• Poor eye contact
• In his or her own world
• Ignores parents
Concerns about behaviour

• Tantrums
• Hyperactive
• Toe walking, abn movement
• Does not know how to play
• Strange attachment to toys
• Lines toys or objects up
• Hypersensitive
Red flag signs

• 12 months: No babbling
• 12 months: No pointing or waving
• 16 months: No single words
• 24 months: No spontaneous 2-word phrases
• At any age: Any loss of any language or social skills
MCHAT

- Modified checklist for autism in toddlers
- CHAT originally from UK
- Robins: USA MCHAT
- Toddlers
- Screening only
## Critical items MCHAT

<table>
<thead>
<tr>
<th>QUESTIONS</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does your child like interacting/playing with other children?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Does your child use his/her finger to point out things of interest to you?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Does your child bring you things to show you?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Does your child imitate you?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Does your child react when you call his/her name?</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>If you indicate/point at something across the room, does your child look at it?</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Red flag signs

Initial assessment

- Hearing assessment
- M-CHAT (Robins 2001)

Refer for
- developmental assessment
- diagnosis

Explain
- process
Role of the multidisciplinary team in the diagnostic process of autism

Adapted for South African circumstances

(Charman 2002, Filipek 1999)
Patient referred for evaluation of a possible ASD

- Formal diagnostic procedure
- Paediatric neurological evaluation
- Level of functioning

Planning of further management
Planning of further management

• Team meeting to discuss different results
• Medical treatment
• Therapy
• School placement

Second parental follow up

• Discussion with parents and refer back

Refer back to primary care practitioner or paediatrician

• For routine and maintenance medical treatment if required