

Sri Aurobindo College of Dentistry

Indore, Madhya Pradesh
INDIA



MODULE PLAN

TOPIC : DENTAL CARE OF CHILDREN WITH SPECIAL NEEDS

SUBJECT: PEDODONTICS

TARGET GROUP: UNDERGRADUATE DENTISTRY

MODE: POWERPOINT – WEBINAR

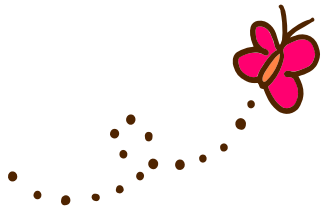
PLATFORM: INSTITUTIONAL LMS

PRESENTER: DR. KHUSHBOO BARJATYA

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INTRODUCTION



- ❑ There has been a general agreement that the disabled population has
 - Increase prevalence of poor oral hygiene
 - Compromised gingival
 - Periodontal health
 - Increased prevalence of dental caries than the general population.

- ❑ The dental profession and parental groups have shown increased concern in providing complete oral health care to the mentally or physically disabled children.

- ❑ Individuals with a disability, whether developmental or acquired, are entitled to the opportunity to achieve appropriate rehabilitation, to enable them to realize their maximal level of functioning and to assist them in not only “normalizing” their lives but also lengthening their life span.

- ❑ Unfortunately, the service provided to this unique population by both community-based dental care facilities and individual providers has been grossly inadequate.

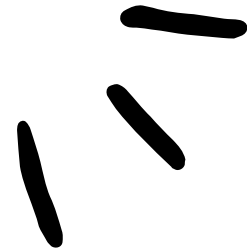
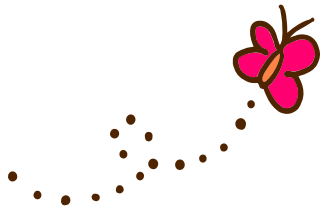
Historically, five basic reasons have been given to account for the inadequacy of dental care for this group by **Plummer**:

1. On the part of the profession, there has been lack of knowledge, understanding, and actual experience in treating the handicapped patient.
2. There has been inadequate literature on the oral hygiene status and dental needs of the handicapped population.
3. The importance of dental care for the handicapped has been overlooked by health planners and administrators in establishing programs for the noninstitutionalized population.

4. Parents and guardians of handicapped children have not been made aware of the importance of oral health and may lack knowledge of the health care system and financial resources available to them.
5. Home care has been so neglected that most handicapped patients need extensive dental treatment.

DEFINITION

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Disability

It represents a departure from the norm in terms of individual performance.

Handicap

A social phenomenon, representing the social and environmental consequences for the individual stemming from the presence of impairment and disability.

Handicapped child (American Public Health Association)

A child who cannot within limits play, learn, work or do things other children of his age can do; he is hindered in achieving his full physical, mental and social potentialities.

Handicapped Child (World Health Organization, 1980)

One who over an appreciable period of time is prevented by physical or mental conditions from full participation in the normal activities of their age groups including those of a social, recreational, educational and vocational nature.

Disabled Person (American Disabilities Act, 1990)

The term “disability” means with respect to an individual who has

- a) A physical or mental impairment that substantially limits one or more of the major life activities of such individual
- b) A record of such an impairment
- c) Being regarded as having such an impairment

Dentally Handicapped (American Association of Pediatric Dentistry, 1996)

In states, a person should be considered dentally handicapped if there is pain, infection or lack of functional dentition that affects him/her as follows:

- a) Restricts consumption of a diet adequate to support growth and energy needs.
- b) Delays or otherwise alters growth and development
- c) Inhibits performance of any major life activity including work, learning, communication and recreation

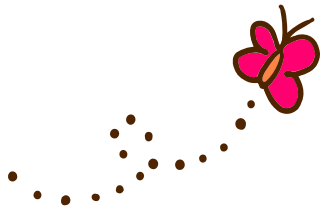
The Federal Maternal and Child Health Bureau (1998)

It defines children with special health care needs (CSHCN) as “those who have or are at an increased risk for a chronic physical, developmental, behavioural, or emotional condition and who also require health and related services of a type or amount beyond that required by children generally.”

American Association of Pediatric Dentistry (2016)

AAPD defines special health care need as “any physical, developmental, mental, sensory, behavioural, cognitive or emotional impairment or limiting condition that requires medical management, health care intervention and/or use of specialized services or programs.”

CLASSIFICATION



Frank and Winter
(1974)

Blind or
partially
sighted

Deaf or
partially deaf

Educationally
subnormal

Epileptic

Maladjusted

Physically
handicapped

Defective in
speech

Senile

Agerholm (1975)

Intrinsic handicap

One from which the person cannot be separated

Extrinsic handicap

One from which the person or the patient can be removed, e.g. social deprivation

Nowak (1976)

Physically handicapped	Poliomyelitis, scoliosis
Mentally handicapped	Mental retardation
Congenital defects	Cleft palate, congenital heart disease
Convulsive disorders	Epilepsy
Communication disorders	Deafness, blindness
Systemic disorders	Hypothyroidism, haemophilia
Metabolic disorders	Juvenile diabetes
Osseous disorders	Rickets, osteopetrosis
Malignant disorders	Leukaemia

Types of treatment modalities

Developmentally
disabled child

Medically
compromised
patients

Common Oral Health Problems in Special needs Care Children

- Delayed, accelerated or inconsistent tooth eruption
- Dental Caries
- Periodontal diseases
- Malocclusion
- Abnormal oral habits
- Tooth abnormalities
- Trauma and injury

Contributing factors to Oral Health Problems in Children with Special Needs Care

- Genetic Disorder
- Physical limitation
- Difficulty in brushing and flossing
- Reduced salivary flow
- Drugs
- Diet Restriction

Factors to be considered during treatment of child with Special Health Care Need

- Understanding the condition
 - Management techniques must be TLC (Tender, Loving, Care)
 - **‘Empathy’** is the necessary ingredient rendering to quality dental care for the handicapped person.
 - It is the ability to understand and experience the fears of another without losing one’s own positive and realistic differentiation from the others’ condition and behaviours.

- The handicapped patient differs from a normal patient with regard to the professional relationship between the patient and the dentist.
- Usually it is a three way relationship, but in the case of handicapped children it may involve 4th or even 5th interested parties, i.e. a headmaster or head mistress of a residential special school.
- Assessment should be achieved via a history and clinical examination.
- Treatment plans for handicapped patients are made with appropriate modifications according to the nature of handicap.

➤ Attitude of Parent towards particular problem

- Feeling of sorrow, guilt, anger and self pity
- Family has been emotionally, physically and financially tied up with the patient's medical needs
- Behaviour – overprotection / under protection
- Informed consent

- Attitude of the society
- Attitude of the patient
- Attitude of the dentist towards the particular condition
 - Lack of education and experience
 - Fear of the patient
 - Feeling incompetent to treat
 - Inability to develop relationships
 - Physical repulsions
 - Substantial fees
 - Need for special equipment and dental office architecture

➤ Impact of physical Limitations

Physical disabilities with or without accompanying mental retardation contribute to the difficulties in achieving and maintaining adequate oral health.

➤ Impact of Cognitive Limitations

The level of mental functioning and the individuals' capacity for interaction with others dictates the level of home care that can be performed by the individual and his/her degree of dependency on the care giver.

Barriers In Providing Care To Handicapped Children

- According to **Miller et al. in 1965** dental treatment for disable children has usually been restricted to relief of painful emergency procedures but then over a period of time there was a transient shift that was seen in the attitude of the dentist.
- **Fenton et al. 1993** said that there was particular number of lecture hours in predoctoral curriculum devoted to teaching dental management of child with disability ranging up to 40, 23 of dental schools reported 5 or few hours.
- This shows that the need of dental treatment for such children is considered less important thereby providing them limited services.

➤ Accessibility:

The person with disability experiences physical and mental obstacles to access, the most overt being the architectural barrier and more width of the door way

- Provision of wheel chair turning space
- Operatory designed with movable dental unit, instrument control unit and suction unit
- Dental chair should be adjustable to match different wheel chair designs
- Provision of free space around the unit giving dentist a flexi access to patient.

➤ Psychosocial

➤ Financial

Cost of dental care is an issue for many patients.

➤ Communication

The dentist patient chair side relationship demands a functional communication cycle.

➤ Medical

Special health needs often translate into chronic illness and polypharmacy.

Dentists are faced with pathology and therapy that present risks for the patient, and complicate treatment.

➤ Mobility and stability

Dental offices are designed for fully functional humans.

Some patients with special needs require stabilization, support and assistance while seating or leaving the dental chair.

➤ Preventive

Basic oral hygiene and home care may need to be supplemented with fluoride rinses, antimicrobials, saliva substitutes, and other adjunctive.

➤ Treatment planning

The special needs patient may need and want the treatment that balances cost, longevity, difficulty of achievement, esthetics, and function.

➤ Continuity of care

Crisis often brings the special needs patient to the dentist, and the myriad of problems they experience can force them into oral neglect.

➤ Lack of trained personnel

Treatment for these children are very time consuming, thus the need of trained assistant becomes a necessity thereby reducing chair side time.

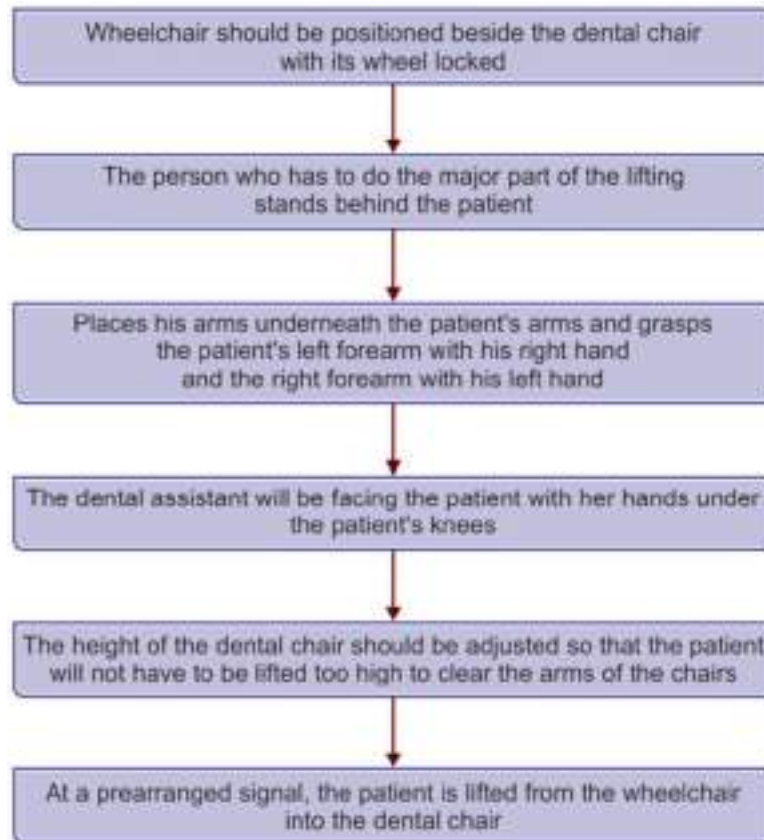
Disabled Accessibility Guidelines

<i>External/Internal building features</i>	<i>Gradient</i>	<i>Length</i>	<i>Width</i>	<i>Surface, other specifics</i>
Parking space	1:50 max slope	Standard	Auto: 90 inches Van: 144 inches	Nonskid; paved; sign posted; adjacent walkway
Walkway	1:12 max slope	Not applicable	36 inches	Nonskid; no obstructions overhangs; smooth
Passenger loading zone	Flat	20 feet	36 inches	Same as above
Curb ramps door	1:12 max slope 5 foot entrance and exist platform area	Standard	32 inch	Nonskid; side flair <1:10 slope; Away from prevailing winds; lever with 10-lb pull; autoassisted door available; kick plate
Interior ramp	1:20 max slope	72 inch	36 inches	Nonskid hand rails
Wheelchair lift	Bilevel	8 foot max drop	48 inches	Nonskid; dependent on specific chair
Corridor flooring	Not applicable flat, firm carpet	Standard not applicable	½ inch max thickness	Low facility; no obstacles; No doormats; level thresholds
Signs	Braille, raised letters	Above 5 feet	Readable	Neat latch of office door
Waiting room	Flat	Standard	36 inch aisle	No carpet pad; well insulated; minimum low-frequency background noise
Restrooms	Flat		32 inch stall	Nonskid; magnetic catch door
Public telephone	No higher than 4 feet	3 feet above floor	26 inch clearance	Phone directory near phone; adjustable volume control.
Elevator	Flat		54 × 68 inches	Nonskid; call and control box 48 inches high includes incised letters
Operatory	Flat 8 × 10 feet	Standard	32 to 36 inch door	Nonskid; rotating or movable chair; drill and suction

The Role of the Dental Assistant

- Some of the duties which the dentist may assign to the assistant or which arise as a result of such delegations are:
- Obtaining preliminary information which the dentist later reviews with the patient or family.
- Instructing the patient or family in oral hygiene.
- Assisting in the use of restraints and other methods of patient behavioral control.
- Anticipating problems and preparing for emergencies and other contingencies.
- Advising the dentist of any noteworthy or unusual patient, family, or guardian problems.

Wheelchair Transfer



Concerns of the Pediatric Dentist

Pediatric dentists are dealing specifically with children there are a certain obstacles and concerns to be considered when treating a patient with disabilities.

Patient

- Dependent behavior
- Immaturity
- Severity of chronic illness of disability
- Lack of support system
- Lack of trust in caregivers
- Poor adherence to treatment regimens.

Family

- Excessive need for control
- Emotional dependency
- Psychopathology
- Parenting styles leading to over protection
- Heightened perception of severity or condition
- Lack of trust in caregivers
- Mistaken perception of potential.

- Pediatric (dental) Practitioner
 - Economic concerns
 - Emotional bonds with patient and family
 - Comfort with the status quo
 - Perception of own skills
 - Perception of potential survival of parents
 - Distrust of adult caregivers
 - Increased time
 - Architectural accessibility
 - Disruption in the office setting and scheduling

Key handicaps	Handicap components
Locomotor handicap	<ul style="list-style-type: none">• Impaired mobility in environment• Impaired postural mobility (relation of parts of body to one another)• Impaired manual dexterity• Reduced exercise tolerance
Visual handicap	<ul style="list-style-type: none">• Total loss of sight• Impaired (uncorrectable) visual acuity• Impaired visual field• Perceptual defect
Communication handicap	<ul style="list-style-type: none">• Impaired hearing• Impaired talking• Impaired reading• Impaired writing

Key handicaps	Handicap components
Visceral handicap	<ul style="list-style-type: none"> • Disorders of ingestion • Disorders of excretion • Artificial openings • Dependence on life-saving machines
Intellectual handicap	<ul style="list-style-type: none"> • Mental retardation (congenital) • Mental retardation (acquired) • Loss of learned skills • Impaired learning ability • Impaired memory • Impaired orientation in space or time • Impaired consciousness
Emotional handicap	<ul style="list-style-type: none"> • Psychoses • Neuroses • Behavior disorders • Drug disorders (including alcoholism) • Antisocial disorders • Emotional immaturity

Key handicaps	Handicap components
Invisible handicap	<ul style="list-style-type: none"> • Metabolic disorders requiring permanent therapy (e.g. diabetes, cystic fibrosis) • Epilepsy, and other unpredictable losses of consciousness • Special susceptibility to trauma (e.g. hemorrhagic disorders, bone fragility, susceptibility to pressure sores) • Intermittent prostrating disorders (e.g. migraine, asthma, vertigo) • Causalgia and other severe pain disorders
Aversive handicap	<ul style="list-style-type: none"> • Unsightly distortion or defect of part of body • Unsightly skin disorders and scars • Abnormal movements of body (athetosis, tics, grimacing, etc.) • Abnormalities causing socially unacceptable smell, sight or sound
Senescence handicap	<ul style="list-style-type: none"> • Reduced plasticity of senescence • Slowing of physical or mental function of senescence • Reduced recuperative powers of senescence

Mental Retardation

- “Subaverage general intellectual functioning which originates during the developmental period and is associated with impairment in adaptive behavior.”
-American Association of Mental Deficiency (AAMD)
- Classified as Syndromic MR and Non Syndromic MR.
- Mental retardation and intellectual disability are synonymous; in fact American Academy of Mental Retardation in 2007 changed its name to American Association of Intellectual and Developmental Disability

- Intellectual disability is characterized by significant limitation both in intellectual functioning and adaptive behavior.
- It should be clearly understood that while diagnosing infants and preschoolers, the utmost important thing is to distinguish between mental retardation and developmental delay, in the absence of clear cut evidence of MR it is appropriate to give the diagnosis of developmental delay.
- In clinical practice a child under the age of 2 years should not be diagnosed as MR unless the deficits are severe and is highly correlated with MR.

Mental retardation (MR) is defined as an overall intelligence quotient lower than 70, associated with functional deficit in adaptive behavior, such as daily-living skills, social skills and communication. Three levels of impairment were identified:

1. **Idiot**, individuals whose development is arrested at the level of a 2 years old
2. **Imbecile**, individuals whose development is equivalent to that of a 2 to 7 years old at maturity
3. **Moron**, individuals whose mental development is equivalent to that of a 7 to 12 years old at maturity.

IQ Scales

Subaverage general intellectual functioning is defined by Capute as a developmental or intelligence quotient (IQ) that is below 70 and represents two or more standard deviation from a mean of 100.

The tests used to determine the IQ are:

- The Cattell infant intelligence scale: Used in a child whose developmental age or mental age is estimated to be below two years.
- The Stanford-Binet intelligence scale: Used in children whose developmental or mental age is estimated to be at least two years.

- The Wechsler intelligence scale: Generally used in children with chronological ages from six to seventeen years.
- The Wechsler adult intelligence scale: It is used with individuals sixteen and older.
- The standard formula for computing a ratio IQ is:

$$\text{IQ} = (\text{MA}/\text{CA}) \times 100$$

MA—mental age CA—chronological age.

Level of mental retardation and clinical features

<i>Level of mental retardation</i>	<i>IQ</i>	<i>0–6 years</i>	<i>6–21 years</i>	<i>21 years and over</i>
Profound (lowest function level)	25	<ul style="list-style-type: none"> • Gross retardation • Needs nursing care 	<ul style="list-style-type: none"> • Delay in all areas of development • Shows emotions • May respond to training in use of hand, legs and jaws • Needs close supervision 	<ul style="list-style-type: none"> • May walk • Needs care • Primitive speech • Incapable of self maintenance
Severe (Lowest functioning level)	25–40	<ul style="list-style-type: none"> • Significant delay in motor development • Little communication skill of speech • May respond to training 	<ul style="list-style-type: none"> • Usually walks • Some understanding activities • Can profit from systematic habit training 	<ul style="list-style-type: none"> • Can conform to daily • Needs supervision • Protective environment
Moderate (Trainable)	40–55	<ul style="list-style-type: none"> • Delay in motor development • Speech delay • Responds to training 	<ul style="list-style-type: none"> • Can learn communication skills • Does not progress in arithmetic and reading 	<ul style="list-style-type: none"> • Can perform simple tasks • Participates in recreation • Incapable of self maintenance • Travels alone in known places
Mild (Educable)	55–70	<ul style="list-style-type: none"> • Often not noticed as retarded • Slow walking 	<ul style="list-style-type: none"> • Educable class • Can progress in arithmetic and reading till 6th grade level • Can be guided towards social conformity 	<ul style="list-style-type: none"> • Can achieve social and vocational skills • May need support under stress
Borderline	70–80	<ul style="list-style-type: none"> • Not detected as slow until 1st grade • Physical developmental stages slightly below average 	<ul style="list-style-type: none"> • Slow learners • Can acquire academic skills till 8th grade level • Can conform socially 	<ul style="list-style-type: none"> • Can achieve social and vocational skills • Less guidance

■ **TABLE 70.1:** Etiology of mental retardation

<i>Prenatal</i>	<i>Natal</i>	<i>Postnatal</i>
• Genetic disorders	• Birth injuries	• Cerebral infections
• Maternal and fetal infections	• Infection	• Cerebral trauma
• Kernicterus	• Cerebral trauma	• Poisoning
• Cretinism	• Hemorrhage	• Cerebrovascular accidents
• Prenatal unknown	• Hypoxia	
• Fetal alcohol syndrome	• Anoxia	
	• Hypoglycemia	

Clinical Manifestations

- Tensely reclined head, abnormal behavior and poor mobility.
- Retained primitive reflexes and delayed milestones.
- Increased tone in limbs and persistent fistling.
- Hand preference during the first 2 years of life is a sign of hemiplegic CP.
- As the child grows a typical clinical picture of abnormal body movement establishes.
- Infants with cerebral palsy initially have hypotonicity but those whose muscle tone gradually increases are likely to develop spasticity which is seen in at least 70 to 80 percent of CP children.

Oral Manifestations

- Advanced cases of baby-bottle tooth decay/early childhood caries, prescription-medication-induced dental decay.
- Altered salivary flow and tooth decay, “placating” tooth decay, malocclusions, fractured and non-vital teeth, soft tissue complications, and bruxism rates of dental decay.
- Major loss of tooth structure, leading to an eventual extraction, can affect developing speech patterns.
- Unmonitored food consumption—loss of space maintenance for the permanent dentition causing significant malocclusion problems, abnormal jaw development, marked alterations in mastication, poor esthetics.

- Poor dental hygiene dental plaque and gingivitis, calculus in early ages, intense halitosis due to food remnants in teeth and mucosal, and cariogenic and soft diet.
- Gingival overgrowth because of hydantoins, chronic infections and inflammation, systematic tooth extraction instead of conservative treatments, use of prosthesis because potential risks, bad occlusion, traumatic occlusion and bruxism, with dental abrasion and hypersensitivity.
- In spastic CP, mouth is open and facial movements are tensed, tongue is hypertonic and cigar shaped, upper lip is under-developed so it does not put enough pressure on upper anterior teeth to align.

- In athetotic CP tongue shows wave like movements along with abrupt and wide opening of the mouth causing jaw dislocations.
- In hypotonic CP tongue is large, flat and protruded, weak facial movements and inactive upper lip.
- Injurious behavior can arise in people with severe and profound mental retardation. For example, lip biting or additionally biting the buccal mucosa. Lesch-Nyhan syndrome have same features and includes biting the digits of the hand.

Cerebral Palsy

- **Nelson** used the term cerebral palsy to describe a group of non progressive disorders resulting from malfunctioning of the motor centers and pathways of the brain.
- It is a heterogeneous disorder that may result from congenital defects, mechanical or chemical injury and infection
- **American Academy for Cerebral Palsy and Developmental Medicine** describes Cerebral Palsy a group of disorders of the development of movement and posture, causing activity limitations that are attributed to nonprogressive disturbances that occurred in the developing fetal or infant brain.

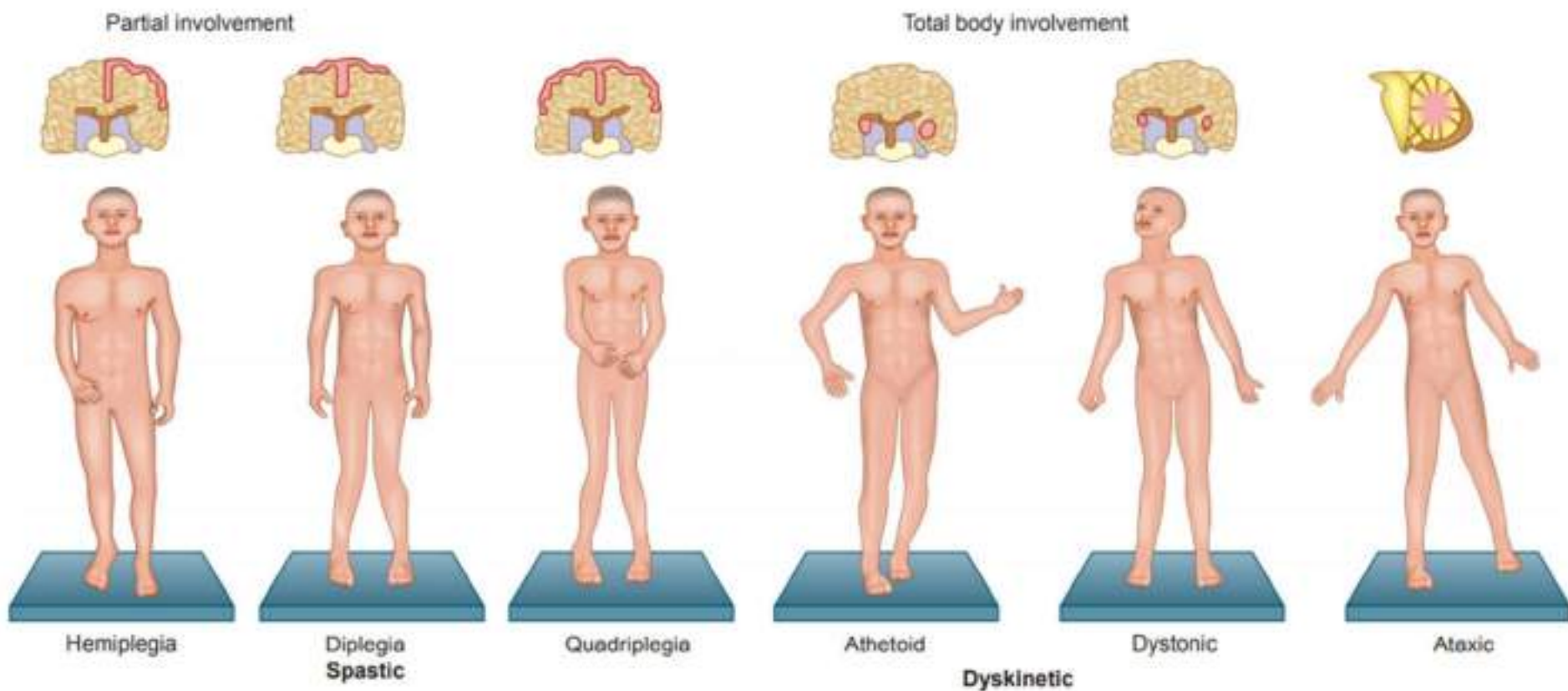


Fig. 70.2: Types of cerebral palsy

Oral Manifestations

- Children with cerebral palsy frequently have gastroesophageal reflux, as well as episodes of vomiting.
- Orofacial findings in spastic cerebral palsy:
 - The head is tensely reclined.
 - The mouth is open, and facial movements are tense.
 - The tongue is hypertonic and cigar shaped.
 - There is tongue thrust during swallowing and speaking.
 - Since the upper lip is underdeveloped, it does not produce enough pressure on the front teeth to align them correctly.

- Orofacial findings in athetotic cerebral palsy:

The tongue shows spontaneous wave-like movements. Abrupt and wide opening of the mouth, which can lead to jaw dislocation. Uncoordinated movement of tongue, jaw, and face muscles.

- Orofacial findings in hypotonic cerebral palsy

The tongue is large, flat, and protruded. Facial movements are weak, and the upper lip is inactive

Management

- Consider treating a patient who uses a wheelchair in the same itself.
- If a patient is to be transferred to the dental chair, ask about a preference for the mode of transfer. If the patient has no preference, the two person lift is recommended.
- Make an effort to stabilize the patient's head through all phases of dental treatment.
- Try to place and maintain the patient in the midline of the dental chair with arms and legs as close to the body as feasible.
- Keep the patient's back slightly elevated, to minimize swallowing (supine position).

- On placing the patient in the dental chair, determine the patient's degree of comfort and assess the position of the extremities. Do not force the limbs into unnatural positions.
- Use immobilization judiciously for controlling movements of the extremities.
- For control of involuntary jaw movements choose from a variety of mouth props and finger splint.
- To minimize startle reflex reactions, avoid stimuli, such as abrupt movements, noises and lights, without forewarning the patient.
- Introduce intraoral stimuli slowly to avoid eliciting a gag reflex or to make it less severe
- Consider the use of the rubber dam

Childhood Autism

- Autistic disorder is a pervasive developmental disorder defined behaviorally as a syndrome consisting of **abnormal development of social skills** (withdrawal, lack of interest in peers), **limitations in the use of interactive language** (speech as well as nonverbal communication), and **sensorimotor deficits** (inconsistent responses to environmental stimuli).

Feature of autistic child

<i>Early symptoms</i>	<i>Young children</i>
<ul style="list-style-type: none"> • A baby who does not babble or gesture by the age of 12 months • A baby who lacks eye contact with its mother by the age of 12 months • A baby who resists being held or cuddled by its mother • A baby who does not respond when its mother says its name • A baby who appears to be deaf • An infant who does not say single words by 16 months of age • A toddler who does not say 2-word phrases by 24 months of age 	<ul style="list-style-type: none"> • Do not engage themselves in group activity and seems to be in their own world • Unable to share in another child's interest in an activity • Unable to recognize intentions, desires, feelings and beliefs of other people that can be different from their own • Inability to interpret the behavior of others • Failure to use facial expression and body language to interact with others those results in social conflict
<i>First year of life</i>	<i>Teenagers and young adults</i>
<ul style="list-style-type: none"> • Reduced social interaction, absence of social smile, lack of facial expression • Abnormal muscle tone, posture and movement patterns • Failure to orient to name, lack of pointing, decreased orienting to faces • Lack of spontaneous imitation 	<ul style="list-style-type: none"> • Are usually remaining oblivious to the presence of parents • Are unable to empathize with and see the world from other people's perspectives • They also lack an interest in sharing their achievements with others; instead, they prefer to engage in solitary activities rather than form friendships

Dental Findings of an Autistic Child

- Higher susceptibility to caries
- Bruxism
- Damaging oral habits: Such as tongue thrusting, picking at the gingiva, lip biting, and pica.
- Traumatic injuries
- Texture sensitivities
- Gingivitis and poor oral hygiene

Treatment

- Offer parents and children to tour your dental office.
- Allow autistic child to bring comfort items, e.g. a toy.
- Make the first appointment short and positive.
- Approach the autistic child in a quiet, nonthreatening manner.
- A prominent symptom of infantile autism is an intense desire to maintain consistency in the environment.
- Solicit suggestions from the parent or caregiver on how best to deal with the child as the minor changes in the environment may elicit extreme anxiety in autistic children.

- They often exhibit an extreme resistance on being held and show an inappropriate reaction to fearful situations.
- Autistic children are hypersensitive to loud noises, sudden movement, and things that are felt.
- Eye contact is difficult to achieve, and the children are prone to tantrums and aggressive or destructive behavior.
- Invite the child to sit alone in the dental chair to become familiar with the treatment setting.
- Talk in direct, short phrases. Talk calmly.
- Begin a cursory examination using only your fingers. Keep the light out of the eyes.
- Oral hygiene is often very poor because of finicky dietary habits.

- The key to all behavior modification programs lies in the use of positive reinforcement to promote desirable behavior.
- Reward: In the early, stages of the program, sweet foods can serve as desirable rewards. In the latter stages of modifying behavior, such oral rewards should be changed to social rewards, such as a pat on the back or a hug.
- Some autistic children can be calmed by moderate pressure, such as by using a papoose board to wrap the child.
- Some children will need sedation or general anesthesia so that dental treatment can be accomplished.

Visual Impairment

- Visual impairment is the consequence of the functional loss of vision rather than an eye disorder itself however, sensory disabilities alone do not require changes in treatment methods, just modifications in provisions.
- Blindness is not an all-or-none phenomenon; a person is considered to be affected by blindness if the visual acuity does not exceed 20/200 in the better eye, with correcting lenses or if the acuity is greater than 20/200 but accompanied by a visual field of no greater than 20 degrees.

Communication Tips

- Use audiocassette tapes and Braille dental pamphlets explaining specific dental procedures to supplement information and decrease chair time
- Announce exits from the entrances to the dental operatory cheerfully. Keep distractions minimal, and avoid unexpected loud noises.
- Limit the patient's dental care to one dentist whenever possible.
- Maintain a relaxed atmosphere. Remember that your patient cannot see your smile.
- Ask the patient how he or she prefers to communicate.
- Face the patient and speak slowly.
- Keep conversation simple.

Treatment

- Determine the degree of visual impairment (e.g. can the patient tell light from dark).
- If a companion accompanies the patient, find out if the companion is an interpreter. If he or she is not, address the patient.
- Establish rapport; offer verbal and physical reassurance. Avoid expressions of pity or references to visual impairment as an affliction.
- In guiding the patient to the operatory, ask if the patient desires assistance. Do not grab, move or stop the patient without verbal warning. Encourage the parent to accompany the child.

- Paint a picture in the mind of the visually impaired child, describing the office setting and treatment
- Introduce other office personnel very informally.
- When making physical contact, do so reassuringly. Holding the patient's hand often promotes relaxation.
- Allow the patient to ask questions about the course of treatment and answer them keeping in mind that the patient is highly individual, sensitive and responsive.
- Allow a patient who wears eyeglasses to keep them on for protection and security.

- Rather than using the tell-show-feel-do approach, invite the patient to touch, taste, or smell, recognizing that these senses are acute. Avoid sight references.
- Describe in detail instruments and objects to be placed in the patient's mouth. Demonstrate a rubber cup on the patient's fingernail.
- Strong tastes may be rejected, use smaller quantities of dental materials with such characteristics.
- Some patients may be photophobic. Ask parents about light sensitivity and allow them to wear sunglasses.
- Explain the procedures of oral hygiene and then place the patient's hand over yours as you slowly but deliberately guide the toothbrush.

- Use audiocassette tapes and Braille dental pamphlets explaining specific dental procedures to supplement information and decrease chair time.
- Announce exits from the entrances to the dental operatory cheerfully. Keep distractions minimal, and avoid unexpected loud noises.
- Limit the patient's dental care to one dentist whenever possible.
- Maintain a relaxed atmosphere. Remember that your patient cannot see your smile.

Hearing Loss

- Prepare the patient and parent before the first visit with a welcome letter that states what is to be done and include a medical history form.
- Let the patient and parent determine the initial appointment how the patient desires to communicate (i.e. interpreter, lip reading, sign language, writing notes, or a combination of these).
- Look for ways to improve communication. It is useful to learn some basic sign language
- Face the patient and speak slowly at a natural pace and directly to the patient without shouting

- Assess speech, language ability, and degree of hearing impairment when taking the patient's complete medical history.
- Identify the age of onset, type, degree, and cause of hearing loss, whether any other family members are affected.
- Enhance visibility for communication.
- Watch the patient's expression.
- Have the patient use hand gestures if a problem arises.
- Write out and display information
- Reassure the patient with physical contact

- The child may be startled without visual contact so explain to the patient if you must leave the room.
- Use visual aids and allow the patient to see the instruments, and demonstrate how they work.
- Display confidence; use smiles and reassuring gestures to build up confidence and reduce anxiety.
- Adjust the hearing aid (if the patient has one) before the handpiece is in operation, since a hearing aid will amplify all sounds.

Treatment Considerations Of Medically Compromised Children

Cardiovascular System

- Diseases of heart can be divided into two general types : congenital and acquired.
- The cause of congenital heart defect is obscure but may be related to aberrant embryonic development of a normal structure.
- These types of defects include aortic stenosis, tetralogy of Fallot.
- Acquired heart disease includes rheumatic fever and infective bacterial endocarditis

Table 1. CARDIAC CONDITIONS ASSOCIATED WITH THE HIGHEST RISK OF ADVERSE OUTCOME FROM ENDOCARDITIS FOR WHICH PROPHYLAXIS WITH DENTAL PROCEDURES IS REASONABLE

Prosthetic cardiac valve or prosthetic material used for cardiac valve repair
Previous infective endocarditis
Congenital heart disease (CHD)* Unrepaired cyanotic CHD, including palliative shunts and conduits Completely repaired congenital heart defect with prosthetic material or device, whether placed by surgery or by catheter intervention, during the first six months after the procedure † Repaired CHD with residual defects at the site or adjacent to the site of a prosthetic patch or prosthetic device (which inhibit endothelialization)
Cardiac transplantation recipients who develop cardiac valvulopathy

Table 2. DENTAL PROCEDURES FOR WHICH ENDOCARDITIS PROPHYLAXIS IS REASONABLE FOR PATIENTS IN TABLE 1

All dental procedures that involve manipulation of gingival tissue or the periapical region of teeth or perforation of the oral mucosa* *

* The following procedures and events do not need prophylaxis: routine anesthetic injections through non-infected tissue, taking dental radiographs, placement of removable prosthodontic or orthodontic appliances, adjustment of orthodontic appliances, placement of orthodontic brackets, shedding of deciduous teeth, and bleeding from trauma to the lips or oral mucosa.

<i>Endocarditis prophylaxis recommended</i>	<i>Endocarditis prophylaxis not recommended</i>
<ul style="list-style-type: none"> • Dental extraction • Periodontal surgery, scaling, root planning, probing and recall maintenance • Placement of dental implants • Reimplantation of avulsed tooth • Endodontic instrumentation or surgery beyond the apex of the tooth • Subgingival placement of antibiotic fibers/strips • Initial placement of orthodontic bonds but not brackets • Intraligamentary local anesthetic injections • Prophylactic cleaning of teeth or implants where bleeding is anticipated 	<ul style="list-style-type: none"> • Restorative dentistry-restoration of decayed teeth, replacement of missing teeth with or without retraction cord • Local anesthetic injection (non ligamentary) • Intracanal endodontic therapy, postplacement, crown buildup • Placement of rubber dams • Postoperative suture removal • Placement of removable prosthodontic or orthodontic appliances • Taking oral impressions • Fluoride treatments • Taking oral radiographs • Orthodontic appliance adjustment • Shedding of primary teeth

Table 3. REGIMENS FOR A DENTAL PROCEDURE

Regimen: Single Dose 30 to 60 min Before Procedure			
Situation	Agent	Adults	Children
Oral	Amoxicillin	2 g	50 mg/kg
Unable to take oral medication	Ampicillin	2 g IM or IV	50 mg/kg IM or IV
	OR Cefazolin or ceftriaxone	1 g IM or IV	50 mg/kg IM or IV
Allergic to penicillins or ampicillin—oral	Cephalexin*	2 g	50 mg/kg
	OR Clindamycin	600 mg	20 mg/kg
	OR Azithromycin or clarithromycin	500 mg	15 mg/kg
Allergic to penicillin or ampicillin and unable to take oral medication	Cefazolin or ceftriaxone [†]	1 g IM or IV	50 mg/kg IM or IV
	OR Clindamycin	600 mg IM or IV	20 mg/kg IM or IV

Diabetes Mellitus

Oral Manifestations

- Altered salivary levels also known as xerostomia may act as a predisposing factor in the development of oral infections. Dry and damaged mucosa is more susceptible to opportunistic infections by *Candida albicans*.
- Concomitant diffuse non tender bilateral enlargement of Parotid glands (diabetic sialadenosis).
- Altered taste and burning mouth/tongue syndrome has been reported in poorly controlled diabetes.
- Higher incidence of dental caries in patients with poorly controlled diabetes is seen.

- Poor healing, xerostomia with subsequent increased accumulation of plaque and food debris, higher susceptibility to infections, and pronounced hyperplasia of attached gingiva all contribute to the progressive periodontitis in diabetics.
- Delayed wound healing, pulpitis in noncarious tooth, acetone breath are few of the other oral manifestations of diabetes.

Dental Management

- It is aimed at implementation of a preventive protocol, symptomatic relief of any oral manifestations of the disease and immediate provision of primary care.
- Dental appointments should be short, stress free, as atraumatic as possible.
- Early morning appointments are preferred and the patient should eat a normal breakfast before the appointment to prevent hypoglycemia.
- Use of pulp capping and pulpotomy procedures is questionable in the child with uncontrolled diabetes.

- Vital pulp therapy may be preferred to a stressed extraction procedure under local anesthesia.
- Prophylactic antibiotic may be recommended in use of surgical procedures.
- Vasoconstrictor drugs with LA to ensure profound anesthesia are advocated, but excessive adrenaline dosage is contraindicated to prevent an increase in blood glucose levels and for this reason glucocorticosteroids should be avoided.

Leukemia

Oral Manifestations

- Gingivitis and mucositis are one of the first manifestations seen in the oral cavity.
- Mucosal pallor, petechiae, ecchymoses, bleeding, ulceration, gingival enlargement, trismus, mental nerve neuropathy (“numb chin syndrome”), may be the presenting complaint along with facial palsy and oral infections.
- Enlargements of mucosa, gingiva, or masticatory muscles are typically the result of direct infiltration by malignant leukocytes.
- Oral complications of leukemia frequently include gingival hypertrophy, petechiae, ecchymosis, mucosal ulcers, hemorrhage are the consequences of anemia, thrombocytopenia, and leukopenia.

- Infiltration of leukemic cells along vascular channels can result in strangulation of pulpal tissue and spontaneous abscess formation as a result of infection or focal areas of liquefaction necrosis in the dental pulp of sound teeth.
- Skeletal lesions caused by leukemic infiltration of bone are common in childhood leukemia.
- The most common finding is a generalized osteoporosis caused by enlargement of the haversian canals and volkmann's canals.
- Manifestations in the jaws include generalized loss of trabeculation, destruction of the crypts of developing teeth, loss of lamina dura, widening of the periodontal ligament space, and displacement of teeth and tooth buds.

- Treatment of leukemia with chemotherapeutic agents can result in reactivation of herpes simplex virus (HSV) leading to oral mucositis.
- Oral mucositis can also occur from chemotherapy without an HSV component, since thinning of the surface layer of mucosa and/or bone marrow suppression allows for opportunistic organisms to invade the mucosa.

Dental management

- A platelet level of 100,000/mm³ is adequate for most dental procedures.
- Routine preventive and restorative treatment, including injections, may be considered when there are at least 50,000 platelets/mm³.
- If there are fewer than 20,000 platelets/mm³, no dental treatment should be performed at such a time without a preceding prophylactic platelet transfusion. Prophylactic platelet transfusions are given for platelet levels below 10,000 cells/mm³.
- The use of a soft nylon toothbrush for the removal of plaque is recommended

Hemophilia

Local Anesthesia

- In the absence of factor replacement, periodontal ligament (PDL) injections may be used.
- Infiltration anesthesia can generally be administered without replacement therapy.
- A minimum of a 40 percent factor correction is mandatory before block anesthesia.

Periodontal therapy

- Rubber cup prophylaxis and supragingival scaling may be safely performed without replacement therapy.
- If subgingival scaling is planned, replacement therapy may be considered

Restorative procedures

- Most restorative procedures on primary teeth can be successfully completed.
- Thin rubber dam is preferred.
- Wedges and matrices can be used conventionally.

Pulpal therapy

- A pulpotomy or pulpectomy is preferable to extraction but instrumentation in periapical area should be avoided.
- Nonvital teeth should be obturated 2 to 3 mm short of apex.

Oral surgery

- For simple extractions, a 30 to 40 percent factor is administered within 1 hour before dental treatment.
- Antifibrinolytic therapy—These agents include epsilon-aminocaproic acid (Amicar) or tranexamic acid (Cyklokapron). In children, epsilon-aminocaproic acid is given immediately before dental treatment in an initial loading dose of 100 to 200 mg/kg by mouth. Subsequently, 50 to 100 mg/kg of epsilon-aminocaproic acid is administered orally every 6 hours for 5 to 7 days.

- After extractions are completed, the direct topical application of hemostatic agents, such as bovine thrombin may help with local hemostasis.
- The socket should be packed with an absorbable gelatin sponge (e.g. Gelfoam).
Topical thrombin may then be sprinkled over the wound.
- Direct pressure with gauze should then be applied to the area. Stomadhesive may be placed over the wound for further protection from the oral environment.

Acquired Immune Deficiency Syndrome

Oral Manifestations of AIDS

Bacterial Infections

- Gingivo-periodontal disease

Fungal infections

- Candidiasis
- Other fungi

Viral infections

- Epstein-Barr Virus
- Herpes simplex Virus
- Varicella-Zoster Virus
- Human Papilloma Virus
- Cytomegalovirus

Neoplasms

- Kaposi's sarcoma
- Lymphoma
- Other neoplasms
- Other oral lesions
- Oral ulcers
- Salivary gland enlargement.

Management of AIDS

Prevention

- Barrier techniques
- Proper sterilization
 - HIV is sensitive to autoclaving at 121°C for 15 min at 1 atmospheric pressure
 - Dry heat of instruments up to 170°C
 - Virus can be inactivated by heating lyophilized factor at 68°C for 72 hours

Disinfectants for innate objects

- Calcium hypochlorite
- 0.2 percent sodium hypochlorite

- 6 percent hydrogen peroxide for more than 30 minutes
- 2 percent glutaraldehyde and 6 percent hydrogen peroxide
- Sodium dichloroisocyanate
- HIV is inactivated by treatment for 10 minutes at room temperature with 10 percent household bleach, 50 percent ethanol and 3 percent hydrogen peroxide
- Gloves may be disinfected by immersing them in boiling water for 20 minutes and alternatively overnight soaking in 1 percent sodium hypochlorite.

Conclusion

- Disabled children experience greater challenges to proper oral hygiene and health care, often due to a lack of basic manual skills and intellectual abilities that precludes adequate practices, such as toothbrushing.
- Organized action by dental professionals and community and public health authorities is required to address the discrepancies in oral health and hygiene among disabled children and address the barriers to education and care that include cost, fear, and social attitudes.
- According to the revised guidelines by AAPD (2019), minimal use of antibiotics is indicated to avoid the risk of developing resistance due to antibiotic usage.

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Thank You!

