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Next Issue: "Water & Electrolyte Imbalance"

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EDITOR'S MESSAGE

Dear Readers,

Greetings from the CAPE News Editorial Team.

We are delighted to bring you the Pediatric Bone issue of CAPE News. It has been a great effort by all members of the team to contribute to and bring together this issue. This issue covers a wide range of topics in pediatric bone health, including bone age, glucocorticoid-induced osteoporosis, newer drug therapies, bone turnover markers, and valuable contributions from members of our community.

I am sure we are all gearing up for the ISPAE Mid-Term Meeting 2026 in Ahmedabad. We hope to see you all soon and look forward to making fun-filled and happy memories together.

The theme of the next issue is "Water & Electrolyte Imbalance." We look forward to your valuable contributions.

We would be glad to receive your suggestions and feedback for further improvement at editor.capenews@gmail.com.

Happy reading to all!

Warm regards,
Nikhil Lohiya
Team CAPE News



ISPAE PRESIDENT- MESSAGE

Dr Anurag Bajpai- on behalf of ISPAE 2025-2026

Dear Colleagues and Friends,

It is a pleasure to write this message for CAPE News, and I warmly congratulate the Editorial Board for bringing out yet another excellent issue.

The current issue's scientific content is rich, contemporary, and highly relevant to present-day pediatric endocrine practice. The issue brings together important discussions on bone age, newer drug therapies, and evidence-based, contextually relevant recommendations for clinicians across the country.

These initiatives will be important steps towards standardizing care and supporting pediatricians, trainees, and pediatric endocrinologists in their everyday practice.

ISPAE is also working towards the upcoming guidelines on congenital hypothyroidism, type 1 diabetes, disorders of sex development (DSD), and GLP-1 receptor agonists. The ISPAE CARE project is also progressing well.

The excitement surrounding the upcoming ISPAE Mid-Term Meeting in Ahmedabad is palpable, with an enthusiastic response from the organizers and members alike. The scientific programme promises to enrich our knowledge and provide an excellent opportunity for academic exchange. The encouraging number of registrations and research abstract submissions is a testament to the enthusiasm and engagement of our community.

Once again, my heartfelt congratulations to the CAPE News Editorial Board for bringing out this excellent issue. May CAPE News continue to inform, inspire, and unite our growing community of pediatric endocrine professionals.

With warm regards,
Dr. Anurag Bajpai
President, ISPAE



Welcome New Members

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|---|--|--|
| <ul style="list-style-type: none">• Nagendra K, Mysuru• Sridevi TV, Chennai• Boyella Manasa, Nellore• Nivas R, Chennai | <ul style="list-style-type: none">• Rohit Kapoor, Amritsar• Padmapriya S, Trichy• Trupti Joshi, Aurangabad• Sakshi Setia, Gurgaon | <ul style="list-style-type: none">• Rakesh Garg, Tohana• Nidhi Singhal, Delhi• Praveen Kumar Gupta, Gaziabad |
|---|--|--|

WINNER- June 2026 Quiz

Dr Shyam Sundar

Fellow Pediatric Endocrinology, Christian Medical College; Vellore

Congratulations!

INVITED MINI REVIEW

INDIAN SKELETAL MATURITY SCORE REFERENCES

Vaman Khadilkar & Anuradha Khadilkar, Dept of Growth & Endocrinology, HCJMRI & Jehangir Hospital, Pune



Why bone age matters

Bone age assessment is integral to decision-making in pediatric endocrinology, particularly when evaluating growth and pubertal disorders, and estimating residual growth potential. However, the clinical meaning assigned to a hand radiograph depends not only on how skeletal maturity is scored, but also on the reference population used, to convert that score into bone age. Population differences in the timing and tempo of skeletal maturation may influence diagnosis, adult-height prediction and treatment decisions.

Methods of assessing skeletal maturity

The Greulich-Pyle (GP) method compares a left-hand radiograph with sex-specific atlas plates. It is quick and familiar but depends on an overall visual match and may be influenced by discordant maturation of individual bones. The Tanner-Whitehouse (TW) method is analytical: defined maturity stages are assigned to specific bones and converted into numerical scores. In the radius-ulna-short bones (RUS) system, 13 bones contribute to a Skeletal Maturity Score (SMS) ranging from 0 to 1,000. The total score is then translated into bone age using a sex-specific reference. Thus, the anatomical scoring procedure and the population reference are related but distinct steps.

Why an Indian reference is needed

The widely used G-P and TW references were derived predominantly from children in Western populations; TW3 also incorporated Japanese data. Skeletal maturation is influenced by genetic background, nutrition, disease burden, socioeconomic conditions, as well as secular changes in the timing of puberty. A score may thus correspond to different chronological ages in different populations. Direct application of an external reference can introduce systematic error, particularly around puberty, when maturation accelerates and decisions about growth-promoting or puberty-modifying treatment may be time-sensitive.

Development of the Indian skeletal maturity reference

We developed age- and sex-specific Indian SMS references from 3,549 left-hand radiographs of apparently healthy, normally growing Indian children aged 1-18 years. Two trained pediatric endocrinologists scored the radiographs using the TW3 RUS method, with high inter- and intra-observer agreement. Age- and sex-specific median scores were smoothed to construct maturation curves and monthly reference values. The reference was subsequently examined in healthy children, children with selected endocrine disorders and a retrospective group with near-adult height data.

What did the reference show

SMS increased progressively with age, with clear expected sex differences in timing and tempo. Girls matured earlier and reached an SMS of 1,000 at approximately 16.5 years; boys reached the same endpoint at approximately 17.5 years. The Indian curves broadly occupied a position between the older TW2 and the more recent TW3 references. Girls tracked relatively close to TW3, whereas boys resembled TW2 in earlier childhood and showed more rapid progression after approximately 11 years. These findings reinforce that the difference between references is not necessarily constant across age or sex.

In the clinical validation group, both the Indian and TW3 systems identified the expected direction of skeletal delay in growth hormone deficiency and hypothyroidism, and advancement in precocious puberty and congenital adrenal hyperplasia. Agreement between Indian and TW3 bone ages was high. When the Indian bone age was entered into TW3 adult-height prediction equations, prediction showed a smaller average absolute error than when TW3 bone age was used, suggesting improved accuracy. However, the validation sample was limited, and this finding requires confirmation across centers.

Table. Using bone age to answer common clinical questions

Clinical question	Contribution of bone age	Interpret alongside
Is the short stature associated with delayed maturation?	Quantifies skeletal delay relative to chronological age	Growth velocity, parental heights, pubertal stage and diagnostic evaluation
Is puberty early or progressing rapidly?	Estimates skeletal advancement and remaining growth potential	Tanner stage, tempo of progression and hormonal findings
Is an endocrine disorder altering growth?	Identifies a pattern of delayed or advanced maturation	Clinical features and disease-specific investigations
Is treatment changing maturation appropriately?	Shows serial change in maturity relative to linear growth	Height velocity, treatment duration, dose and adherence
What is the likely adult height?	Provides the skeletal-age input for prediction equations	Current height, sex, chronological age and limitations of the chosen equation

Using the reference in practice

The Indian reference does not change how the RUS-13 bones are staged; it changes the population framework used to interpret the resulting score. Wherever feasible, reporting the underlying SMS together with the derived bone age makes the basis of interpretation clearer and permits comparison across reference systems. A single bone age should never determine diagnosis or treatment. It must be integrated with accurate serial height measurements, growth velocity, parental target height, pubertal stage and the clinical question. Serial radiographs should be requested only when the result is likely to alter management, with attention to consistent methodology and an appropriate interval between assessments. Adult-height predictions should be presented as estimates rather than precise outcomes.

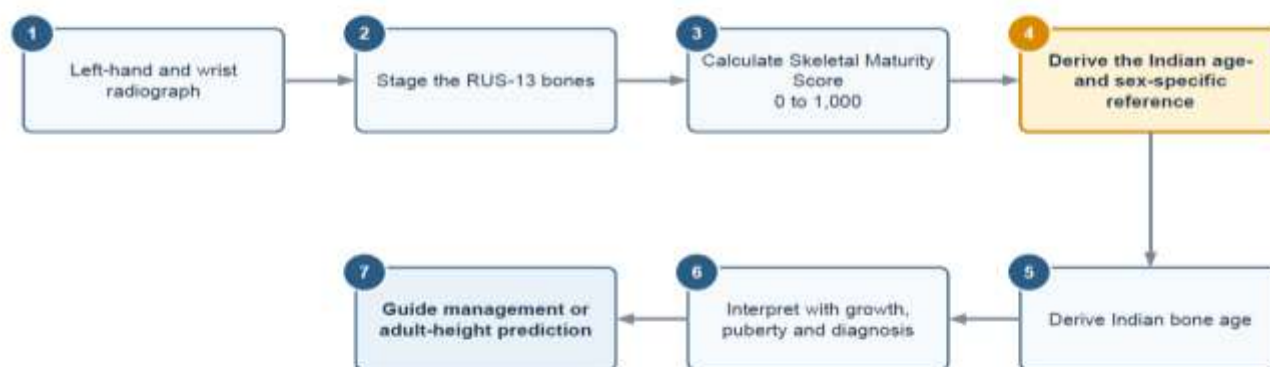
Limitations and future directions

The reference was derived largely from children in Western India and may not fully represent the country's regional and socioeconomic diversity. Pubertal staging and detailed nutritional information were unavailable, and the validation samples were relatively small; also, the validation dataset was retrospective. Multicentric prospective validation, particularly across puberty and in endocrine disorders, is therefore important. Incorporating Indian SMS references into automated bone-age platforms could ultimately combine reproducible scoring with population-appropriate interpretation.

Conclusion

Bone age is most informative when the scoring method, reference population and clinical context are all clearly specified. The Indian SMS reference retains the structured TW RUS-13 approach while providing population-specific reference values. It is a useful step toward more accurate assessment of growth and pubertal disorders and adult height prediction models in Indian children, although broader validation remains necessary.

Fig 1: Clinical pathway for Indian bone age assessment



Where feasible, report the underlying SMS together with the derived bone age.

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GUIDELINE

GUIDELINE GLUCOCORTICOID INDUCED OSTEOPOROSIS IN CHILDREN: A REVIEW OF CLINICAL PRACTICE GUIDELINES

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Glucocorticoids (GCs) are used as the major therapeutic agents as short term therapy or over prolonged duration in many pediatric disorders like nephrotic syndrome, childhood leukemia, chronic inflammatory diseases, autoimmune diseases and neuromuscular diseases like Duchenne muscular dystrophy (DMD). GCs act adversely on the growing skeleton in reducing the activity of osteoblasts, accelerating bone resorption, decreasing intestinal absorption of calcium and reabsorption of calcium and phosphate from the kidneys, and increasing vitamin D catabolism. The skeletal burden of the primary systemic disease, reduced physical activity, and the state of chronic inflammation, further worsen bone health in children with these illnesses. Such children are at risk of GC-induced osteoporosis

(GIOP) that can be transient (as in leukemia), of variable duration (as in autoimmune or inflammatory diseases), or prolonged (as in DMD).

The guidelines for managing GIOP were initially published for adults in 2010 and updated in 2017 and 2022.^[1] The detection, disease burden, prevention and treatment of GIOP is challenging and different in children and adolescents. The following are recommendations/ clinical practice guidelines as per review of the following clinical practice guidelines.^[1-3]

Task	Clinical practice guidelines	Remarks
Definition of osteoporosis	BMD based: Z score of ≤ -2 as per age and gender matched cutoff, OR Single vertebral fracture, OR ≥ 2 long bone fractures by age 10 years or ≥ 3 long bone fractures by age 19 years (*Low trauma single fracture is ominous in GIOP)	Focus is shifting from BMD-based to a clinical-risk-based definition A BMD Z score cutoff > -2 does not preclude risk of osteoporosis
Exposure risk with GCs	Intake of supraphysiological dose of steroids (hydrocortisone equivalent ≥ 10 mg/m ² /d) for ≥ 3 months	Risk is lower with alternate day regimens
Suspicion of GIOP	ANY ONE of the following: - Exposure of high dose GCs for ≥ 3 months - Chronic sub-normal mobility - Poorly controlled underlying disease - Back pain	Most common affected sites are the mid-thoracic region in the spine and the long bones of upper limbs. DMD affects long bones of lower limbs
Investigations	1. Serum calcium, phosphorus, 25-hydroxy vitamin D and parathyroid hormone levels 2. Spinal imaging for lateral radiograph of spine by conventional method or DXA: $>20\%$ loss in vertebral height ratio, loss of endplate parallelism, anterior buckling or vertebral collapse are looked for 3. Lumbo-sacral BMD (LS-BMD) Z scores (adjusted for height)	Genant semi-quantitative method used for quantification of skeletal changes on spinal imaging
Prevention	1. Treat the underlying disease 2. Reassess for use of GC-sparing agents, or shorter courses of GCs 3. Encourage adequate intake of calcium and vitamin D 4. Monitor growth and body mass index annually 5. Supplement vitamin D to meet daily intake of 600 IU/day 6. Encourage early mobility and healthy lifestyle. Muscle strengthening in children with neuromuscular disability	Prioritize treatment of underlying disease and other associated endocrinopathies (like delayed puberty, growth hormone deficiency)
Treatment	IV bisphosphonates (zoledronate or pamidronate) Initiate if ≥ 1 low-trauma vertebral fracture or ≥ 1 low-trauma long-bone fracture	Oral bisphosphonates show inconsistent results and are not recommended in children
Follow-up	Reassess with annual spinal imaging and BMD. Shift to maintenance doses of bisphosphonates if BMD improving, and disease is under control, and no other risk factors (till 1 year post GC cessation)	Reduction in LS BMD Z score ≥ 0.5 or back pain needs earlier follow-up

Low-trauma is defined as an accident that occurred outside car accidents, or when falling from <10 feet (three meters); There is no recommendation on routine use of other pharmacological agents like denosumab or parathyroid hormone analogs in children

Conclusion

GIOP remains an under-detected condition in children. Clinicians should have a high suspicion to screen and diagnose GIOP in those with underlying risk factors. A proactive approach is needed to ensure optimization of GC therapy, adequate nutrition, healthy lifestyle and adequate mobility to improve skeletal outcomes in children with these chronic conditions.

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MINI-REVIEW

BONE HEALTH IN NEUROMUSCULAR DISORDERS

Swathi Padmanaban Consultant – Pediatric and Adolescent Endocrinologist- Rainbow Children's Hospital and Birth Right, Chennai



Introduction

Skeletal fragility in pediatric neuromuscular disorders (NMDs) represents a complex, multi-factorial challenge that extends far beyond simple bone mineral density (BMD) accrual deficits. Secondary osteoporosis arises from chronic diseases and their management, driven by prolonged immobility, lack of weight-bearing, chronic inflammation, and glucocorticoid (GC) exposure. Muscle weakness combined with osteotoxic treatments leads to high rates of low-trauma (fragility) fractures in Duchenne muscular dystrophy (DMD), LAMA2-related muscular dystrophy, SELENON-related myopathies, congenital myopathies, and spinal muscular atrophy (SMA). Based on international consensus (274th European Neuromuscular Center/ ENMC workshop), NMD bone health management is transitioning from a BMD-centric model to a proactive, fracture-focused approach centered on early risk stratification and longitudinal phenotyping.

Determinants of Bone Strength and Quality

In pediatric populations with chronic illnesses, a diagnosis of osteoporosis relies on the presence of clinically evident bone fragility (e.g., a low-trauma vertebral or long-bone fracture), regardless of whether the BMD Z-score is within the normal range (>-2.0 SD) or not. Atrophic muscle releases myostatin, which stimulates osteoclast differentiation and suppresses osteoblasts. Conversely, dynamic muscle contraction secretes irisin, a bone-protective myokine promoting osteoblastogenesis. Both irisin and myostatin are altered in NMDs. Alterations in bone-muscle crosstalk are suspected to be an important determinant of the increased risk of fractures in NMDs. In conditions like DMD, chronic GC therapy combined with progressive myopathy creates a dual insult, suppressing osteoblast function, inducing osteocyte apoptosis, and impairing mineral accrual.

Clinical Impact

Vertebral Compression Fractures (VCFs) occur in up to 30% or more of GC-treated boys with DMD and are frequently asymptomatic or minimally symptomatic in early stages. Left undetected, they can trigger a *vertebral fracture cascade*, increasing the risk of subsequent spinal collapses, chronic back pain, height loss, and chest wall compromise. Low-trauma extremity fractures occur in 20–60% of boys with DMD (most commonly distal femur, tibia, or fibula). In an ambulatory child, a lower limb fracture frequently causes premature and permanent loss of ambulation and carries a risk of life-threatening fat embolism syndrome, presenting with altered mental status, respiratory distress, and tachycardia. Fractures of small peripheral bones (e.g., fingers, hands, feet, or ribs) carry severe functional consequences in NMDs, like being unable to operate a wheelchair joystick, lean on crutches, adjust nocturnal

ventilation masks, or perform self-care. Moreover, spontaneous rib fractures exacerbate underlying restrictive lung disease.

Disease-Specific Manifestations

Condition / NMD Group	Underlying Mechanism of Fragility	Key Fracture Characteristics
Spinal Muscular Atrophy	Direct genetic disruption of bone modelling (<i>TRIP4</i> , <i>ASCC1</i> mutations), independent of weakness	Congenital fractures in specific genetic subtype
Congenital Myopathies	Structural muscle weakness and early developmental disuse	Congenital fractures (26%) long-bone fractures later in life (9.8%)
GC-Treated NMDs (<i>Inflammatory Myopathies</i> , <i>Myasthenia Gravis</i> , <i>CIDP</i>)	GC-induced osteoblast suppression with chronic inflammation	Vertebral and long-bone fractures
Non-GC Neuropathies (<i>Charcot-Marie-Tooth</i> / <i>CMT</i>)	Distal muscle weakness and altered biomechanics without systemic steroid exposure	Disproportionately high rate of distal extremity fractures (feet, ankles and hands)

Management

Routine evaluation includes fracture history, patient-reported pain/ mobility outcomes, and serial lateral spine imaging (radiographs or DXA-based Vertebral Fracture Assessment/ VFA). Spine imaging should be performed every 1–2 years on GCs and every 2–3 years off GCs. Perform immediate spine imaging if back pain occurs or if serial DXA shows a BMD Z-score drop >0.5 SD over 12 months. Grade vertebral fractures using the Genant semiquantitative method:

Grade 1 mild: 20–25% height loss;

Grade 2 moderate: 25–40% height loss;

Grade 3 severe: $>40\%$ height loss.

Due to contractures, scoliosis, or surgical hardware, standard lumbar-spine or total-body-less-head (TBLH) DXA scans are often unmeasurable. Alternative sites such as the lateral distal femur, proximal femur, or forearm must be utilized. A BMD Z-score ≤ -2.0 SD is not required to diagnose pediatric osteoporosis in the presence of low-trauma fractures. Up to 15% of children with NMDs and fragility fractures have BMD Z-scores above -2.0 SD.

- **Step 1 (Assessment):** Initiate screening immediately upon NMD diagnosis, targeting non-ambulatory individuals, those with severe weakness, fall history, back pain, or GC usage. Evaluate multisite BMD, spine morphometry (radiograph/ VFA), 25-hydroxyvitamin D, serum calcium, phosphate, PTH, and alkaline phosphatase.
- **Step 2 (Conservative Measures):** Optimize Vitamin D (maintain $25(\text{OH})\text{D} >30$ ng/mL) and calcium intake; prescribe tailored submaximal, site-specific resistance exercises and weight-bearing activities; implement fall prevention; and manage co-existing endocrinopathies (e.g., delayed puberty).
- **Step 3 (Follow-Up & Frequency):** Perform DXA and spine imaging every 6–24 months based on risk stratification. Re-evaluate urgently if motor function declines, back pain develops, or GCs are initiated.

Growth Monitoring & Assessment

Measure standing height every 6 months in ambulatory patients until growth completion. In non-ambulatory patients, use non-standing segmental measures (e.g., arm span, ulnar length, knee height, or recumbent length). Red flags include height $<3^{\text{rd}}$ percentile, annual height velocity <4 cm/year, or a downward crossing of height percentiles.

Routine use of growth hormone is not recommended due to lack of final height efficacy data, potential adverse effects and theoretical concerns that increased height may worsen muscle mechanics.

Puberty & Hypogonadism

Tanner staging must be done every 6 months starting at age 9 years. Serum LH, FSH, testosterone, and left-hand bone age radiograph are needed if puberty is delayed beyond 14 years. Low-dose testosterone replacement therapy is recommended for confirmed hypogonadism starting at age 14y (and can be considered from age 12y).

Adrenal Insufficiency & Crisis Prevention

Patients and families must be educated on the risks and signs of adrenal crisis caused by chronic GC suppression. Home prescriptions should be provided for emergency intramuscular hydrocortisone (50 mg for children <2 years; 100 mg for children ≥2 years and adults).

Bone Health & Osteoporosis Management

First-Line Medical Treatment: Cyclic intravenous (IV) bisphosphonates (e.g., pamidronate, zoledronic acid) are preferred over oral bisphosphonates due to superior bioavailability (<1% for oral agents in pediatric GC cohorts). In high-risk cohorts (e.g., GC-treated DMD), IV bisphosphonates should be considered prior to the first fracture if there is a significant decline in BMD Z-score (>0.5 SD over 6–12 months) or progressive loss of vertebral height approaching the 20% fracture cutoff. Transitioning from antiresorptive agents to bone anabolic therapies (e.g., parathyroid hormone analogs, anti-sclerostin antibodies) is required to expand long-bone diameter and restore structural geometry in growing children with disuse osteoporosis.

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BIOCHEMISTRY CORNER

BONE TURNOVER MARKERS IN CHILDREN: WHAT DO THEY REALLY TELL US?

Dhanya Soodhana, Pediatric and Adolescent Endocrinologist, Aster MIMS, Kozhikode, Kottakkal, Manipal Hospital, Mysuru.



Bone turnover markers (BTMs) are circulating or urinary byproducts of bone formation and resorption that provide a dynamic, near-real-time assessment of skeletal metabolism. In children and adolescents, BTMs are substantially higher than in adults because bone modeling and remodeling accompany rapid linear growth and pubertal maturation; concentrations may be several-fold (up to 5–20×) greater than adult levels, with distinct age-, sex-, and puberty-related trajectories. These physiological patterns complicate interpretation but also create opportunities: BTMs can act as proxies for growth velocity, pubertal timing, and early perturbations in bone health when imaging is limited by growth-related artifacts or concerns about repeated radiation exposure. In pediatrics, DXA is useful, but interpretation is complicated by body size, maturation, and growth-related changes, and repeated measurements are not always feasible for monitoring short-term responses. BTMs, obtained from blood or urine, can detect metabolic shifts earlier

than BMD changes, thus complementing imaging by providing a dynamic assessment of skeletal metabolism, and supporting evaluation not just of metabolic bone disorders, but also growth, puberty, and nutritional status.

This mini-review summarizes the major pediatric BTMs, including formation markers – procollagen type 1 N-terminal propeptide (P1NP), bone-specific alkaline phosphatase (B-ALP), and osteocalcin (OC) – and resorption markers – serum C-terminal telopeptide of type 1 collagen (β -CTX), urinary or serum N-terminal telopeptide, and tartrate-resistant acid phosphatase 5b (TRAP-5b).

Bone Turnover: A Marker of the Growing Skeleton

The skeleton is far from static during childhood: it is constantly being built, remodeled and mineralized. BTMs reflect this dynamic process and change substantially with age and pubertal development. They are particularly high during infancy, settle to relatively lower levels during mid-childhood, and rise again during puberty, coinciding with the rapid growth of the skeleton and peak height velocity. Formation markers tend to peak earlier in girls than in boys, mirroring the earlier onset of pubertal growth in girls. Markers of bone resorption, such as β -CTX, also increase through late childhood, typically reaching their highest levels during early-to-mid adolescence before falling as the growth plates close.

An important clinical pearl is that **high bone turnover and a relatively low BMD can be perfectly normal during periods of rapid growth**. During the pubertal growth spurt, newly formed bone has not yet undergone complete mineralization, and therefore areal BMD may appear relatively low despite active and healthy skeletal development.

Thus, an elevated BTM in a growing child should not automatically be interpreted as evidence of increased bone loss. **The child's age, sex, pubertal stage and growth velocity are essential pieces of the biochemical puzzle**. This is also why adult reference ranges can be misleading and why pediatric, age- and puberty-specific reference intervals are crucial when interpreting BTMs.

Bone Formation Markers

Marker	What it reflects	Key points in children
P1NP: Procollagen type 1 N-terminal propeptide	Type 1 collagen synthesis and osteoblast activity	Rises substantially during growth and puberty; considered the reference marker of bone formation
BALP: Bone-specific alkaline phosphatase	Osteoblast activity and bone mineralization	Increases during growth spurts; often elevated in rickets; relatively less influenced by renal clearance
OC: Osteocalcin	Osteoblast activity; non-collagenous bone protein	Increases during growth and puberty; shows significant circadian variation

Bone Resorption Markers

Marker	What it reflects	Key points in children
β-CTX: C-terminal telopeptide of type 1 collagen	Type 1 collagen degradation and osteoclast-mediated resorption	Widely used reference marker of bone resorption ; strongly influenced by circadian rhythm and food intake

Marker	What it reflects	Key points in children
NTX: N-terminal telopeptide	Type 1 collagen degradation	Traditionally measured in urine; less commonly used than serum β -CTX in current practice
TRAP-5b: Tartrate-resistant acid phosphatase 5b	Osteoclast number and activity	Relatively less affected by renal function; may be particularly useful in chronic kidney disease

Biochemistry Pearl: Among currently used BTMs, **P1NP** & **β -CTX** are the preferred reference markers for bone formation and resorption, respectively. Because BTMs—particularly β -CTX—are sensitive to pre-analytical factors, standardized sampling (ideally **morning, fasting samples**) and appropriate sample handling are important for reliable interpretation.

Clinical Utility in Pediatric Practice

Assessing skeletal health during growth

BTMs can help differentiate physiological skeletal turnover from pathological changes when interpreted using age-, sex-, and puberty-specific reference ranges. They may also detect altered bone remodeling before changes become apparent on DXA.

Monitoring treatment response

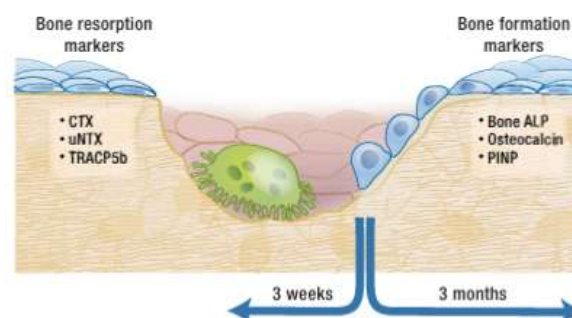
BTMs respond relatively rapidly to therapeutic interventions, often changing within weeks to months. This makes them useful for early assessment of treatment response and adherence. Antiresorptive therapy is generally associated with a fall in resorption markers, whereas growth-promoting or anabolic therapies may increase formation markers. Consistent sampling conditions and the same assay should be used for serial measurements.

Applications in pediatric bone disorders

- **Rickets and impaired mineralization:** BALP is often markedly elevated and typically decreases with effective treatment, providing a useful marker of biochemical response.
- **Pediatric osteoporosis:** BTMs can provide additional information about bone remodeling and treatment response but should always be interpreted alongside fracture history and appropriately adjusted BMD measurements.
- **Chronic and systemic disorders:** In conditions such as juvenile idiopathic arthritis, endocrine disorders, and chronic kidney disease, BTMs can provide insights into altered skeletal remodeling and the effects of underlying disease or therapy.

Limitations and Practical Considerations

- **Age and puberty matter:** BTM levels vary considerably with age, sex, pubertal stage, growth velocity, and even season. Pediatric, developmentally appropriate, reference ranges are therefore essential.
- **Timing of sampling matters:** CTX and osteocalcin show significant diurnal variation, while food intake suppresses CTX. Hence the importance of morning, preferably fasting, sampling at a consistent time.



- **Assays are not interchangeable:** Different analytical platforms may produce different results. For serial monitoring, it is preferable to use the same laboratory and assay whenever possible.
- **BTMs are supportive, not diagnostic:** They should be interpreted alongside the clinical picture, radiology/ DXA, and disease-specific biochemical investigations, rather than used in isolation.

Main assays	Sources of variability	Clinical use – Diagnosis/ management	Clinical use – Monitoring
• ELISA • Automated immunoassays	• Age • Sex • Ethnicity • Lactation/ pregnancy • Menstrual cycle phase • Fasting/ feeding status • Seasonal/ circadian rhythm • Exercise/immobilization • Recent fracture or medications	BTMs may support assessment and management of: • Osteoporosis • Primary hyperparathyroidism • Osteomalacia • Paget disease • Fibrous dysplasia • Hypophosphatasia • Metastatic bone disease • Chronic kidney disease–mineral and bone disorder	Monitoring response to anti-osteoporotic therapy

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NAVEPEGRTIDE (Yuviwel)

Deepthi B & Shaila Bhattacharyya, Dept of Pediatric Endocrinology, Bapuji Child Health Institute, Davangere



Introduction

Achondroplasia is the most common skeletal dysplasia (prevalence ~3.7/100,000 live births), with autosomal dominant inheritance. It is caused by a gain-of-function variant in the fibroblast growth factor receptor 3 (FGFR3), leading to overactive downstream signaling. Endogenous C-type natriuretic peptide (CNP), which promotes chondrocyte differentiation and proliferation in bone, cannot counteract the overactivity of FGFR3, so endochondral ossification is inhibited, producing skeletal dysplasia and characteristic disproportionate short stature. Achondroplasia also affects multiple other organ systems, impairing physical functioning and quality of life.

Navepegritide, a once-weekly subcutaneous CNP prodrug (100 µg/kg/week), was evaluated in the phase 2b APPROACH trial (NCT05598320) in children aged 2–11 years. Developed by Ascendis Pharma, it received FDA accelerated approval in the USA on 27 February 2026 for linear growth in children aged ≥2 years with open epiphyses. It is dosed by weight (0.88–8.8 mg/dose for 8–90 kg).

Mechanism of Action

Navepegritide is a prodrug in which an inactive CNP moiety is transiently conjugated via a proprietary Transcon linker to an inert carrier of two 20 kDa MPEG moieties, giving sustained release of active CNP (residues 89–126 of human CNP). After subcutaneous injection the linker auto-cleaves at physiological pH and temperature, releasing CNP at a predictable rate, giving continuous exposure to CNP with the same activity and receptor affinity as endogenous CNP

peptide. The released CNP binds natriuretic peptide receptor B (NPR-B), stimulating cyclic guanosine monophosphate (cGMP) production and signaling via protein kinase G. This inhibits the mitogen-activated protein kinase (MAPK) pathway, counteracting FGFR3 overactivity and improving skeletal growth.

Pharmacokinetics and Pharmacodynamics

Yuviwel is a lyophilised white powder in single-dose vials of three strengths: 1.3 mg (yellow cap), 2.8 mg (blue cap) and 5.5 mg (violet cap). Each kit contains a prefilled diluent syringe, two preparation needles (21 gauge) and one injection needle (30 gauge) with retraction safety devices. The 1.3 and 2.8 mg vials are reconstituted with 0.8 ml sterile water for injection (USP), giving 2.2 and 4.6 mg/ml respectively; the 5.5 mg vial with 1.1 ml, giving 5.5 mg/ml.

T_{max} for released CNP is 24.4 hours. Transcon-linker auto-cleavage follows first-order kinetics, giving continuous weekly exposure. CNP is degraded via natural peptide pathways and eliminated renally; mean elimination half-life is 120 hours. No drug–drug interaction studies exist; transient low-level anti-drug antibodies had no clinically significant effect.

Yuviwel should be refrigerated at 2–8°C but it can be kept at room temperature (up to 30°C) for up to 6 months; it can be returned to the refrigerator within that period in necessary. It should be protected from light. Once reconstituted, it must be used within 4 hours.

Uses

Monotherapy

Navepegritide's advantage over vosoritide (a daily CNP-39 analog) lies in dosing frequency. A missed dose may be given up to 2 days before or after schedule.

It also offers greater hemodynamic safety: the daily analog has a ~20-minute half-life versus ~120 hours for released CNP, and a ~100-fold higher peak concentration, theoretically conferring greater hypotension risk.

In the phase 2b APPROACH trial, once-weekly navepegritide produced a superior annualized growth velocity (AGV) of 5.89 cm/year in children aged 2–11 years. While direct comparison is not possible, in the age-matched ≥ 5 -year subgroup, the placebo-adjusted AGV difference was 1.78 cm/year with navepegritide vs. 1.57 cm/year with vosoritide.

Navepegritide also reduced the tibial–femoral angle, mechanical axis deviation and fibula-to-tibia ratio, correcting lower-limb malalignment, and improved quality of life on the Achondroplasia Child Experience Measure.

Combination Therapy

In the phase 2 COACH trial, navepegritide plus once-weekly lonapegsomatropin (SkyTrofa®; 0.3 mg/kg/week, IGF-1-adjusted) gave an additive benefit in children aged 2–11 years. The AGV was 8.80 cm/year in treatment-naïve and 8.42 cm/year in navepegritide-experienced children (Z-scores 1.48 and 2.15).

Adverse Effects

Common adverse reactions were vomiting, nausea, limb pain and injection-site reactions such as erythema, pruritus and bruising; pyrexia, nasopharyngitis, otitis media, and hypertrichosis noted at injection sites, lower limb and shoulder also occurred. Injection-site reactions were mild and transient. No hypotension or fractures were reported.

Contraindications and Precautions

Yuviwel is contraindicated with closed growth plates, hypersensitivity or pre-existing hypotension. It is not recommended in moderate-to-severe renal impairment (eGFR <60 mL/min/1.73 m²).

Limitations

Accelerated approval is contingent on confirmatory trials. Long-term data on adult height, comorbidities (spinal and foramen magnum stenosis, sleep apnea) and antibody effects remain limited; head-to-head trials against vosoritide and infogratinib are lacking.

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DENOSUMAB IN PEDIATRIC BONE DISORDERS: BEYOND BISPHOSPHONATES

Navya George & Shaila Bhattacharyya, Manipal Hospital, Old Airport Road, Bangalore



Denosumab is a monoclonal antibody targeting RANKL (Receptor Activator of Nuclear Factor Kappa-B Ligand) to inhibit osteoclast activity and bone resorption. Bisphosphonates remain the standard first-line antiresorptive therapy in children, while denosumab may be considered in selected refractory conditions.

Dose and frequency

In pediatric studies, denosumab has been evaluated at 1 mg/kg (maximum 60 mg), subcutaneously every 6 months, with earlier studies using 1 mg/kg every 12 weeks. Dosing in children may vary based on the patient's condition, weight, and treatment response, but remains under investigation.

Mechanism of Action

RANKL is a key signaling molecule expressed by osteoblasts and stromal cells. It binds to its receptor RANK on osteoclast precursors and mature osteoclasts, activating intracellular signaling cascades that promote osteoclast differentiation, activation, survival, and bone resorption. This pathway regulates bone remodeling by balancing osteoclast-mediated bone resorption with osteoblast-mediated bone formation. Denosumab binds to RANKL, preventing its interaction with RANK¹. By inhibiting RANKL, denosumab blocks osteoclast formation and function, reducing bone resorption and increasing bone density.

Use in pediatrics

While denosumab is FDA-approved for adult osteoporosis and bone loss conditions, its pediatric use in conditions characterized by excessive bone loss, remains off-label and guided by specialist protocols. Given the critical role of RANKL in skeletal development, careful monitoring is essential due to ongoing skeletal growth and remodeling in children. Dosing is tailored to minimize adverse effects and optimize outcomes. Conditions it has been used in are:

Osteogenesis Imperfecta (OI)
Juvenile Osteoporosis

Fibrous dysplasia/ McCune Albright syndrome
Secondary osteoporosis: caused by chronic illness or medications.

Adverse Effects of Denosumab in Pediatric Use²

1. Hypocalcemia can occur during the initial treatment phases.
2. Rebound hypercalcemia upon cessation: can be severe enough to require hospitalization and even fatal.
3. Osteonecrosis of the jaw and atypical femoral fractures, primarily reported in adults, are rare, but must be monitored in pediatric cases as well.
4. Rebound bone loss can occur after discontinuation.
5. Injection site reactions and transient musculoskeletal pain may be seen.

A review by Boyce³ states that denosumab is a potential treatment for pediatric osteoporosis, OI, and skeletal tumors, highlighting that the major concerns are rebound bone turnover and hypercalcemia after discontinuation. Vanderniet⁴ et al. provided international guidance on denosumab use in children with RANKL-mediated disorders, stressing individualized treatment and careful monitoring. A recently completed Phase 3 trial (NCT03164928) evaluated denosumab in children aged 5–17 years with glucocorticoid-induced osteoporosis and included several Indian centers, while an earlier OI trial was terminated because of significant hypercalcemia, highlighting the need for careful safety monitoring. Recently, a phase 2 pediatric trial (NCT05419050), conducted from Oct 2022 to Jan 2026, investigated its use in children aged 4–14 years with fibrous dysplasia.

Comparison with bisphosphonates

Compared with bisphosphonates, denosumab offers convenient subcutaneous administration and potent reversible suppression of bone resorption; however, pediatric experience remains limited. A prospective comparative study randomized 84 children/ adolescents with OI to receive either denosumab or zoledronic acid. Both increased BMD and improved vertebral morphology, but zoledronic acid produced greater increases at the femoral neck and total hip; importantly, rebound hypercalcemia was a frequent and serious adverse effect of denosumab, with 14.3% developing hypercalcemic crisis. Therefore, bisphosphonates remain the standard first-line antiresorptive therapy in children, whereas denosumab may be considered for selected refractory conditions. Its major limitations of rebound bone turnover and potentially severe hypercalcemia after discontinuation, often necessitate subsequent bisphosphonate therapy.

Conclusion

Denosumab represents a promising therapeutic option for children with severe bone disorders, offering targeted inhibition of pathological bone resorption. Despite its off-label status in pediatrics, accumulating clinical evidence supports its cautious use, with ongoing trials aiming to clarify optimal dosing and safety. Awareness of adverse effects and regional experiences, enriches the understanding necessary for informed clinical decisions.

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PEDSENDOSCAN

Arpita Bhargavanshi, Professor Jr Gd, King George's Medical University, Lucknow



Mondkar S, Karguppikar M, Deshpande M, Khadilkar A, Gondhalekar K, Khadilkar V. Progressive deterioration of bone density and geometry in children and adolescents with type 1 diabetes: A 4-year DXA and pQCT based study. Bone. 2026;212:118018.

This retrospective longitudinal study from Western Maharashtra evaluated skeletal changes over 4y in 200 children with type 1 diabetes mellitus (T1DM) (mean age 10.6 ± 3.9 yrs; mean diabetes duration 3.2 ± 3.2 yrs). Bone health was assessed using both DXA and pQCT, together with anthropometry, body composition and metabolic parameters. Total-body-less-head (TBLH) aBMD Z-score declined from -1.4 ± 1.1 to -1.7 ± 1.2 , while pQCT showed significant reductions in trabecular volumetric BMD (167.7 ± 35.6 to 150.2 ± 39.8 mg/cm³), trabecular density-for-age Z-score (-0.9 ± 1.5 to -1.7 ± 1.2) and total density-for-age Z-score (-0.5 ± 1.5 to -1.0 ± 1.0). Cortical thickness declined despite an increase in cortical volumetric BMD, highlighting that skeletal deterioration may not be fully captured by areal BMD alone. Children with diabetes duration ≥ 5 y had lower insulin sensitivity, lean body mass and bone parameters at baseline and follow-up and showed greater decline in trabecular and total volumetric BMD. **Sex, pubertal status, glycemic control, diabetes duration and dyslipidemia were significant predictors of skeletal outcomes.** The study provides important longitudinal evidence that bone deficits in T1DM accumulate during childhood and adolescence and supports early recognition of high-risk children, while also emphasizing the additional information offered by assessment of bone geometry beyond conventional DXA.

Patil S, Shah N, Ireland A, et al. Familial determinants of bone health parameters—a dual X-ray absorptiometry (DXA) and peripheral quantitative computed tomography (pQCT)-based parent and offspring study in rural Indian children. Bone. 2026;202:117685.

This large parent-offspring study from rural Maharashtra examined familial and modifiable determinants of skeletal health in healthy 8–10yo children. The multigenerational YUAAAN cohort included 689 complete parent-child triads with DXA measurements and 428 triads with radial pQCT measurements; dietary intake, physical activity, sunlight exposure, serum 25-hydroxyvitamin D and socioeconomic status were also assessed. The population had marked nutritional calcium inadequacy, with only 6.5% having adequate dietary calcium intake. **Even after accounting for modifiable factors, bone density and geometry in both parents significantly predicted the corresponding skeletal parameters in their children**, with the parent-offspring relationship generally stronger in girls. Maternal associations were stronger than paternal associations for TBLH BMD (β 0.19 vs. 0.12), lumbar spine BMD (β 0.22 vs. 0.16), cortical density (β 0.39 vs. 0.32), cortical thickness (β 0.23 vs. 0.17), periosteal circumference (β 0.23 vs. 0.17) and endosteal circumference (β 0.27 vs. 0.23). Trabecular density showed a slightly stronger paternal association. Among modifiable factors, higher protein intake was associated with higher TBLH BMD and trabecular density, while BMI Z-score was related to several skeletal measures. **The study demonstrates a persistent familial component to childhood bone density and geometry in a population with generational calcium inadequacy**, while also reminding clinicians that **nutrition and body composition remain important potentially modifiable contributors to peak bone mass acquisition.**

Chen R, Wen Z, Cheng C, et al. Clinical characteristics of pediatric tumor-induced osteomalacia: a systematic review and individual patient data analysis. Front Endocrinol (Lausanne). 2026;17:1871968.

Systematic review and individual-patient-data analysis of published pediatric tumor-induced osteomalacia (TIO), an exceptionally rare acquired FGF23-mediated hypophosphatemic disorder that may mimic hereditary hypophosphatemic rickets. PubMed, Elsevier, SpringerLink, CNKI and Wanfang databases were searched through December 2025, and 62 pediatric cases with open growth plates were assembled for analysis of presentation, biochemical findings, tumor localization, pathology, treatment and outcome. Overall, 16.1% of children had initially been misdiagnosed, underscoring the diagnostic difficulty of distinguishing TIO from genetic phosphate-wasting disorders. TIO was more frequent in boys, who also had a higher proportion of weakness and skeletal deformity. Somatostatin-receptor-based imaging showed a high yield for tumor localization. Causative tumors were most commonly located in the lower extremities, were frequently of bone origin and were predominantly benign rather than malignant. Surgical resection was the preferred definitive treatment and resulted in resolution in 84.2% of cases. The major clinical message is that **TIO should remain in the differential diagnosis of a child with unexplained renal phosphate wasting and hypophosphatemic rickets**, particularly when the phenotype is sporadic or atypical for an inherited disorder. Correct recognition is crucial because, unlike most hereditary FGF23-mediated rickets, pediatric TIO may be cured by successful tumor localization and complete resection.

LISTENING TO THE STALWARTS

Nikhil Lohiya, Dept of Growth & Endocrinology, Silver Lining Pediatric Foundation & Super Specialty Center, Nagpur



Dr Anju Virmani needs no introduction. Her passion and dedication as a pediatric endocrinologist is an example for all of us. She is not just one of the past presidents of ISPAE but her work in the form of advocacy and campaigning for children with diabetes, congenital hypothyroidism and social well-being for children with endocrine disorders speaks volumes about her commitment. I personally have learnt a lot from madam as she has been a mentor for CAPE News to all of us. It was a delight, as always to have a podcast with her.

I hope we all will learn few things and keep it with us for our improvement as a doctor and also a human being from her. The link is below

<https://youtu.be/mSm2UYWBRmY>

34th ISPAE ACES meeting – 29th August 2026- Topic: Impaired AVP effect

Zalak Upadhyay, Pediatric and Adolescent Endocrinologist, Endocare for Kids, Rajkot



The 34th ISPAE ACES meeting on 29th August 2026, 7-9 pm, was on “Impaired AVP effect”.

The lecture by Prof Peter Simm emphasized the shift away from older term “diabetes insipidus” toward terminology based on the underlying pathology:

AVP deficiency – formerly called central diabetes insipidus

AVP resistance – formerly called nephrogenic diabetes insipidus

Primary polydipsia – formerly called psychogenic polydipsia.

- ** Think of AVP Resistance in a child with polyuria + polydipsia from infancy with recurrent unexplained fever/dehydration, failure to thrive in early childhood, excessive preference for water, frequent urination/ nocturnal enuresis, hypernatremia during illness or when fluid intake is interrupted.
- ** In an infant with recurrent fever without an obvious focus → consider hypernatremic dehydration due to Impaired AVP effect.
- ** Always document true polyuria quantitatively, rather than relying only on parental history.
- ** Genetic testing has diagnostic yield in AVP Resistance. Genetic diagnosis helps to (i) confirm etiology, (ii) enable genetic counselling, (iii) identify relatives at risk, (iv) explain inheritance, and (v) avoid repeated diagnostic testing.
- ** An important antenatal clue may be available: antenatal history of polyhydramnios (Fetal polyuria → increased amniotic fluid) can occasionally provide an important clue, as it can occur in congenital AVP Resistance (NDI). Maternal polyuria during pregnancy. Placental vasopressinase can contribute to maternal AVP degradation and occasionally unmask DI during pregnancy)
- ** Be careful with the water deprivation test: it is not always necessary, and in a severely hypernatremic/dehydrated child, prolonged water deprivation can be dangerous.
- ** Don't label a child as having AVP Resistance before checking calcium and potassium. Also rule out causes for secondary AVP resistance.

- ** Secondary AVP resistance can be a major diagnostic pitfall in AVP deficiency. Long-standing polyuria causes washout of the renal medullary concentration gradient. Therefore, even a child with AVP deficiency may initially show poor response to AVP/ desmopressin and may appear to have AVP resistance. Sometimes reassessment is required after correction/stabilization. Don't rush to permanently label a child as having AVP resistance based on a single test.
- ** Copeptin is an emerging diagnostic tool. Copeptin is released in equimolar amounts with AVP, but has longer half-life and better assay stability, so it has greater practical usefulness than a direct AVP measurement. Markedly elevated basal copeptin (>21.4 pmol/L) supports AVP resistance. It may help avoid water deprivation testing in appropriate patients.
- ** Stimulated copeptin is particularly useful in differentiating disorders of water balance, although protocols and cutoffs require appropriate clinical context.
- ** Limitations of the copeptin test include availability and assay standardization, which remains problematic in many centers.
- ** Fluid access and sick day management are more important than trying to normalize urine output.
- ** Developmental delay may occur early but can improve with prevention of recurrent hypernatremic dehydration.

One-line clinical approach

Polyuria/ polydipsia → confirm true polyuria → assess plasma & urine osmolality → exclude calcium/ potassium/ renal/ tubular/ osmotic causes → distinguish AVP deficiency vs. resistance → consider copeptin/ genetic testing → ensure unrestricted water + low osmotic load + thiazide/ amiloride ± NSAID OR desmopressin → growth and developmental surveillance + lifelong renal and electrolyte surveillance.

PEPP- Pediatric Endocrine for Practicing Pediatricians

Chetan Dave, Consultant Pediatric Endocrinologist, Rajkot, Gujarat



- Pediatric Graves' disease is less common than hypothyroidism, but very important to pick up and treat.
- The most common cause of Graves' disease is an activating antibody in the form of thyroid receptor antibody (TRab).
- Symptoms of pediatric Graves' disease vary across the age groups, and range from recent weight loss to palpitations, tremor, and nonspecific weakness and fatigue.
- Early diagnosis is needed to prevent growth failure, bone issues, and exophthalmos.
- Thyroid hormone profile, i.e. TSH, free T4 and free T3, is the evaluation of choice for suspected pediatric Graves' disease.
- Before putting the patient on anti-thyroid medications, Tc thyroid scan is a must to differentiate between thyroiditis and Graves' disease.
- Absent or decreased uptake on thyroid scan is suggestive of thyroiditis; while increased uptake is suggestive of likely Graves' disease and needs prompt treatment.
- Anti-thyroid medications in the form of methimazole or carbimazole are the first-line therapy for pediatric Graves' disease.
- Careful and timely monitoring of the patient with thyroid function tests is important.
- Once free T4 gets normalized, the dose should be promptly decreased, because TSH will take a prolonged time to be normalized.
- Radioactive iodine therapy is an alternative which can be offered to a specific population of patients.

REPORT: IDEAL & BEST PROGRAMS

IDEAL AND BEST: SUSTAINING LEARNING, STRENGTHENING DIABETES CARE

Preeti Singh, Professor, Lady Hardinge Medical College & Kalawati Saran Children's Hospital, New Delhi

The past few months have been active for the IDEAL community, with ongoing teaching, discussion, myth-busting, and peer interaction extending learning beyond the formal course structure.

The **IDEAL Monthly Myth-busting Message (MMM)** has continued to address practical misconceptions that children with Type 1 diabetes and their families encounter. The July message focused on *diabetes care at school*, reinforcing the need for children to monitor glucose, take insulin, and manage meals safely during school hours. In August, the message addressed unproven *stem-cell therapy for Type 1 diabetes*, emphasizing the importance of evidence-based treatment and cautioning families against false claims of a cure. The September message focused on *festivals and Type 1 diabetes*, highlighting that children with diabetes can participate fully in celebrations and enjoy festive foods with appropriate carbohydrate counting, insulin adjustment, portion control, and glucose monitoring.

Continuing professional education remains an important part of the program. The **Ongoing Pediatric Diabetes Education (OPDE)** session on 5th July, conducted by Dr Preeti Singh, and attended by over 120 participants, focused on “*The Importance of Having Ketone Testing at Home*”. Dr Shuchy Chugh and Mr Harsh Kohli discussed sick-day management, methods of ketone testing, and the importance of ensuring easy access to ketone testing both at home and while travelling. On 27th September, the OPDE session addressed “*Child-Centered Communication in Type 1 Diabetes Care*”, with Dr Jyoti Kakkar and Dr Srishti Puri as speakers and Dr Shuchy Chugh and Dr Anju Virmani as moderators. The session focused on communication with children and families, listening to their concerns, and involving them appropriately in diabetes care.

IDEAL NEXT, a four-week, zero-cost online training initiative conducted in June 2026 for in-training and practicing physicians from the North-East, concluded on 5th July with the distribution of participation certificates. The WhatsApp group created for the program has continued beyond the formal sessions and remains active for sharing news and tips, discussion, and ongoing learning through initiatives such as Sunday Sawaal.

Meanwhile, **IDEAL Batch 12** for physicians, which began in July, is progressing with enthusiasm and active participation. The program continues to provide a valuable platform for participants to learn from the dedicated and knowledgeable faculty and one another, exchange clinical experiences, and discuss practical aspects of T1D care. The batch will conclude with the exit examination in November 2026.

An important strength of IDEAL remains the network that has developed around the program. The **IDEALites WhatsApp group** provides an active forum for pediatric diabetes educators, dieticians and physicians to exchange practical experiences, discuss clinical questions, share useful resources, warn about quacks, and stay connected across the country.

We look forward to what will be the first active physical meeting of many IDEALites at the **ISPAE 2026: the Mid-Term Meeting** in Ahmedabad during a **Workshop on Basics** on 24 October 2026, preceded by a contributory dinner on 23rd October. We hope to have more such meetings in the future to provide a valuable opportunity for members who have interacted largely through virtual platforms to meet in person and strengthen professional links.

The next **BEST Batch 13** is planned for December 2026, with applications expected to open during October–November.

ACTIVITIES BY ISPAE MEMBERS

Pediatric Endocrine Update 2026: Hormones & Health

Dr. Anjali Verma, Pt. B.D. Sharma PGIMS, Rohtak

The Dept of Pediatrics, Pt. BD Sharma PGIMS, Rohtak, under the aegis of ISPAE and IAP Rohtak Branch, organized Pediatric Endocrine Update 2026: Hormones & Health on 5 September 2026 at LT-1, PGIMS, Rohtak as part of the ISPAE Presidential Action Plan 2026. It was organized by Prof Anjali Verma, Pediatric Endocrinologist, Dept of Pediatrics, PGIMS, Rohtak, as Organizing Secretary, under the leadership of Prof ND Vaswani, Head, Dept of Pediatrics, PGIMS, Rohtak, as Organizing Chairman, and graced by Dr HK Aggarwal, Vice-Chancellor, UHSR, and Dr Ashok Chauhan, Dean, PGIMS. Their support added to the success of the program. The academic program brought together experts from Pediatric Endocrinology, Pediatric Surgery, Biochemistry, Pharmacology and Medicine, providing an opportunity for participants to share their experiences and discuss common clinical problems. With a focus on important pediatric endocrine disorders and their practical management, topics included congenital thyroid screening, short stature, ambulatory Type 1 diabetes care, pubertal disorders, and multidisciplinary approach to Differences of Sex Development (DSD). The program emphasized the importance of early recognition and appropriate management of endocrine disorders in children and providing comprehensive, child-centered care. The good participation of over 100 delegates, including pediatricians, faculty members and postgraduate trainees, reflected the increasing interest in pediatric endocrinology.



Pediatric Endocrine Update- Kolhapur

Eshita Bhowmik, DY Patil Medical College & Hospital, Kolhapur

Pediatric Endocrine Update was a one-day continuing medical education program held on 6 September 2026 at the DY Patil Medical College Auditorium, Kolhapur, to update pediatricians and postgraduate trainees on important advances in pediatric endocrinology, with emphasis on early diagnosis, evidence-based



management, and practical clinical application. It covered a broad range of clinically relevant topics, including Newborn thyroid screening and government policies, Diabetes technology and advances in diabetes care, Childhood obesity: lifestyle modification vs pharmacotherapy, long-term outcomes of Growth disorder cases over the last three decades, Bone health in children, Adrenal disorders panel discussion, Endocrine case files, featuring postgraduate case presentations, including cases of precocity, diabetes insipidus and resistant rickets, and an interactive workshop, “Beyond the laboratory reports: Mastering endocrine tests.” The CME received 80 registrations, with a final attendance of about 60 participants. The faculty included Drs Vaman Khadilkar, Anuradha Khadilkar, Ganesh Jevalikar, Eshita Bhowmik, Nivedita Patil, Mahesh Kore, Suhas Kulkarni, Narendra Nanivadekar, Mohan Patil, Saiprasad Kavthekar, Aniket Kumbhojkar, Shraddha Kulkarni and Amruta Shivchand. The CME was supported by Medtronic India for the diabetes technology session and Novo Nordisk for the childhood obesity session. It was conducted under the aegis of ISPAE as part of its Presidential Action Plan 2026, in collaboration with the Kolhapur Academy of Pediatrics and the Department of Pediatrics, DY Patil Medical College & Hospital, Kolhapur.

IDEAL CORNER

Shruti Arora, IDEALite/ Certified Diabetes Educator, Ayurveda practitioner



JDF Mumbai Organises Monsoon Trek for T1D Community Sudhagad Fort | 27 June 2026



Juvenile Diabetes Foundation (JDF) Mumbai organised its **annual monsoon trek to Sudhagad Fort**, with 40+ participants from the T1D community, including individuals with T1D and caregivers. The trek encouraged participants to step beyond their comfort zones. Despite unexpectedly hot weather, long travel time, meal-timing challenges, and highs and lows, the group successfully completed the trek. Volunteers arranged food, emergency snacks, and first-aid supplies, ensuring a well-supported experience. The day was filled with learning, laughter, and camaraderie, along with valuable lessons in managing T1D during outdoor activities.

OPDE Session Highlights Importance of Ketone Testing at Home Online | 5 July 2026

An OPDE (Ongoing Pediatric Diabetes Education) session on “**Importance of Having Ketone Testing at Home**”, open not only to IDEALites but the NEXT trainees and faculty, and the wider T1D community by also streaming live on YouTube to extend its reach, was held on Sunday, 5 July 2026, 12-1 pm. It was conducted by Dr Shuchy Chugh and Mr Harsh Kohli, who discussed sick-day management, methods of ketone testing, and the importance of having ketone-testing facilities readily available at home and during travel. The discussion, emphasizing the role of ketone monitoring during illness and the need for timely action when ketones are present, was attended by 120 participants.



JDF Mumbai Online Session Promotes Healthy Living During Monsoon- Online | 8 July 2026

Juvenile Diabetes Foundation (JDF) Mumbai conducted an online session titled “**The Monsoon Shield – Staying Healthy in the Rainy Season**” on 8 July 2026, 9:30 pm. The session was led by Dr Anuja Pethe, who shared practical tips and guidance on maintaining health and well-being during the monsoon season. The interactive session, designed to be relevant to all age groups, whether with or without T1D, focused on everyday health practices to help participants stay healthy and better prepared during the rainy season.



UDAAN's 'Freedom from Stigma' Walk Brings the T1D Community Together- Global Initiative | 1–15 August 2026

UDAAN initiated the “**Freedom from Stigma Walk**” as a global movement to build a world where people living with T1D (PwD) are understood, accepted, and supported. The initiative highlighted the stigma and misunderstanding often faced by PwD, alongside the everyday demands of insulin therapy and blood glucose monitoring. Participants from across communities were invited to walk any distance between 1-14 August and log their walks as an act of solidarity and awareness. The campaign brought together PwD, parents, healthcare professionals, organisations, and supporters, coming forward in solidarity to walk for a stigma-free world. Participants carried the Indian flag, shared photographs and stories, and helped spread awareness and challenge misconceptions around T1D.



JDF Mumbai Online Session Explores Exercise Management in T1D- Online | 19 August 2026

Dr Dhwani Aakash Patel spoke on “**Exercise & T1D – From Fear to Confidence**”, in an online session organised by Juvenile Diabetes Foundation (JDF) Mumbai, on 19 August 2026. The session focused on expert guidance and practical strategies for PwD to exercise safely and confidently while managing T1D well. The talk was followed by time for lively Q&A to discuss concerns and questions related to physical activity and T1D.

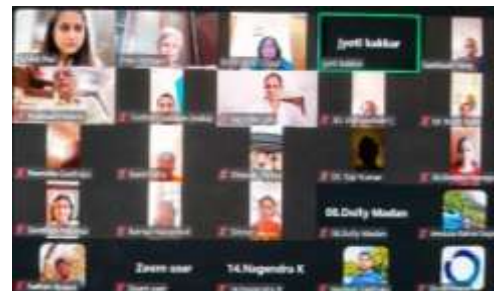


Session on Festive Food Fundas Offers Practical Guidance for T1D- Online | 26 August 2026

Ms Natasha Vora, Team NHS, conducted an online session on “**Festive Food Fundas**” on 26 August 2026. The session focused on helping PwD with practical guidance on how to navigate and enjoy festive foods with greater confidence, balance, and informed choices, while managing T1D effectively. Participants gained useful insights into making smarter food choices during celebrations.

OPDE Session: Child-Centred Communication in T1D Care- Online | 27 September 2026

The September OPDE – Ongoing Pediatric Diabetes Education – was on “**Child-Centred Communication in Type 1 Diabetes Care**”, delivered by **Dr Jyoti Kakkar** and **Dr Srishti Puri**, with Drs Shuchy Chugh and Anju Virmani as moderators. The conversation focused on Communication - an aspect of diabetes care sometimes overlooked. Communication between the healthcare professionals and the child, between parents and the child, and with other key persons (grandparents, teachers, relatives and friends); communication *with* the child, not just *about* the child. The importance of honesty and sensitivity to “*silent signals*” sent and received by the child, of being age-appropriate and focused on problem-solving rather than criticizing were aspects emphasized. The interactive session underlined the need to make sure children feel heard, understood and involved in their own care, using real stories to make practical points in improving support to children and families living with T1D.



Yog Dhyan Foundation: Strengthening T1D Care Through Education, Monitoring & Community Support | July–September 2026

YDF, New Delhi, continues its multifaceted work of diabetes education, provision of essential diabetes-care supplies and lab monitoring, yoga and wellness, nutrition, psychosocial support, and community interaction.

July 2026: On **5th July**, the Community Camp at its Center with diabetes education, distribution of supplies and birthday celebration of the July-born children with lunch sponsored by *The Bigger Picture*, was attended by 151 children. On **12th July**, the monthly *Look, One Virtual Event* online session was on “**Food, Insulin, or Stress? – what caused my high sugar?**” discussed by Dr Vinod Kr Gupta (Pediatric Endocrinologist, RML Hospital), with panellists Mr Ravi Kumar (Dietician, Govt. Civil Hospital, Samalkha–Panipat); Dr. Srishti Puri (Clinical Psychologist); and Mr Harsh Kohli (T1D Advocate). Ms Anupama Pathak, mother of Sudhanya Kalita and Co-Founder of *Sudhanya Welfare Foundation*, and *Hero of the Month*, shared her family’s journey and experiences with T1D. On **19th July**, “**Art for Awareness**,” an experiential creative workshop was conducted in collaboration with *Brush of Hope*, where 190 children explored block printing, fluid art and cyanotype activities; along with HbA1c monitoring, diabetes education and yoga. An HbA1c + Support session was conducted on **26th July**.

August 2026: An HbA1c Camp on **2nd August** in collaboration with Dr Lal Path Labs, along with diabetes education, yoga, distribution of diabetes-care supplies, and birthday celebrations for August-born children, with lunch sponsored by *The Bigger Picture*, was attended by 172 children. The *Look, One Virtual Event* on **9th August** explored the theme: “**Stress to Strength - with T1DM – तनाव से ताकत तक – T1DM के साथ**” with Dr Shamikiran (Associate Consultant, Pediatric Endocrinology, Manipal Hospital, Yelahanka, Bengaluru) as speaker and *Hero of the Month*. He addressed the emotional and psychological challenges associated with living with T1D and discussed ways of developing resilience and strength. The panellists were Dr Shuchy Chugh (Pediatric Diabetes Educator & T1D); Ms Amrita Rupani (Diabetes Educator, Yoga Instructor & T1D); and Ms Sayma (Digital Operator & T1D).

September 2026: The **6th Sept** community camp, with Ms Aruna Sharma discussing “*Managing Blood Glucose Fluctuations*,” and Mr Anil Kumar discussing healthy and balanced food choices; supplies distribution and birthday celebrations for Sept-born children sponsored by *The Bigger Picture*, was attended by 132 children. The **13th Sept** *Look, One Virtual Event* titled “**Meri Bhi Suno – Because Every T1D Voice Matters**” provided an open and interactive platform for children, young adults and families living with T1D to openly ask questions, share experiences and express concerns, in a supportive environment. Moderated by Dr Anil Vedwal, Ms Amrita Rupani, Ms Himani and Ms Sayma, it had 44 participants. On **20th Sept**, a T1D Education Camp covered insulin devices, preventing and managing hyperglycemia, timely health check-ups, HbA1c, and managing T1D + celiac disease. Six early-bird participants, and 36 other children attended.

TRAINEES SECTION

Ajinkya Patil, Pediatric Endocrinologist, Hormocare Clinic, Jalgaon



Please answer the questions below on Pediatric bone disorder. Correct answers and individual quiz scores will be mailed to the respective email address after the quiz closes.



<https://forms.gle/7RtcS4MqM5AARFCD9>

Last Date 10th October 2026



The Organising Committee of ISPAE Mid-term Meeting, 2026
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Organising Chairperson
Dr. Sudha Rao

Organising Secretary
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