Past History: Patient A was diagnosed with GHD and hypothyroidism at age 18 months. Patient B was diagnosed with GHD at age 7 1/2 years; other medical conditions include fetal alcohol syndrome with failure to thrive, global developmental delay, attention-deficit/hyperactivity disorder, and gastroesophageal reflux with fundoplication.
Evaluation: Patient A had laboratory assessments as follows: IGF-1 70 (201–609 ng/mL), thyroid function studies normal, fasting glucose 80 (56–145 mg/dL), and fasting cortisol 21 (6.0–23.0 μg/dL). Insulin tolerance test with GH maximum 0.9 ng/mL. Repeat MRI showed empty sella. Patient B had laboratory assessments as follows: IGF-1 129 (209–602 ng/mL), thyroid function studies normal, and fasting cortisol 21.5 (4.2–38.4 μg/dL). Insulin tolerance test with GH maximum 1.5 ng/mL. Repeat MRI was normal.
Interventions: Patient A was restarted on GH therapy at a transition dose of 0.03 mg/kg per day. He achieved an 18-lb weight gain with 2 months of therapy and improvement in energy level. Patient B will restart on GH therapy at a dose of 0.01 mg/kg per day.
Discussion/Recommendations: The etiology of weight loss in these adolescent males is not understood. Metabolic changes in adipose tissue result in weight gain with increased adiposity and reduced muscle mass in GH-deficient young adults. This phenomenon is opposite of the usual presentation.

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The Need for Assessing Cortisol-Binding Globulin in Evaluation for Cushing's Syndrome in a Young Girl

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Patient Demographics: 16-year 7-month-old Caucasian female.
Clinical Presentation: Referred by a neurosurgeon for evaluation of her endocrine status. She had a pituitary lesion and polyuria and polydipsia suggestive of diabetes insipidus (DI).
Past History: She had a few months' history of increased thirst and urinary frequency. She experienced headaches twice a week, regular menstrual cycles, and no significant changes in her weight or energy level. Her urine was "like water."
Evaluation: Height was at the 25th percentile and weight was at the 50th percentile. Specific gravity on urinalysis was 1.010. An MRI showed an enlarged pituitary gland, a lesion on the pineal gland (a cyst or mass), and a pituitary lesion that could be interpreted as a Rathke's cleft cyst or macroadenoma. Follow-up MRI was recommended. Pituitary testing included a prolactin of 29 ng/mL (normal [nl] <24), IGF-1 of 346 ng/mL (nl range), TSH of 15 μU/mL (nl <5.5), FT4 of 1.03 ng/dL (nl 0.89–1.76), elevated antiperoxidase antibodies, and normal LH and FSH levels. AM cortisol was 47 μg/dL (nl 7–20), ACTH of 19 pg/mL (nl 6–48), PM cortisol of 25 μg/dL (nl 4–11), urinary free cortisol level of 56 μg/24 hours (nl 2–38), and a cortisol of 4 μg/dL after suppression with dexamethasone. A corticosteroid binding globulin (CBG) was 6.2 mg/dL (nl 2.3–3.9).
Interventions: She started at a low dose of desmopressin after an overnight fast both as a diagnostic study and for clinical therapy. Repeat electrolytes were normal. The thyroid abnormality, unrelated to her pituitary issue, showed Hashimoto thyroiditis. She was started on 75 μg thyroid supplementation. Because the elevated cortisol level resulted from CBG excess, she did not require treatment.
Discussion/Recommendations: Differential diagnoses included hypopitiutarism because of the abnormal MRI and symptoms of DI. Elevated cortisol levels were unexpected because she lacked symptoms or physical characteristics of elevated cortisol levels. Approximately 75% of the cortisol in circulation is bound to CBG. The cortisol is thought to be biologically active only when it is not bound to CBG. Health care providers need to consider differential diagnoses and not narrow their focus on expected findings and make an inaccurate diagnosis. The patient/family must understand that CBG excess caused the elevated cortisol levels and does not require treatment.

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Failure to Thrive Because of Inherited Congenital Isolated Growth Hormone Deficiency

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Patient Demographics: A 22-month-old female, severe failure to thrive.
Clinical Presentation: Length was 66 cm (−5.1 SD), and weight was 6.6 kg (−6.7 SD). Prominent forehead and midfacial hypoplasia were noted. Muscle mass was decreased.
Past History: Birth weight 5 lb 11 oz at term, grew well for 4 months and then progressively deviated below the curve in length and weight. Mother's height was 5 ft 3 in., with menarche at age 13 years. Father, −4 SD, was diagnosed with isolated growth hormone deficiency at 7 years of age, and treated (5 ft 4 in.). Siblings included a 6-year-old brother who was very small at age 22 months during an endocrine evaluation and a 3-year-old sister with height and weight at both −4 SD.
Evaluation: Free T4 was 1.28 ng/dL (normal 1.1–1.7), TSH 1.8 μU/mL (normal range). IGF-1 less than 25 ng/mL (44–174) and IGFBP-3 less than 0.5 μg/mL (1.3–3.5) were both very low. Growth hormone stimulation testing peak of 1.1 ng/mL. DNA sequencing of the GH-1 gene found a heterozygous sequence variance.
Interventions: Growth hormone (GH) therapy was started at 0.27 mg/kg per week. Headaches began 5 days later, likely because of increased intracranial pressure, so GH was stopped and the dose reduced by one third, which was tolerated. She has grown about 12 cm during the first 10 months but is still −3.5 SD.
Discussion/Recommendations: Failure to thrive in the first 2 years of life rarely has an endocrine etiology. In this case, recognizing the importance of the family history and better compliance with follow-up care of the older siblings might have resulted in earlier diagnosis and treatment. The headaches, likely due to benign intracranial hypertension, suggests that this complication of GH therapy might be more common in children with this rare and severe form of GH deficiency, so starting GH at lower doses than usual would be prudent.

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Standardization of Endocrine Nursing Practice: Establishment of a Special Interest Group

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In October 2010, a Special Interest Group (SIG) was initiated to support endocrine nursing practice at an urban medical facility. A

SIG is a forum in which nurses involved in the care of patients within a specific specialty area have the opportunity to collaborate to further nursing practice, exchange ideas, and discuss standards of care to provide a consistent patient and family care experience.
SIGs enable the registered nurse to promote care within the specialty, bridging the challenges of ensuring standardized outpatient nursing care in an organization with multiple ambulatory sites. Patients and families receive a more integrated and uniform experience regardless of geographical location through the integration of evidence-based practice and the collaboration with peers. The primary objectives of the SIG include the following:

- Develop a professional network within the SIG specialty areas to promote clinical efficiency and expertise in care delivery.
- Investigate, create, and apply evidenced-based practice to elevate the standard of care.
- Collaborate with members of the interdisciplinary team to provide the highest quality patient care experience.
- Advocate for the needs of patients and families.
- Standardize the care provided to patients and families across the ambulatory setting.

The outcomes and results were the establishment of an algorithm starting with the prescriber's orders and the prescribed medication to the actual process of medication shipment; informational packets for the patient prescribed Lupron and/or Testosterone, starting with what it is and ending with where more information about the condition would be found; discharge packets for the patient prescribed Lupron and/or Testosterone, starting with what to expect after getting medication and ending with how to reach us; and revised prescriber order forms to be filled out by the prescriber and processed by the nurse.

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Childhood Osteoporosis: Screening, Prevention, Treatment, and Safe Handling Practices in a Tertiary Care Pediatric Hospital

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Osteoporosis is a challenge facing children of all ages with multiple different health conditions and physical abilities. The reality of this challenge stemmed the development of the child health program's interdisciplinary bone health project team in a tertiary care, in-patient pediatric hospital. The committee's goal was to develop protocols and tools to help identify at-risk children and ultimately prevent fragility fractures in these children. An evidence-based screening tool was developed to allow primary caregivers to quickly recognize the child who is most at risk for osteoporosis and determine the next step to take related to bone health. The use of standardized evidence-based diagnosis, treatment, and prevention protocols empowers all care providers to make bone health a priority for their patients. A "handle with care" protocol, along with identifiable signage, gives caregivers and others who may handle the child the ability to do so safely, with adequate knowledge of fracture prevention strategies. A resource for families and caregivers, which includes the definition of pediatric osteoporosis, diagnostic criteria, and prevention strategies, has been developed. Nutrition and lifestyle recommendations, including activities of daily living, safe handling practices, and tips to prevent injury, are also included. All children admitted to the children's hospital are screened during their admission using a standard nursing database with a specific bone health screen added. The process from screening to initial workup, diagnosis, and treatment or prevention arm will be described in detail. Any child identified as high risk or having pediatric osteoporosis will be automatically entered in the "fragile: handle with care" protocol. This multidisciplinary approach to bone health and fracture prevention is the key to successful outcomes for all children at risk for osteoporosis. Roll-out and sustainability of this project have depended greatly on networking and collaboration with many stakeholders from initiation through to maintenance of this practice change. A working component is to expand screening and fracture prevention methods by identifying children with osteoporosis in the community through education of professionals and families.

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Diabetes Nurse Leadership Group: A Forum for Improving Diabetes Care

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Four certified diabetic educators (CDEs) with varying roles at our hospital work together to meet the challenges we face in providing care for our pediatric patients. We meet weekly to address diabetes improvement initiatives both at the hospital and community at large. The CDEs working at the university created a forum to meet on a regular basis to join forces to facilitate providing optimal diabetes care and education for the members of the hospital, academic, and communities of Brooklyn.
Learning objectives were as follows:

1. To identify the opportunities where CDEs can have an impact on the education, management, and prevention in and out of the hospital and academic setting.
2. To illustrate the use of CDEs in an urban academic medical center to optimize the education of nurses, patients, and the community in diabetes management and prevention.
3. To describe the process of using CDEs in diabetes improvement initiatives and education in an academic urban hospital and in the Brooklyn community.

Content Outline

1. CDE opportunities in an urban academic medical center
   a. Inpatient
   b. Outpatient
   c. Education of staff
   d. Education of students
   e. Community health forums
   f. Research
2. Utilizing CDEs in an urban academic medical center
   a. In-servicing staff
   b. Precepting students
   c. Conducting workshops