Revision Paediatric Neurology
ADHD
Autism

I Smuts

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

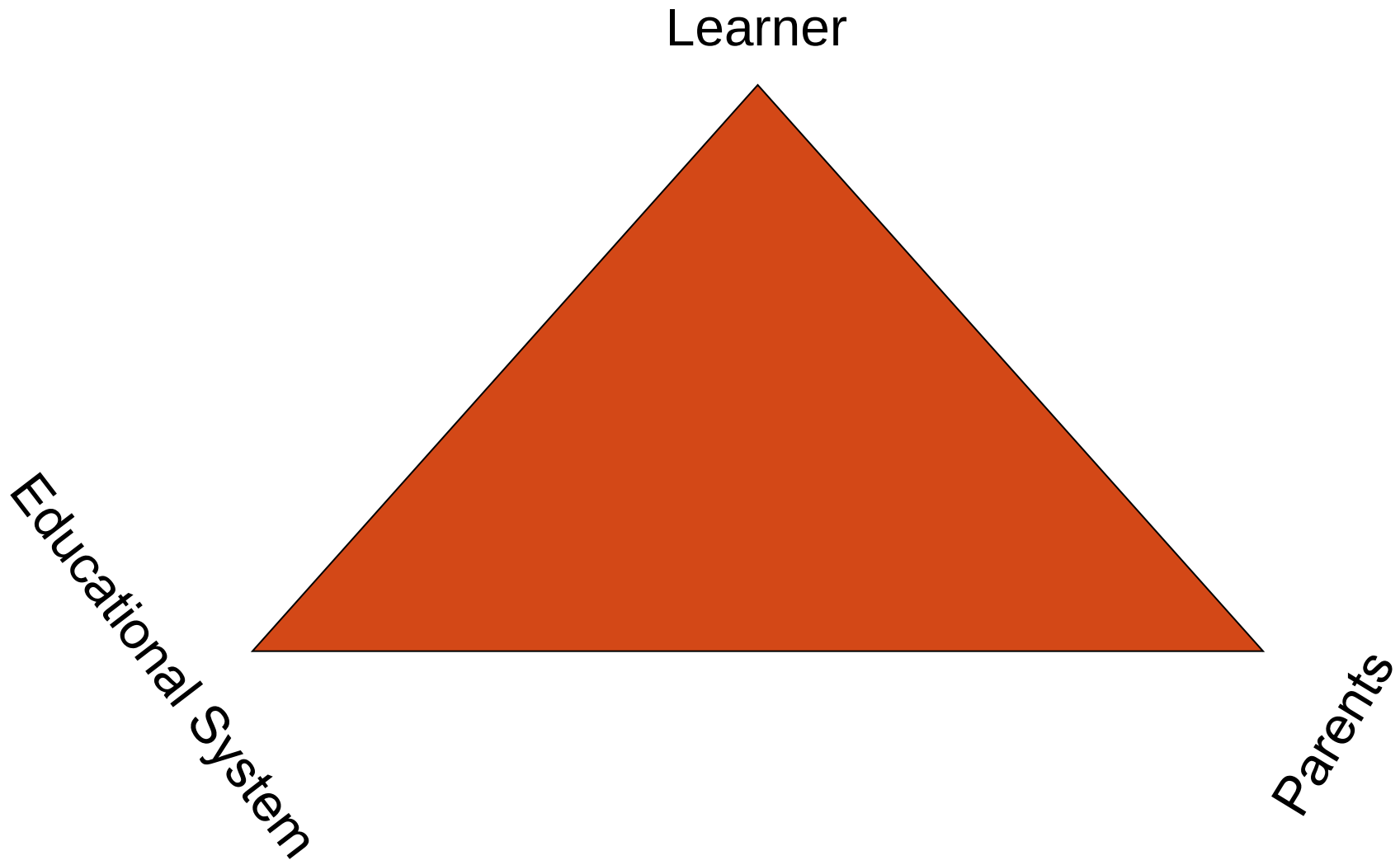
Developmental delay

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



School system

Poor attendance
Truancy
Hospital
Political unrest

School
Motivation
Results

Teacher
Absent
Numbers
Methods
Learner/Teacher

Parents

Expectations

Circumstances at home

Absent parents

Alcohol

Abuse

Discipline

Marital problems

Over protection

Learner

Physical health

CNS
Hearing and vision
Epilepsy
Medication
Syndromes
Chronic disease

Psychosocial aspects

Depression
Anxiety
Behavioral problems
Hunger
Alcohol
Schoolphobia
Neglected children

Intellectual development

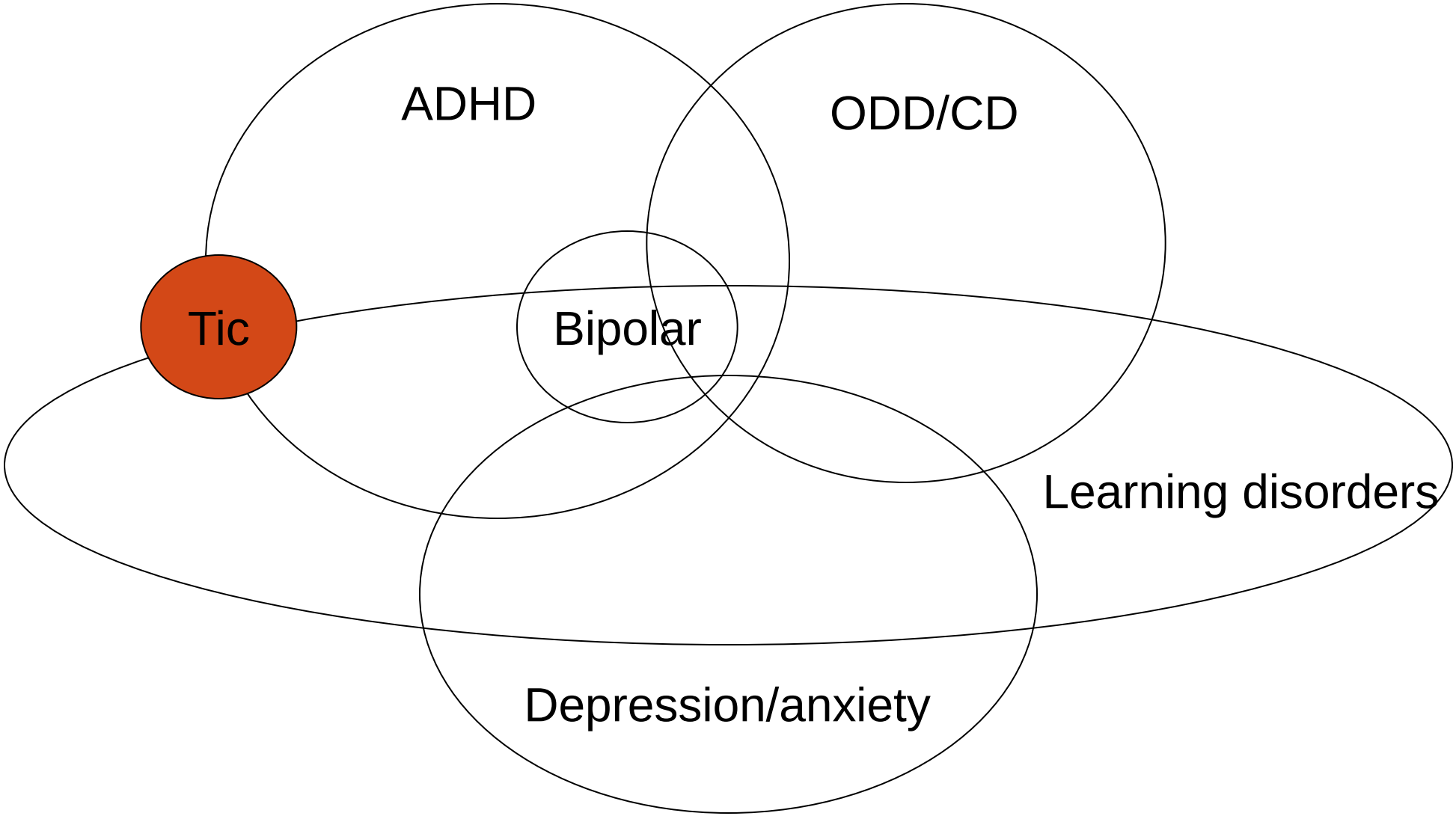
IQ **(MR)**
Learning disabilities
Dyslexia
Dyscalculi
Dysgraphia

ADHD

Attention-Deficit Hyperactivity Disorder (ADHD)

Diagnosis of ADHD

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


ADHD
ODD/CD
Tic
Bipolar
Learning disorders
Depression/anxiety

Treatment

- Behaviour modification
- Medication
  - Stimulants
    - Methylphenidate/Ritalin: Know everything!!!
  - Non-stimulants
    - Anti-depressants
      - SSRI
      - Imipramine
    - Mood stabilizers
- Diet in some cases

Seizures in Childhood

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

Autistic **spectrum** disorder (ASD)

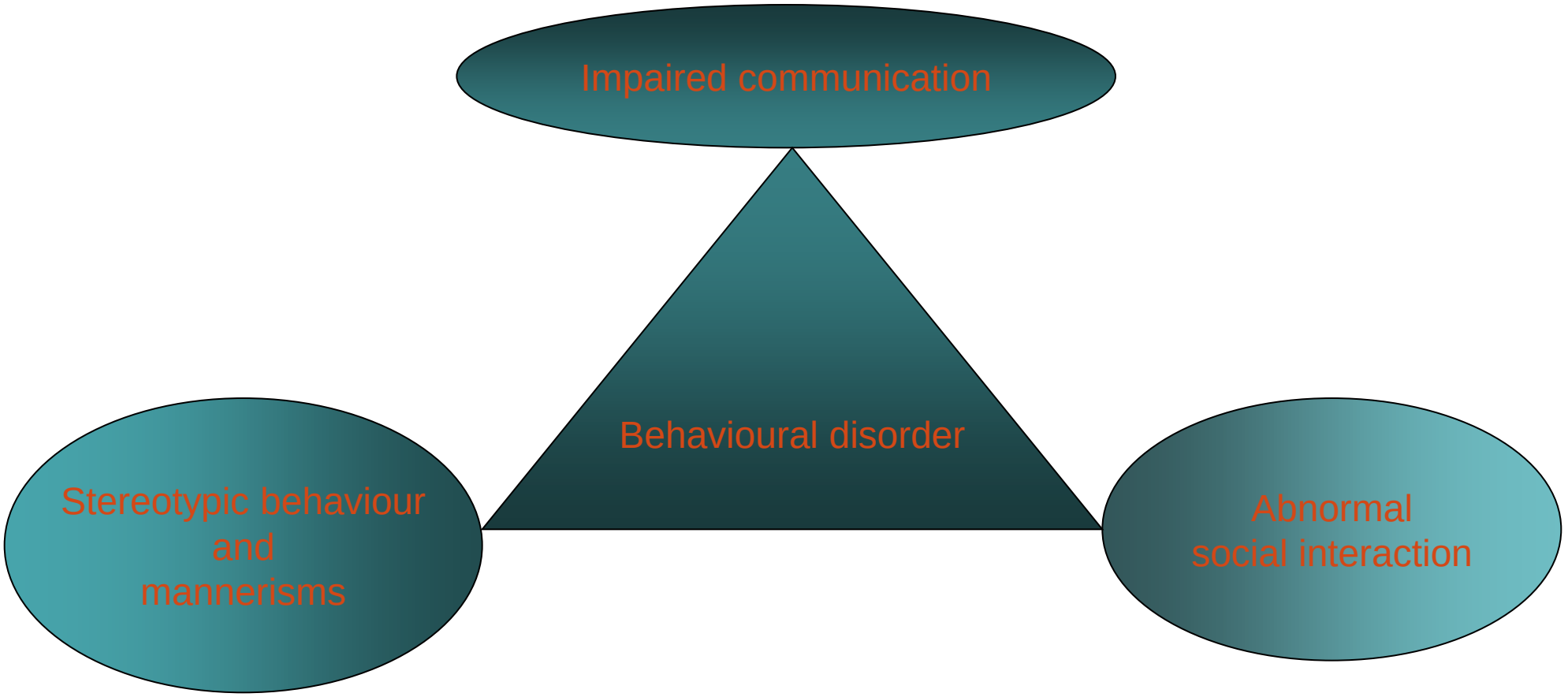
Language disorders

Strange children ?

Funny children ?

Pervasive **developmental** disorder (PDD)

Definition


Impaired communication
Behavioural disorder
Stereotypic behaviour and mannerisms
Abnormal social interaction

Aetiology

Tuberous sclerosis

Praeder Willi

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????

Metabolic disorders

Encephalitis

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

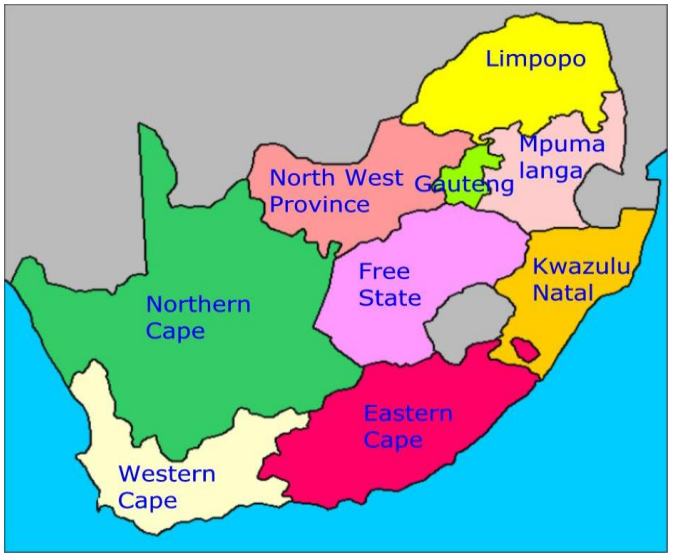
- Weak central coherence
  - Disjointed and piecemeal internal social world
- Executive dysfunction
  - Poor self regulation
  - Difficulties with change
  - Ineffective problem solving skills
  - Poor planning

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?

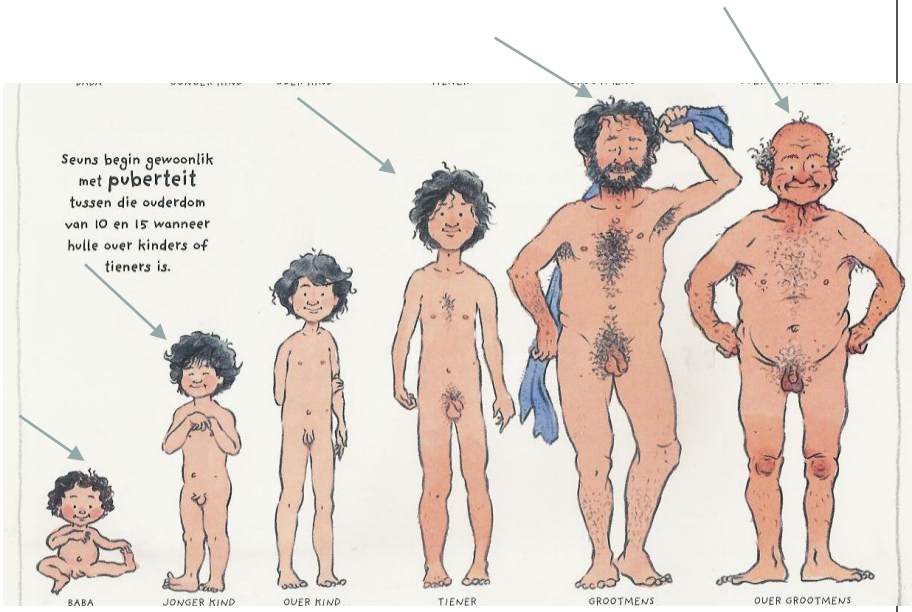


General facts

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

Life cycle

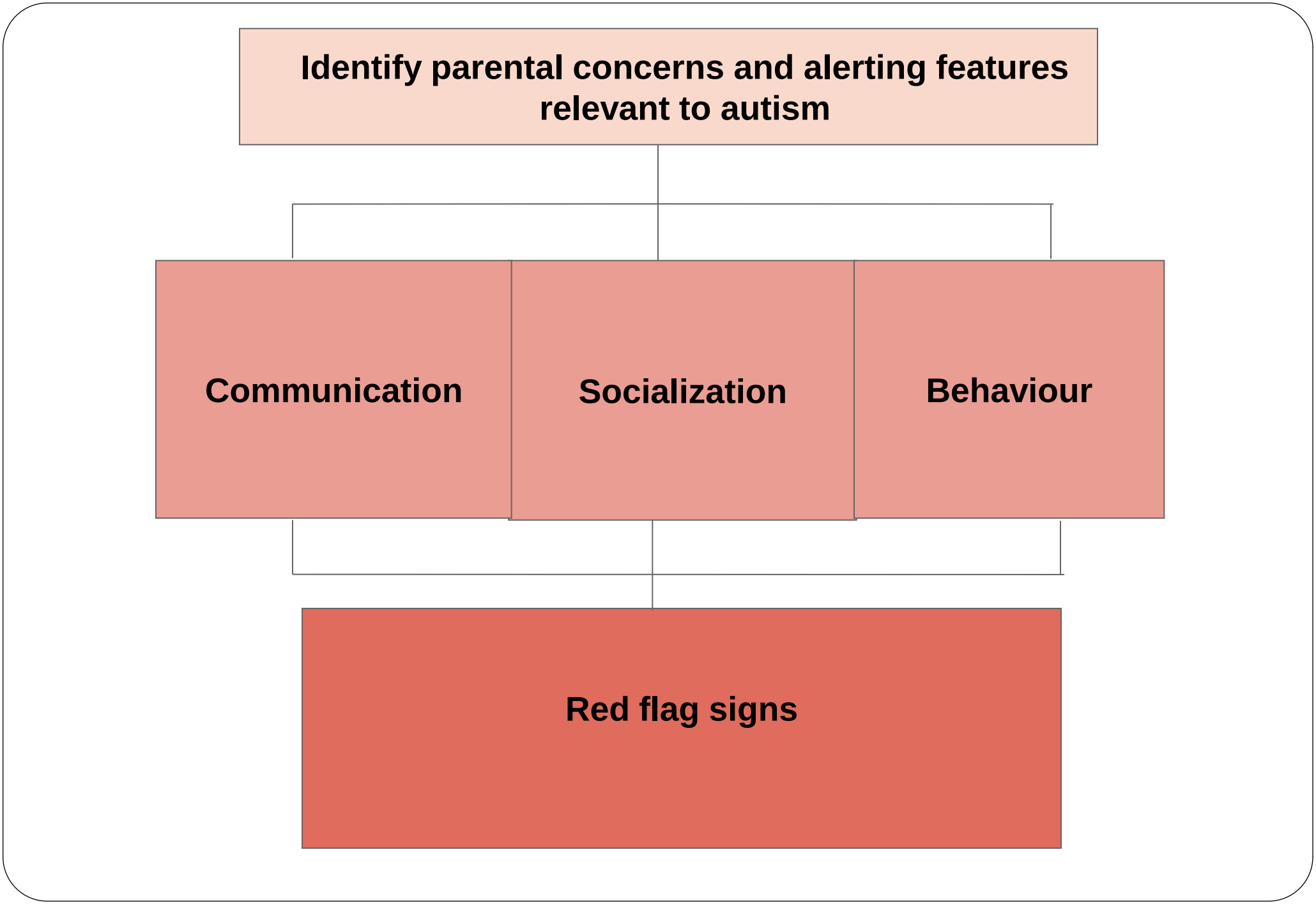
- Repetitive behaviour
  - Less common in
    - Very young children
    - High functioning adolescents
    - Adults
- Social abnormalities
  - More common in
    - Preschool children
- Executive functioning
  - More common in older individuals



Role of the primary health care practitioner

Adapted for South African circumstances

(Charman 2002, Filipek 1999, Le Couteur 2003)


Identify parental concerns and alerting features relevant to autism
Communication
Socialization
Behaviour
Red flag signs

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

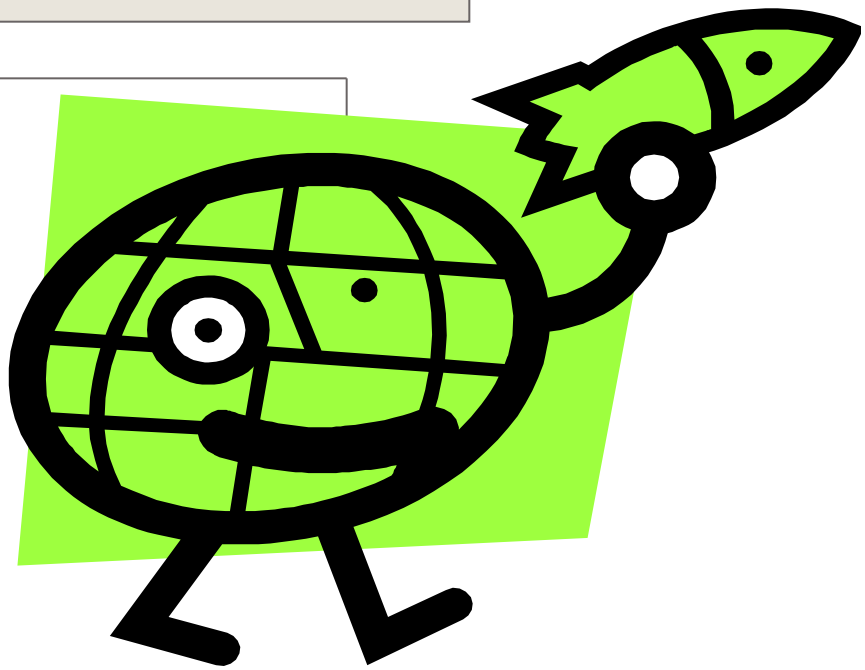
	QUESTIONS	YES	NO
2	Does your child like interacting/playing with other children?		X
7	Does your child use his/her finger to point out things of interest to you?		X
9	Does your child bring you things to show you?		X
13	Does your child imitate you?		X
14	Does your child react when you call his/her name?		X
15	If you indicate/point at something across the room, does your child look at it?		X

Red flag signs

Initial assessment

- Hearing assessment
- M-CHAT (Robins 2001)

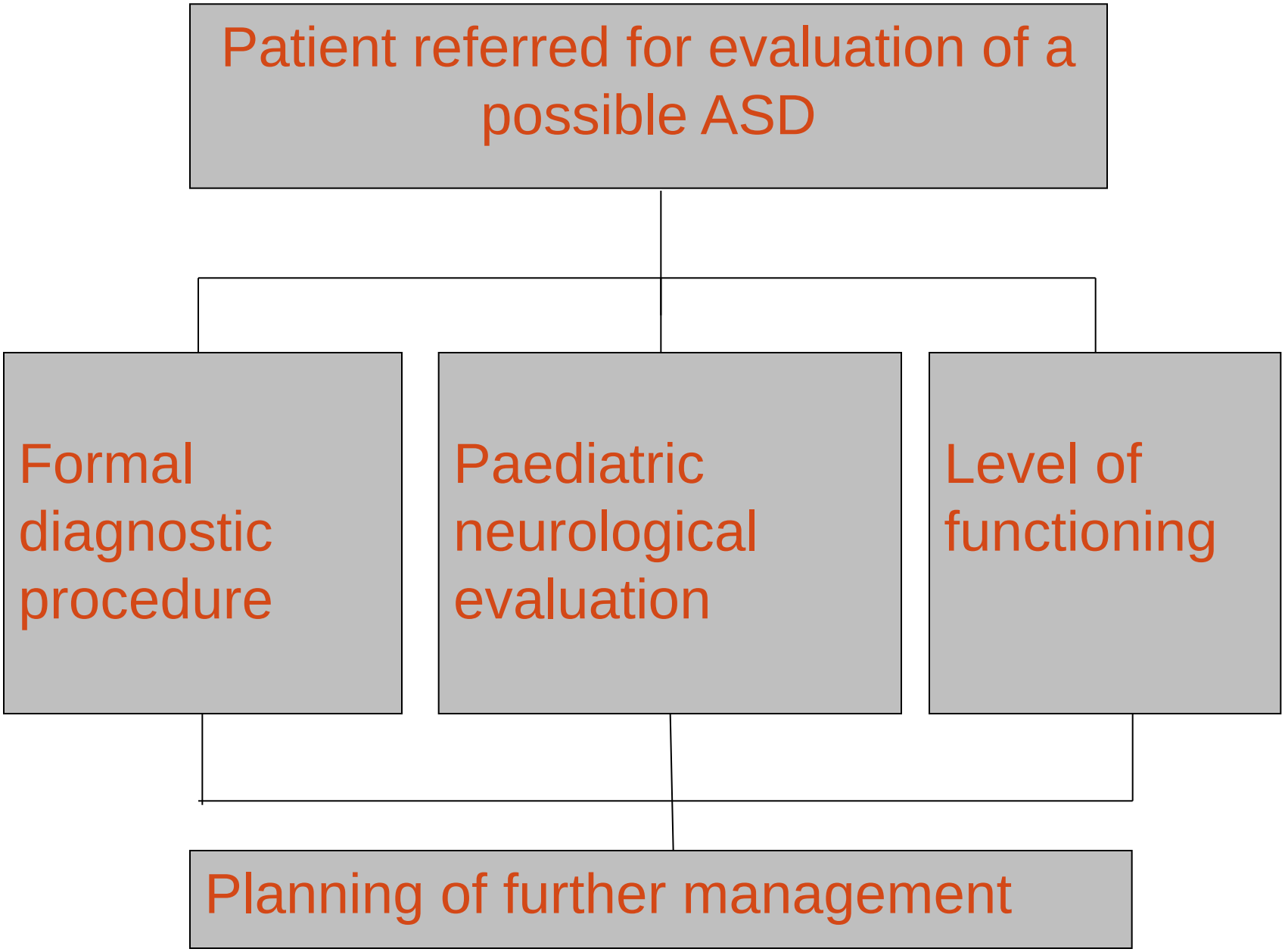
- **Refer for**
  - developmental assessment
  - diagnosis
- **Explain**
  - process

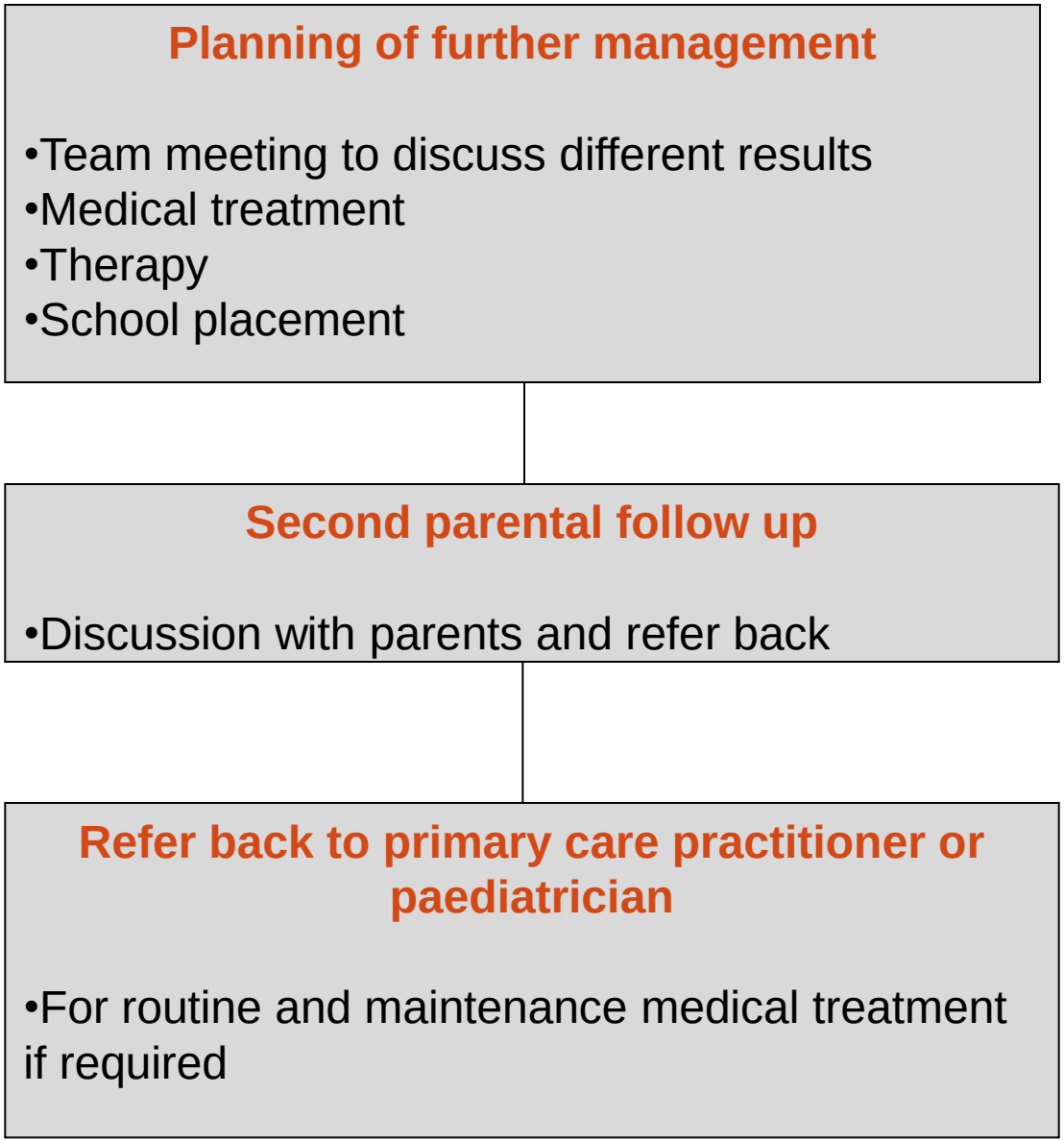


Role of the multidisciplinary team in the of autism

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