

# **Clinical Resource Guide for School Nurses**

This guide provides an overview of the pediatric specialty services offered within UPMC Children’s Hospital of Pittsburgh. Specialty contact information, services offered, and web links for professionals is included for each specialty.

Authored: Leslie Pitetti, BSN, RN, 2017

Updated: Taylor Giambrone, BSN, RN, CCRN, 2019

Updated: M. Bridgetta Devlin, CPNP-PC, CSN and Heather Anderson MPH, 2024

**Disclaimer:**

**This resource guide was created for informational purposes only. It should not be considered medical advice. It is the sole responsibility of school nurses to stay informed about changes, recommendations, or regulations to health guidelines and best practices.**

**UPMC Children’s Hospital Pediatric Education Webinars**

UPMC Children’s offers a free webinar series for school nurses sponsored by the Division of Community Health and the Professional Development and Education Committee. [Click here](#) for access to a wide variety of learning topics.

**Healthwise Knowledgebase**

[Healthwise](#) Knowledgebase offer free access link to a variety of health-related topics, videos and tools.

## Table of Contents:

Visit Navigation Services .....	4
Outpatient Specialty Care Services .....	5
Outpatient Referral Guide .....	6-8
Adolescent and Young Adult Medicine .....	9
Asthma .....	10
Behavioral Health .....	11
Cancer and Blood Disorder .....	12
Cardiology .....	13
Child Advocacy .....	14
Dentistry .....	15
Dermatology .....	16
Endocrine / Weight Management .....	17-18
Food Allergy .....	19
Gastroenterology .....	20-21
Headache .....	22
Infectious Disease .....	23
Neurology .....	24
Epilepsy Center .....	25
Otolaryngology (ENT) .....	26
Orthopedics .....	27
Pulmonology .....	28
Rheumatology .....	29
Ronald McDonald Care Mobile .....	30
Sickle Cell .....	31
Spanish Clinic .....	32
Community Resources .....	33
Language Services .....	34-36
Notes .....	37

# Visit Navigation Services

[Click here for the Visit Navigation Services link:](#)



## Visit Navigation services

At UPMC Children’s Hospital of Pittsburgh, we understand the time and effort it takes to schedule multiple appointments, not to mention the expense of traveling to Pittsburgh for an appointment.

UPMC Children’s Hospital is here to help manage the complexities of scheduling multiple appointments, so that you can spend more time with your family and less time commuting.

**To qualify for our Visit Navigation program you must:**

- Need two or more appointments
- Have multiple children that need appointments

**To learn more about the program, please contact:**

UPMC Children’s Hospital of Pittsburgh  
4401 Penn Ave.  
3rd floor Plaza Building, Suite 310  
Pittsburgh, PA 15224  
412-692-5687  
[visitnavigation@chp.edu](mailto:visitnavigation@chp.edu)



CHP511632\_JAB/JM 5/19

**UPMC | CHILDREN'S**  
**HOSPITAL OF PITTSBURGH**  
*Last Updated – 3/1/2023*

<b>UPMC Children's Outpatient Specialty Care Services</b>		
<b>Specialty</b>	<b>Phone</b>	<b>Fax</b>
Adolescent Medicine	412-692-6677	412-692-8584
Allergy and Immunology	412-692-7885	412-692-8499
Audiology	412-692-5580	412-692-5563
Behavioral Health	412-692-5100	724-933-4508
Cardiology	412-692-5540	412-692-5138
Cardiothoracic Surgery	412-692-5218	412-692-5138
Child Advocacy Center	412-692-8747	412-692-8399
Child Development Unit	412-692-5560	412-692-5679
Chronic Pain Service	412-692-8700	412-692-5572
Clinical Nutrition	412-692-3482	412-692-8093
Complex Care Clinic	412-692-7644	412-692-6504
Concussion Center	412-432-3681	412-432-3644
Dental Services	412-692-5440	412-692-7426
Dermatology	724-933-9190	724-933-9194
Down Syndrome Center	412-692-7963	412-692-7038
Ear, Nose and Throat (ENT) Nurse station/referrals	412-692-5460	412-692-7203 412-692-5701
EEG and Video EEG	412-692-6163	412-692-9661
Endocrinology/Diabetes/Wellness New patient information	412-692-5170	412-692-7665 412-864-5810
Feeding and Swallowing Clinic	412-692-3333	412-692-5563
Gastroenterology and Hepatology	412-692-5180	412-692-7355
Genetics, Medical	412-692-5070	412-692-6472
Hematology/Oncology	412-692-5055	412-692-6033
Infectious Disease	412-692-7438	412-692-7016
Nephrology	412-692-5182	412-692-7443
Neurology	412-692-5520	412-692-6787
Neuropsychology	412-692-5890	412-864-8617
Neurosurgery	412-692-5090	412-692-5921
Occupational Therapy	412-692-5480	412-692-6765
Ophthalmology	412-692-8940	412-692-7220
Orthodontics	412-692-8799	412-692-8614
Orthopaedic Surgery	412-692-5530	412-692-6088
Pediatric/Adolescent Gynecology	412-692-7280	412-692-6069
Pediatric Surgery	412-692-7280	412-692-6069
Physical Therapy	412-692-5480	412-692-6765
Plastic Surgery	412-692-8650	412-692-8614
Pulmonology	412-692-5630	412-692-6645
Radiology	412-692-5500	412-692-6933
Rehabilitation Medicine	412-692-5097	412-692-6462
Rheumatology	412-692-5081	412-692-5054
Sedation Services	412-692-7559	412-692-6929
Sickle Cell Clinic	412-692-3271	412-692-6675
Sleep Program/Pulmonary Medicine	412-692-5630	412-692-6645
Speech-Language Pathology	412-692-5580	412-692-5563
Transplant-Liver and Intestine	412-692-6740	412-692-7693
Transplant-Bone Marrow/Cellular Therapies	412-692-6110	412-692-6116
Urology	412-692-7932	412-692-7939
Vascular Anomalies Center	412-692-8650	412-692-8614



# UPMC Children’s Specialty Care Services

Revised 6/2023

## How to Schedule an Appointment



**Call Us**  
See the next page for a list of specialist phone numbers.



**Schedule Online**  
Go to [CHP.edu/Online-Scheduling](http://CHP.edu/Online-Scheduling) or scan this QR code:



**Use the myCHP App**  
Download the UPMC Children’s app by scanning this QR code:



**Call a Visit Navigator**  
If you need help scheduling 2 or more appointments for a returning patient, please contact Navigation Services at **412-692-5687** or [visitnavigation@chp.edu](mailto:visitnavigation@chp.edu)

UPMC Children’s Hospital of Pittsburgh Outpatient Locations			
MAIN CAMPUS AND PRIMARY CARE CENTER	AMBULATORY CARE CENTERS	SPECIALTY CARE CENTERS	
<b>UPMC Children’s Hospital of Pittsburgh-Main Campus</b> 4401 Penn Ave. Pittsburgh, PA 15224	<b>Children’s East</b> Corporate Office Park Building One 4055 Monroeville Blvd., Suite 110 Monroeville, PA 15146 Appointments: <b>412-692-7337</b> Other issues: <b>412-666-3800</b>	<b>Erie</b> Magee-Womens, UPMC Hamot 118 East 2 <sup>nd</sup> Street., Suite W1150 Erie, PA 16507 Appointments: <b>412-692-7337</b> Other issues: <b>814-877-8701</b>	<b>Children’s Dental-Hampton</b> 4290 William Flynn Hwy Allison Park, PA 15101 Appointments: <b>412-692-7337</b> Other issues: <b>412-692-5440</b>
			<b>Children’s Dermatology-East</b> 4075 Monroeville Blvd., Suite 125 Monroeville, PA 15146 Appointments: <b>724-933-9190</b>
<b>Oakland Primary Care</b> 3420 Fifth Ave. Pittsburgh, PA 15213	<b>Children’s North</b> 2599 Wexford Bayne Road Sewickley, PA 15143 Appointments: <b>412-692-7337</b> Other issues: <b>724-933-3600</b>	<b>Harrisburg</b> 3 Walnut Street Suite 205 Lemoyne, PA 17043 Appointments: <b>412-692-7337</b> Other issues: <b>717-988-0090</b>	<b>Washington Hospital</b> 155 Wilson Ave. Washington, PA 15301 Appointments: <b>412-692-7337</b> Other issues: <b>724-579-1902</b> (Located next to Emergency Dept.)
<b>Turtle Creek Primary Care</b> 108 Penn Plaza Turtle Creek, PA 15145	<b>Children’s Pine Center</b> 11279 Perry Highway Wexford, PA 15090 Appointments: <b>412-692-7337</b> Other issues: <b>724-940-6161</b>	<b>Hermitage</b> 449 North Hermitage Road Hermitage, PA 16148 Appointments: <b>412-692-7337</b> Other issues: <b>724-347-4596</b>	<b>Cumberland, Maryland</b> UPMC Johnson Heights Medical Bld. 625 Kent Ave., Suite 102 Cumberland, MD 21502 Appointments: <b>412-692-7337</b> Other issues: <b>240-964-4288</b>
<b>UPMC University Center</b> 120 Lytton Ave. Mezzanine Floor Suite M060 Pittsburgh, PA 15213	<b>Children’s South</b> 205 Millers Run Road Bridgeville, PA 15017 Appointments: <b>412-692-7337</b> Other issues: <b>412-854-5005</b>	<b>Johnstown</b> 865 Eisenhower Blvd. Johnstown, PA 15094 Appointments: <b>412-692-7337</b> Other issues: <b>814-266-8840</b>	<b>Wheeling</b> Cardinal Pediatrics Building 110 Sims Circle Triadelphia, WV 26059 Appointments: <b>412-692-7337</b>

UPMC CHILDREN’S SPECIALTY CARE CENTERS								
SPECIALTY	PHONE NUMBER	SPECIALTY CARE CENTERS						
		Erie	Harrisburg	Hermitage	Johnstown	Washington	Wheeling, West Virginia	Cumberland, Maryland
ALLERGY AND IMMUNOLOGY	412-692-7885	X	X		X			
CHILD ADVOCACY CENTER	412-692-8747	X			X			
CARDIOLOGY	412-692-5540	X	X	X	X	X		X
DOWN SYNDROME CENTER	412-692-7963	X		X	X	X		
EAR, NOSE AND THROAT (ENT)	412-692-5460				X		X	
ENDOCRINOLOGY/DIABETES WELLNESS	412-692-5170	X	X	X	X	X	X	X
GASTROENTEROLOGY	412-692-5180	X	X	X	X	X	X	X
GENETICS, MEDICAL	412-692-5070	X		X	X			
HEMATOLOGY/ONCOLOGY	412-692-5055		X					
NEPHROLOGY	412-692-5182	X	X	X	X	X		X
NEUROLOGY	412-692-5520	X	X	X	X	X	X	X
NEUROSURGERY	412-692-5090	X	X					
PEDIATRIC SURGERY	412-692-7280		X					
PULMONOLOGY	412-692-5630	X	X		X			
REHABILITATION MEDICINE	412-692-5097				X			
SICKLE CELL CLINIC	412-692-3271	X						
UROLOGY	412-692-7932					X		

UPMC CHILDREN'S HOSPITAL, PRIMARY CARE, AND AMBULATORY CARE CENTERS							
SPECIALTY	PHONE NUMBER	Main Hospital	Primary Care	AMBULATORY CARE CENTERS			
		Lawrenceville	Oakland	East	North	Pine Center	South
ADOLESCENT AND YOUNG ADULT MEDICINE	412-692-6677		X			X	X
ALLERGY AND IMMUNOLOGY	412-692-7885	X		X	X		X
AUDIOLOGY	412-692-5580	X		X	X		X
BRACHIAL PLEXUS	412-692-8650	X					
BEHAVIORAL HEALTH	412-692-5100	X	X	X			X
CARDIOLOGY	412-692-5540	X		X	X		X
CARDIOTHORACIC SURGERY	412-692-5218	X					
CHILD ADVOCACY CENTER	412-692-8747	X					
CHILD DEVELOPMENT UNIT	412-692-5560		X		X		
CHRONIC PAIN SERVICE	412-692-8700	X				X	
CLINICAL NUTRITION	412-692-3482	X		X			X
COMPLEX CARE CLINIC	412-692-7644	X					
CONCUSSION CENTER	412-432-3681					X	X
CYSTIC FIBROSIS	412-692-5630	X					
DENTAL SERVICES	412-692-5440	X			Hampton		
DERMATOLOGY	724-933-9190			X		X	X
DOWN SYNDROME CENTER	412-692-7963	X			X		X
EAR, NOSE AND THROAT (ENT)	412-692-5460	X		X	X		X
EEG AND VIDEO EEG	412-692-6163	X		X		X	X
ENDOCRINOLOGY/DIABETES WELLNESS	412-692-5170	X		X	X		X
FEEDING AND SWALLOWING	412-692-3333	X				X	
GASTROENTEROLOGY	412-692-5180	X		X	X		X
GENETICS, MEDICAL	412-692-5070	X		X	X		
HEMATOLOGY/ONCOLOGY	412-692-5055	X					X
HEPATOLOGY	412-692-5180	X					
INFECTIOUS DISEASE	412-692-7438	X			X		
LAB SERVICES	Main - 412-692-6999 East - 412-666-3807 North - 724-933-3619 South - 412-854-5005	X		X	X		X

## UPMC CHILDREN'S HOSPITAL, PRIMARY CARE, AND AMBULATORY CARE CENTERS

SPECIALTY	PHONE NUMBER	Main Hospital	Primary Care	AMBULATORY CARE CENTERS			
		Lawrenceville	Oakland	East	North	Pine Center	South
NEPHROLOGY	412-692-5182	X		X	X		X
NEUROLOGY	412-692-5520	X	X	X		X	X
NEUROPSYCHOLOGY	412-692-5890	X					X
NEUROSURGERY	412-692-5090	X		X			
OCCUPATIONAL THERAPY	412-692-5480	X		X		X	X
OPHTHALMOLOGY	412-692-8940	X				X	X
ORTHODONTICS	412-692-8799	X					
ORTHOPAEDIC SURGERY	412-692-5530	X		X	X		X
PEDIATRIC AND ADOLESCENT GYNECOLOGY	412-692-7280	X					X
PEDIATRIC SURGERY	412-692-7280	X			X		X
PHYSICAL THERAPY	412-692-5480	X		X		X	X
PLASTIC SURGERY AND CLEFT CRANIOFACIAL CENTER	412-692-8650	X			X		X
PRIMARY CARE CENTER	Oakland 412-692-6000 Turtle Creek 412-823-3121		X	Turtle Creek			
PULMONOLOGY	412-692-5630	X		X	X		X
RADIOLOGY	412-692-5500	X		X	X		X
REHABILITATION MEDICINE	412-692-5097	X				X	X
RHEUMATOLOGY	412-692-5081	X		X	X		X
SEDATION SERVICES	412-692-7559	X					
SICKLE CELL CLINIC	412-692-3271	X					
SLEEP PROGRAM/PULMONARY MEDICINE	412-692-5630	X			X		
SPEECH-LANGUAGE PATHOLOGY	412-692-5580	X		X		X	X
SPINA BIFIDA	412-692-5096	X					
TRANSPLANT-BONE MARROW/CELLULAR THERAPIES	412-692-6740	X					
TRANSPLANT-LIVER AND INTESTINE	412-692-6110	X					
UROLOGY	412-692-7932	X		X	X		X

## Adolescent and Young Adult Medicine

412-692-6677

<http://www.chp.edu/our-services/aya-medicine>

The Center for Adolescent and Young Adult Health (CAYAH) provides medical care for adolescents (ages 10–26) for a wide range of health issues. As a Primary Care Clinic, they conduct routine physicals for school, sports, driving, and work, including vision and hearing screening and immunization updates. They also see primary care patients for acute and chronic health problems including:

- Acne
- Asthma
- Rashes
- Viral illnesses
- Concerns about pregnancy or sexual health
- Depression
- Weight and eating problems.

Patients are often referred by other health professionals (like their pediatrician) to seek opinion and recommendations for managing special health concerns such as:

- Hormone problems
- Menstrual period irregularities
- Pediatric and adolescent gynecologic problems
- Contraception
- STD testing and treatment
- Sexuality issues
- Gender concerns

They provide confidential services for most issues including:

- Sexuality
- Pregnancy testing
- Sexually transmitted infection (STI) testing and treatment
- Birth control
- Substance use
- Mental health
- Questions about your body

Parental permission is **not** required for the evaluation and treatment of sexual health concerns including family planning, sexually transmitted infections, pregnancy testing, and initial evaluation of alcohol and other drug problems. Young adults are eligible to receive these reproductive health services with no or minimal charge regardless of insurance status.

## Asthma Center

412-692-LUNG (5864)

<http://www.chp.edu/our-services/pulmonology/services/asthma>

Experts on asthma, lung function, breathing sensitivities or allergies, and the immune system team up to provide the highest level of care for their patients in the Pediatric Asthma Center.

Services offered by the Pediatric Asthma Center include:

- Educational programs
- Community outreach programs and screenings
- Clinical research studies
- Basic research to investigate the impact of environmental/lifestyle factors on children.
- Continuing medical education and training courses for healthcare providers

### Professional Education for School Nurses:

- [Pediatric Education Series \(PES\) Asthma Updates with Dr. Ally Larkin](#)

### Asthma Action Plans:

- [American Lung Association Asthma Action Plan](#)
- [SAMPRO Asthma Resources for Schools](#)

### Education Resources for School Nurses:

- [Asthma Guidelines](#)
- [School Nurse Asthma Care Checklist](#)

### Education Resources for School Personnel:

- [Education for School Personnel and Students](#)

### Education Resources for Students and Parents:

- [Dry Powder Inhaler](#)
- [Metered Dose Inhaler \(MDI\)](#)
- [Using a Spacer Device Video](#)
- [Nebulizer](#)
- [Pulmicort Flexhaler \(PDF\)](#)
- [Resources for Parents](#)

### Online Asthma Resources:

- [Allegheny County Health Department](#)
- [American Lung Association](#)
- [Breathe Pennsylvania](#)
- [Centers for Disease Control \(CDC\) Environmental Health](#)
- [Environmental Protection Agency](#)
- [Allergy & Asthma Network](#)

## Behavioral Health

412-692-5100

<http://www.chp.edu/our-services/behavioral-health>

### [Pediatric Behavioral Health Programs](#)

### [Behavioral Health Walk-in Clinic](#)

### [Resolve Crisis Services](#)

### [Whole Child Wellness Clinic](#)

Outpatient behavioral health services are provided at many Children’s Community Pediatrics (CCP) practices. Referrals for patients enrolled in managed care insurance plans also may require authorization from the insurance provider and primary care physician.

### **Resolve Crisis Network**

Resolve Crisis Network provides round-the-clock, mental health crisis intervention and stabilization services for residents of Allegheny County in Pennsylvania. Contact Resolve Crisis Network 24 hours a day, 365 days a year: **1-888-YOU CAN (1-888-796-8226)**.

Mobile dispatch unit: Trained crisis counselors travel anywhere in Allegheny County.

Walk in: No appointment necessary at the North Braddock Ave. location, 333 N. Braddock Ave. Pittsburgh, PA 15208.

Residential services: Accessible for individuals ages 14 and older whose crisis extends over a period of time. Up to 72 hours of residential services provided at North Braddock Ave. location.

### **School Nurse Resources:**

- [Allegheny County Office of Behavioral Health](#)
- [UPMC Child and Adolescent Mental Health Services](#)

### **Pediatric Education Series Webinars:**

- [ReSolve and CACTIS Crisis Services for the Community](#)
- [ADHD Evaluation and Treatment](#)
- [Social and Emotional Health and Wellbeing in Adolescents](#)

## Cancer and Blood Disorders

412-692-5055

<http://www.chp.edu/our-services/cancer>

The **Division of Pediatric Hematology/Oncology** at Children’s Hospital is the largest, most comprehensive childhood cancer and blood disease center in western Pennsylvania, eastern Ohio, and northern West Virginia. Experts diagnose and treat children and adolescents with all forms of cancer and blood disorders.

### Programs and Services

- [Adolescent and Young Adult Oncology](#)
- [Ewing Sarcoma](#)
- [Hemophilia](#)
- [Hemostasis and Thrombosis - Von Willebrand disease \(VWD\) & Hemophilia](#)
- [Integrative Wellness Program](#)
- [Leukemia](#)
- [Melanoma Center](#)
- [MIBG Therapy](#)
- [Neuro-oncology](#)

### Additional Resources

- [Blood Draws \(PDF\)](#)
- [Bone Marrow Aspiration and Bone Marrow Biopsy \(PDF\)](#)
- [Patient and Family Resources](#)
- [Patient Stories](#)
- [Therapeutic Spinal Taps \(PDF\)](#)

### Camps and Family Retreats

Camps and retreats give patients and families some well- deserved time away from the stresses of everyday life.

### Back to School Program

UPMC Children’s Hospital of Pittsburgh’s of UPMC’s Back-to-School program, coordinated by the Child Life Department, is designed to make the changes easier and is individually tailored for each patient diagnosed with cancer from grades K–12. When the patient is ready to return to school, a child life specialist visits the child’s or teen’s classroom to educate peers about cancer. The 45-minute program’s objectives are to:

- Relieve anxieties
- Answer questions
- Encourage support upon the student’s return

To schedule a Back-to-School Program session at your school, contact, [michael.shulock@chp.edu](mailto:michael.shulock@chp.edu).

## Pediatric Cardiology & Heart Institute

412- 692-5540

<http://www.chp.edu/our-services/heart/cardiology>

Children who are born with a heart defect or acquire heart disease, have access to complete care at Children's Hospital. The experts at the [Heart Institute](#) at Pittsburgh treat all types of heart problems and use the latest technology and provide heart care from before birth to adulthood.

### Heart Tests and Exams

The heart care team offers:

- [Standard electrocardiogram \(ECG\) and extended monitoring](#)
- [Echocardiography \(ECHO\)](#)
- Exercise physiology assessments

### Pediatric Heart Programs and Services

- [Adult Congenital Heart Disease](#)
- [Arrhythmia and Rhythm Disturbances Program](#)
- [Interventional Cardiology Program](#)
- [Fetal & Perinatal Cardiology Program](#)
- [Heart Failure & Recovery Program](#)
- [Pediatric Cardiac Rehab & Recovery Program](#)
- [Preventive Cardiology to Manage Cholesterol & Blood Pressure](#)

### Patient and Family Support

- [Annual Heart Institute Family Picnic Beads of Courage®](#)
- [Child Life Heart Camp](#)
- [Pediatric Hypertension Clinic](#)

## **Child Advocacy Center**

**412-692-8664**

**Child Advocacy Clinician Consultation 412-692-6265**

**<http://www.chp.edu/our-services/child-advocacy-center>**

The Child Advocacy Center (CAC) provides comprehensive evaluations for children and adolescents who may be victims of physical or sexual abuse, or neglect. Services include forensic interviews, psychosocial history-taking, medical examinations, support service referrals and behavior therapy. All staff members have expertise and experience in child maltreatment. Staff includes physicians, nurse practitioners and nurses, advocacy specialists, forensic interviewers, social workers and therapists.

Appointments are necessary and can be made by calling the intake line at **412-692-8747**.

### **ARCH Outpatient Clinic**

The CAC houses an outpatient clinic that provides several services with the main focus of providing primary medical care to any child involved in the Child Protective Services system, especially when the child is in a nonpermanent living arrangement. This service involves comprehensive age-appropriate medical care, as well as medical case management. The case management team assists in coordination of care, securing past medical records, arranging for subspecialty referrals, obtaining durable medical equipment and medications, and referring to community resources.

Appointments can be made by calling **412-692-8747**.

For children followed in the clinic, medical consultation is available by phone 24 hours a day.

**School nurses may call 412-692-6265 for Child Advocacy Clinician Consultation.**

## Pediatric Dentistry

412-692-5440

<https://www.chp.edu/our-services/dental-services>

The Division of Pediatric Dentistry provides comprehensive preventive, restorative and oral maxillofacial surgical procedures for healthy as well as medically compromised and handicapped children. Limited orthodontic and orthognathic (surgical orthodontic) services also are provided.

- [Dental Hygiene Visits](#)
- [AAP Policy on Oral Health](#)

### Community Dental Clinics

- [ACHD Pediatric Dentistry Program](#)
- [ACHD Pediatric Dental Program \(English\)](#)
- [ACHD Pediatric Dental Program \(Spanish\)](#)
- [ACHD Pediatric Dental Program \(Arabic\)](#)
- [ACHD Fluoride Varnish Program \(English\)](#)
- [ACHD Fluoride Varnish Program \(Spanish\)](#)
- [Allegheny County Mobile Dental Events](#)
- [Mission of Mercy](#)
- [PA Community Health Centers](#)
- [University Of Pittsburgh School of Dental Medicine](#)

### Other Dental Resources

- [AAP Handout Brush, Book, Bed](#)
- [AAP Handout Brush Book Bed \(Spanish\)](#)
- [AAP Handout Brush Book Bed \(Arabic\)](#)
- [Healthy Mouth! Healthy Child! Poster](#)
- [UPMC Public Health Dental Hygiene Program](#)
- [UPMC Pediatric Dental Resources](#)
- [PA Coalition for Oral Health](#)

## Dermatology

724-933-9190

<https://www.chp.edu/our-services/dermatology>

Children's Dermatology Services and Acne Treatment Center is the only dedicated pediatric dermatology office in western Pennsylvania and the surrounding region.

Practices are located in [Butler](#), [Monroeville](#), [South Fayette](#), and [Wexford](#).

### Appointments

Appointments can be made by calling **724-933-9190** to schedule a pediatric dermatologic appointment.

### Practice Specialties/ Expert Diagnostics and Treatment

- Acne (fully credentialed members of the iPLEDGE Accutane Program)
- Birthmarks
- Eczema
- Hair disorders such as Alopecia (hair loss)
- Hemangiomas and vascular malformations
- Hyperhidrosis (excessive sweating)
- Molluscum and warts
- Mole screening and melanoma
- Nail disorders
- Psoriasis
- Seborrheic dermatitis (dandruff)
- [Skin cancer](#)
- Tinea (ringworm)
- Vitiligo

Global Skin Atlas - <https://globalskinatlas.com>

### Professional Education for School Nurses:

Pediatric Education Series Webinar: [Rashes in the School Age Child](#).

## Endocrinology, Diabetes, and Metabolism

412-692-5170

<http://www.chp.edu/ourservices/endocrinology>

**Diabetes Educators:** 412-692-7799, Press 0 (7:00AM-9:00AM)

- Emergency Calls all day.
- Press 1 to leave non-urgent messages.

Pediatric Endocrinology, Diabetes and Metabolism Consultation provides diagnostic and therapeutic services for children with diabetes mellitus, hypoglycemia and disorders of physical growth, sexual maturation, thyroid function, pituitary function, and calcium and phosphorous metabolism. The Pediatric Endocrine Testing Center provides diagnostic endocrine tests for patients (both children and adults) in areas of endocrinology and carbohydrate, amino acid, and mineral and lipid metabolism. The center addresses growth abnormalities and the range of conditions that can cause them.

The Nutrition Consultation Service provides weight management consultative and follow-up services by a physician and dietitian for children up to 18 years of age.

### GENERAL ENDOCRINE CONDITIONS

#### Adrenal Insufficiency

- [Instructions Adrenal Insufficiency](#)
- [Overview Adrenal Insufficiency](#)

#### Thyroid Conditions

- [Pediatric Thyroid Center](#)
- [Overview Congenital Hyperthyroidism](#)
- [Overview Congenital Hypothyroidism](#)

#### Weight Management

- [Endocrine Wellness Center](#)

### DIABETES RESOURCES FOR SCHOOL NURSES:

- [ADA Diabetes Medical Management Plan](#)
- [504 Plan Type I Diabetes](#)
- [ADA Safe at School Helping Students with Diabetes Succeed](#)
- [Information for Schools](#)
- [CGM management in the school setting](#)
- [Webinar – Diabetes Technology Education for School Nurses](#)
- [Webinar - Diabetes Technology and Troubleshooting Techniques](#)

## TYPE I DIABETES

- [Overview Type I Diabetes](#)

### Insulin Administration Devices:

- [In-Pen](#)
- [Medtronic Pump](#)
- [Omnipod](#)
- [Omnipod 5 Patient Resource Guide](#)
- [Omnipod 5 Caregiver Resource Guide](#)
- [Omnipod quick start guide](#)
- [T-slim Pump](#)
- [Medtronic 780G](#)

### Blood Glucose Monitoring:

- [Guidelines for Continuous Glucose Monitors](#)
- [Dexcom 6 School Guide](#)
- [Dexcom 6 and 7 Guidelines and Downloads](#)
- [Medtronic Guardian Sensor 3](#)
- [Freestyle Libre 2 System](#)
- [Freestyle Libre3 System](#)

### Blood Glucose Corrections and DKA prevention guides

- [DKA DECISION TREE](#)
- [Guidelines For Successful Pumping Ciq](#)
- [Guidelines For Successful Pumping Op5](#)
- [Sick Day Guidelines](#)

### Ilet (No manual mode New pump that has to be used with CGM) Beta bionics

- [Tips and Tools for Insulin Pump Use](#)
- [School Nurse Pump Checklist](#)
- [Discontinuing Insulin Pump for Special Occasions](#)

## TYPE 2 DIABETES

- [Overview of Type 2 Diabetes](#)
- [ADA School Staff Power Point Type 2 Diabetes](#)
- [Helping Students with Diabetes Succeed](#)

### Family Resources:

- [Diabetes Patient & Family Resources](#)
- [ADA Summer Camps & Retreats](#)

## **Food Allergy Center**

**412-692-5630**

<http://www.chp.edu/our-services/allergy-immunology/services-centers/food-allergy>

### **Food Allergy Center**

The Food Allergy Center sees children with the entire spectrum of food allergies.

### **Learn more about food challenges at the Food Allergy Center**

- [What Are Food Challenges?](#)
- [Reasons Why Your Child Might Need a Food Challenge Test](#)
- [Before and After Your Child's Food Challenge](#)

## Gastroenterology

412-692-5180 / Fax 412-692-7355

<http://www.chp.edu/our-services/gastroenterology>

Pediatric Gastroenterology, Hepatology and Nutrition includes experts in general clinical pediatric gastroenterology and a broad range of specialty areas including:

- Abdominal pain
- Gastroesophageal reflux and esophagitis
- Eosinophilic disorders
- Gastrointestinal bleeding
- Ulcer disease
- Crohn's disease and ulcerative colitis
- [Inflammatory Bowel Disease Center](#)
- Irritable bowel syndrome
- Diarrhea
- Poor growth
- [Feeding disorders](#)
- Intestinal failure (short bowel)
- Motility disorders
- Constipation
- [Liver diseases](#)
- [Liver transplantation](#)
- Small bowel transplantation
- Acute and chronic pancreatitis
- Metabolic disorders affecting the liver or intestines.

[Enterostomal therapy](#) is offered for children with stomas, incontinence, dermal ulcers and other select skin conditions or those needing wound care.

**Patient Procedures**

- [24-Hour pH Probe Capsule Endoscopy](#)
- [Colonoscopy \(PDF\)](#)
- [Gastric Emptying Study](#)
- [Liver Biopsy](#)

**Other Resources:**

- [Western PA Crohn's & Colitis Foundation](#)
- [Inflammatory Bowel 504 Plan Template](#)
- [Living with Crohn's Disease a Pamphlet for Families](#)
- [Crohn's Disease & Ulcerative Colitis A Guide for Parents](#)

**School Nurse Resources:**

- [Celiac Disease](#)
- [Constipation](#)
- [Diarrhea](#)
- [Inflammatory Bowel 504 Plan Template](#)

**Pediatric Education Series Webinars:**

- [Gastrostomy Tube Care](#)
- [Functional Constipation in Children](#)

## Headache Clinic

412-692-5520

### Headache Clinic

The Brain Care Institute's Headache Clinic on the diagnosis and treatment of headache disorders in children and adolescents. Both inpatient and outpatient treatment is offered and is tailored to children's individual needs. Various treatment alternatives are also offered including medications, counseling, behavioral medicine, or a combination.

Headaches are one of the most common disorders seen in children. Some headaches may have no identifiable or obvious cause, as in the case of migraine headaches, or they may be caused by another condition, such as sinusitis, a virus, something in their environment that they may be sensitive to, or even an abnormality in the brain. Some headache-related symptoms include nausea, vomiting, light and noise sensitivity, and sometimes, lightheadedness. Although many headaches and related disorders may not be a serious health concern, they can result in other problems, such as social dysfunction and school absence, which can have a great impact on the quality of life for the child and family.

Some of the types of headaches and associated disorders treated include:

- Abdominal migraines
- Cyclical vomiting
- Hemiplegic migraines
- Migraines
- New daily persistent headaches
- Paroxysmal vertigo
- Pseudotumor cerebri (idiopathic intracranial hypertension)
- Tension headaches

#### **Resources for School Nurses:**

- [504 Plans & IEPs for Migraine Headaches](#)

#### **Pediatric Education Series Webinar:**

- [Headaches in Adolescents and Children](#)

## Infectious Disease

412-692-7438

<http://www.chp.edu/our-services/infectiousdiseases>

Infectious Diseases provides consultation in the diagnosis and management of infectious diseases in children – especially recurrent, rare, or difficult to treat infections, including HIV/AIDS.

### Consultative services are provided for children with:

- Common and uncommon infectious diseases or disorders
- Problems that might be infectious
- Infectious disease complications of other underlying problems
- [Management of recurrent MRSA infections](#)
- [Lyme Disease](#)

### Pediatric Education Series Webinars:

- [Who's in and who's Snot? Managing Infectious Diseases in School](#)
- [Lyme Disease: Tips and Tricks from the Pittsburgh Epidemic](#)

### Other Resources:

- [Allegheny County Health Department Infectious Disease and Surveillance](#)
- [CDC-Measles Information](#)

School nurses may contact 412-692-7438 for questions or consultation related to infectious disease.

## Neurology

412-692-5520

<http://www.chp.edu/our-services/brain/neurology>

Children's Hospital's neurology team has deep knowledge in treating a broad range of childhood brain and spine conditions, such as:

- Concussions
- Headache
- Movement disorders
- Stroke
- Muscular dystrophy
- Mitochondrial and metabolic disorders
- Neuromuscular diseases
- Rare brain diseases
- Neuroimmunology Epilepsy

### Resources:

- [Neurocritical care and trauma Neuroimaging](#)
- [Childhood Stroke Program](#)
- [Ketogenic Diet Clinic](#)
- [Tuberous Sclerosis Clinic](#)
- [Fragile X](#)
- [Headache Clinic](#)
- [Neurofibromatosis Clinic](#)
- [Concussion Management Services](#)

## Epilepsy Center

412-692-6928

<http://www.chp.edu/our-services/brain/neurology/epilepsy>

The **Epilepsy Center** at UPMC Children’s Hospital is accredited by the NAEC as a level 4 epilepsy center. Level 4 epilepsy centers have the professional expertise and facilities to provide the highest level medical and surgical evaluation and treatment for patients with complex epilepsy. It is the only center in the region that provides comprehensive evaluation and surgical treatment options for children with hard-to-manage, or intractable, epilepsy.

### Classifications of Seizures:

- [Focal Seizures](#)
- [Generalized Seizures](#)
- [Epilepsy Syndromes](#)
- [Febrile Seizures](#)

### Treatment Options:

- [Ketogenic Diet](#)
- [Vagus Nerve Stimulator](#)
- [Pediatric Epilepsy Surgery](#)

### Professional Education for School Nurses:

- [Epilepsy Webinar](#)
- [Epilepsy-504 Plan Template](#)
- [Seizure Action Plan](#)
- [Tips for Observing and Recording Seizures](#)

### Education for School Staff:

- [Epilepsy for Classroom Teachers](#)
- [Seizure Recognition and First Aid](#)
- [Epilepsy-Training for Schools](#)
- [Epilepsy-Facts and Statistics](#)
- [Schools and Seizure Preparedness](#)
- [Seizure First Aid Poster- English](#)
- [Seizure First Aid Poster-Spanish](#)

### For more information:

- [Epilepsy Monitoring Unit](#)
- [Epilepsy Foundation of Western/Central PA.](#)
- [Epilepsy-General Safety and Driving](#)

## Otolaryngology (ENT)

412-692-5460

<http://www.chp.edu/our-services/ent>

Pediatric Otolaryngology provides a comprehensive diagnostic and treatment program for all diseases involving the ear, nose or throat. Ear surgery, placement of ear tubes, removal of tonsils and adenoids and sinus surgery are performed. Special testing for nasal and eustachian tube function, as well as audiologic examinations is available.

Otolaryngology requires referrals from primary care doctors or other Children's Hospital specialists.

For questions, call the nurse line at 412-692-5460 option 1.

### Clinical Services:

- [Chronic Ear Clinic](#)
- [Cochlear Implant](#)
- [Upper Aerodigestive Tract Endoscopy](#)
- [Direct Flexible Laryngoscopy](#)
- [Hearing Center](#)
- [Bilateral Myringotomy and Tubes BMT](#)
- [Vocal Cord Dysfunction Clinic](#)
- [Voice, Resonance & Swallowing Center](#)

## Orthopedics

412-692-5530

<https://www.upmc.com/services/orthopaedics/services/pediatric-orthopedics>

Children's orthopedic experts treat a full range of conditions, such as:

- [Broken bones](#)
- [Hip dysplasia](#): This occurs when a child's joint doesn't form as it should. The "ball" at the top of the thigh bone and "socket" inside the pelvic bone don't fit as they should.
- Hip, knee, and foot problems.
- Limb length discrepancies. This is when one leg or arm is shorter than the other.
- Lower limb defects. This refers to a range of conditions that affect the leg or foot alignment. Common conditions include clubfoot, intoe-ing, and bowed legs.
- Neuromuscular diseases. These are conditions in which nerves create problems with muscles throughout the body, such as sclerosis or muscular dystrophy.
- [Osgood-Schlatter disease](#): This is swelling of the growth plate at the top of the shin. It mainly occurs during growth spurts and causes a painful bump below the knee. Kids who play sports are most at risk for this overuse injury.
- [Sprains \(muscle tears\) and strains](#): Sprains occur when you stretch a *ligament* attached to a joint. Strains happen when you stretch a *muscle* too far or put too much pressure on it.
- **Spine defects.**

### Resources:

- [Sprains, Tendonitis, Bursitis, and More: Do You Know the Difference?](#)
- [Video: How to Wrap an Ankle or Wrist Sprain](#)

### Children's Orthopedic Care in Pittsburgh and Southwest Pa.

This service offers [urgent orthopedic care](#) for minor bone, joint, and muscle injuries Monday through Friday, 5 to 8:30 p.m. Patients may be transferred to UPMC Children's Emergency Department if needed. No appointments — walk-ins only.

**Important:** If the patient has been x-rayed and splinted at a UPMC Children's Express Care location, contact Pediatric Orthopedic Surgery at **412-692-5530** for an appointment.

- [Sports Medicine Services](#)
- [Concussion Management Services](#)

## Pulmonology

412-692-5630

<https://www.chp.edu/our-services/pulmonology>

Pulmonary Medicine provides consultative services for the diagnosis, evaluation and management of diseases of the respiratory tract and sleep disorders. A multidisciplinary team of physicians, certified registered nurse practitioners, registered nurses, registered respiratory therapists, registered dietitians, and social workers offers patient management, patient/family education and support services.

### Comprehensive programs are provided for patients with:

- Asthma (see Asthma Center)
- Bronchopulmonary dysplasia
- Cystic fibrosis
- Home mechanical ventilation
- Interstitial lung disease
- Lung transplantation
- Neuromuscular diseases with respiratory complications
- [Pediatric Sleep Center](#)

### Resources for School Nurses:

- [Cystic Fibrosis](#)
- [When there is more than one student with CF at school](#)
- [A Teacher's Guide to Cystic Fibrosis](#)

## Rheumatology

412-692-5081

<http://www.chp.edu/our-services/rheumatology>

Pediatric Rheumatology evaluates children with symptoms suggestive of an autoimmune/inflammatory disease or musculoskeletal pain. Presenting symptoms may include joint pain, muscle pain, weakness, rash, and fever. A team approach to providing clinical care is directed by rheumatologists experienced in diagnosing and managing childhood conditions, including:

- Rheumatic diseases
- Musculoskeletal pain syndromes
- [Juvenile idiopathic arthritis](#)
- [Lupus](#)
- Joint and muscle pain
- Vasculitis
- Uveitis
- Raynaud's phenomenon
- Connective tissue diseases
- [Scleroderma](#)
- Chronic Pain Conditions and Syndromes
- Vasculitis
- [Kawasaki Disease](#)
- Henoch-Schoenlein Purpura

### Resources:

Parent-to-Parent Connection - is a program for parents and families with a child who has been newly diagnosed with a chronic illness or for those who would like to connect with other families who have a child living with the same chronic illness.

**Please call 412-692-5258 and speak with the Rheumatology social worker to join this group.**

- [Frequently Asked Questions About Medicines](#)
- [Frequently Asked Questions About Conditions](#)
- [Frequently Asked Questions About Additional Topics](#)

## Ronald McDonald Care Mobile

412-352-1059

<http://www.chp.edu/our-services/mobile-medical-clinic>

The [Ronald McDonald Care Mobile](#), in partnership with Ronald McDonald House Charities of Pittsburgh, is a state-of-the-art pediatric primary care center on wheels. Pediatricians, nurses, and nurse practitioners from UPMC Children's Hospital provide medical care to children and adolescents who are unable to visit a doctor regularly.

### Services offered:

- Adolescent health care
- Asthma care
- Hearing and vision screenings
- Immunizations
- Specialty care referrals
- Routine physical exams
- Sick child visits
- Well-child and infant care

The Care Mobile visits schools, community locations, afterschool programs, and more. For information, please call **412-352-1059** between the hours of 8 a.m. to 5 p.m.

## Sickle Cell Program

412-692-5055

<http://www.chp.edu/our-services/cancer/conditions/sickle-cell>

UPMC Children's Sickle Cell Program identifies children with sickle cell disease as early as possible and effectively manages their condition to adulthood.

### Resources:

For information about what to expect and how to care for a child with sickle cell disease from infancy through young adulthood, visit the links below:

- [Infants and Toddlers](#)
- [Preschoolers](#)
- [Elementary School Age](#)
- [Teens](#)

### Sickle Cell Teen Group:

Children's Sickle Cell Program offers a group meeting at least once a month for youth ages 12 to 21. This group brings together teens living with sickle cell disease to discuss issues surrounding their medical illness. Some of the topics addressed are the transition from pediatric to adult care, self-esteem, and pain. For more information, please contact Kimberly Washington at 412-692-6073 or [kimberly.washington@chp.edu](mailto:kimberly.washington@chp.edu).

### Transition from Pediatric to Adult Care:

To make a smooth and successful transition from pediatric to adult care, Children's Sickle Cell staff can help parents and patients to connect with adult care providers.

For guidance on how to select an adult care provider, please contact Children's Sickle Cell staff at 412-692-5055.

## Spanish Clinic: Salud Para Niños (Health for the Children)

412-692-6000 Option 8

<https://www.chp.edu/our-services/spanish-clinic>

At SALUD PARA NIÑOS, culturally and linguistically competent primary care for children and families is complemented with activities oriented toward prevention and towards empowering the community about its own health.

SALUD PARA NIÑOS offers include:

- Bilingual Pediatric Primary Care and Immunizations Clinic: Every Tuesday morning, Thursday evening after 5 p.m. and Friday morning at the Primary Care Center of Children's Hospital in Oakland (appointment and health insurance are required), 3420 Fifth Avenue Pittsburgh, PA
- Free Bilingual Pediatric Primary Care and Immunizations Clinic: Every second Saturday of the month at the Birmingham Clinic in the South Side (appointment and health insurance are NOT required), 54 S. 9th Street Pittsburgh, PA
- Free Bilingual Pediatric Primary Care Clinic: Every fourth Tuesday of the month at the Birmingham Clinic in South Side (appointment IS required - health insurance is NOT required,) 54 S. 9th Street Pittsburgh, PA
- Bilingual Literacy Program
- Reading materials and information about health promotion for parents in Spanish
- Injury prevention programs
- Spanish phone line
- Hispanic Car Seat Checks

## Community Resources

**2-1-1** can help anyone in the United States connect to resources in their area (not just food). Dial **2-1-1** for free, private help, or call 1-888-553-5778. You can visit [pa211sw.org](http://pa211sw.org) or text your zip code to **898-211** to find help nearby.

**Allegheny County Family Centers** are community hubs where families can access resources, participate in educational programs, and connect with other children and caregivers. Call **412-350-6611** to learn more and find a family center near you in Allegheny County. To find info online, go to <https://familycenters.alleghenycounty.us/>

**Community Action Agencies** can support resource needs, including food, for PA residents. To find a community action agency near you, go to <https://www.thecaap.org/> or contact 2-1-1 above.

### Emergency Food Resources

**For other emergency food options for your county, contact your regional food bank listed on page 2.**

**Emergency Food Assistance (EFA)** is for families who need food. Contact the Urban League of Greater Pittsburgh to get food by the next day. A family can get this service once a year. They will help you find a local food pantry: **1-866-395-3663**.

**The Greater Pittsburgh Community Food Bank** can connect you to emergency food resources. Call **412-460-3663 ext. 655** to get connected to someone who can help.

### National Programs

**SNAP** (was called Food Stamps) is a government program for individuals and families who need help buying food. You may qualify based on your household size and income level. To find out more, **Just Harvest** can help you for free. Call at **412-431-8960 option 3** or visit their website [justharvest.org](http://justharvest.org). To apply online, go to: [compass.state.pa.us](http://compass.state.pa.us).

**Women, Infants, and Children (WIC)** is a government program. You may qualify based on income. The program gives funds to pregnant women and households with young children. To find out more in Armstrong, Beaver, Butler, Indiana, and Lawrence counties, call Adagio Health at **1-866-942-2778**. For Allegheny County information, call **412-350-5801**. For other PA residents, visit [pawic.com](http://pawic.com) or call 1-800-942-9467

### Food Resources – Western Pennsylvania

**The Greater Pittsburgh Community Food Bank** can help families connect to food pantries, food distributions, and other food programs in their area. To speak with someone who can help find resources in your area, dial **412-460-3663 ext. 655** to speak with a food bank representative.

\***BigBurgh** is a website that can show you where to find help. It can help you find healthcare, free events, food, shelter, and more. [www.BigBurgh.com](http://www.BigBurgh.com)

\***Farmers Markets** take place in Allegheny County. You can also use SNAP/EBT here. To find out more, visit <http://www.justharvest.org/fresh-access/> or call **412-431-8960**.

\*These resources are specific to Allegheny County (select farmers markets outside of Allegheny County also accept SNAP/EBT)

## Language Services

# Care in Your Language

Free Language Interpretation Services Available

American Sign Language (ASL) and 200+ spoken languages

These services are provided 3 different ways:



In-person (IPI)



By Video (VRI)



By Phone (OPI)

Our professional interpretation services are confidential, available **24 hours a day, 7 days a week**, and follow all UPMC policies.

For more information or to request language services, ask any care team member.

PASHTO

**I speak Pashto.**

 **Please call an interpreter. Thank you.**

We will provide an interpreter at no personal cost to you.

UPMC

زه په پښتو خبرې کوم.  
په مهرباني یو ژباړن ته ښکته ووهئ.  
ډیره مننه.

مونږ به تاسې ته یو ژباړن ستاسې د لگښت پرته برابر کړو.

Form Number: UPMC-3658 AU/DL 09/21

UPMC

DARI

**I speak Dari.**

 **Please call an interpreter. Thank you.**

We will provide an interpreter at no personal cost to you.

UPMC

من به دري صحبت ميکنم.  
لطفاً یک مترجم را ښکته وړئ.  
تشکر از شما.

ما یک مترجم را برای شما بدون هزینه شخصی ارائه می دهیم.

Form Number: UPMC-3657 AU/DL 09/21

UPMC

UZBEK

**I speak Uzbek.**

 **Please call an interpreter. Thank you.**

We will provide an interpreter at no personal cost to you.

UPMC

**Men o'zbekcha gapiraman.**

 **Iltilimos, tarjimon chaqiring. Rahmat.**

Biz bepul tarzda sizga tarjimon beramiz.

Form Number: UPMC-3638 AU/DL 09/21

UPMC

ITALIAN

**I speak Italian.**

 **Please call an interpreter. Thank you.**

We will provide an interpreter at no personal cost to you.

UPMC

**Parlo italiano.**

 **Si prega di contattare un interprete. Grazie.**

Le forniremo gratuitamente un interprete.

Form Number: UPMC-3862 AU/DL 11/21

UPMC

ASL & Universal

**I Use American Sign Language (ASL).**

 **Please call an interpreter. Thank you.**

We will provide an interpreter at no personal cost to you.

UPMC

**I speak \_\_\_\_\_**  
Preferred Language

 **Please call an interpreter. Thank you.**

We will provide an interpreter at no personal cost to you.

Form Number: UPMC-3883

UPMC

SPANISH

 **I speak Spanish.**  
Please call an interpreter.  
Thank you.

We will provide an interpreter at no personal cost to you.

UPMC

 **Yo hablo español.**  
Por favor llame a un intérprete. Gracias.

Le proporcionaremos un intérprete sin costo alguno para usted.

UPMC

Form Number: UPMC-270 PATEX0629 04/09 06/20

ARABIC

 **I speak Arabic.**  
Please call an interpreter.  
Thank you.

We will provide an interpreter at no personal cost to you.

UPMC

 **أنا أتحدث اللغة العربية**  
يرجى الاتصال بمترجم. شكرا.

سوف نوفرلك مترجما بدون أي تكلفة عليك.

UPMC

Form Number: UPMC-270 PATEX0629 04/09 06/20

NEPALI

 **I speak Nepali.**  
Please call an interpreter.  
Thank you.

We will provide an interpreter at no personal cost to you.

UPMC

 **म नेपाली बोल्छु।**  
कृपया दोभाषे कल गर्नुहोस्। धन्यवाद।

हामी तपाईंको लागि नि:शुल्क रूपमा दोभाषे उपलब्ध गराउने छौं।

UPMC

Form Number: UPMC-270 PATEX0629 04/09 06/20

RUSSIAN

 **I speak Russian.**  
Please call an interpreter.  
Thank you.

We will provide an interpreter at no personal cost to you.

UPMC

 **Я говорю по-русски.**  
Пожалуйста, позвоните переводчику. Спасибо.

Мы бесплатно предоставим вам переводчика.

UPMC

Form Number: UPMC-270 PATEX0629 04/09 06/20

MANDARIN

 **I speak Mandarin.**  
Please call an interpreter.  
Thank you.

We will provide an interpreter at no personal cost to you.

UPMC

 **我讲国语。**  
请找一位电译员。谢谢。

我们将免费为您提供翻译人员。

UPMC

Form Number: UPMC-270 PATEX0629 04/09 06/20



# HYPERGLYCEMIA CORRECTION TREE

## (DKA Prevention Tree)

Always able to call into  
Diabetes Educators for  
assistance with ketones:

**412-692-7799**

(Pump guidelines without illness)

Blood sugar > 250

### Negative for Ketones

Check your pump site to be sure you remembered your last bolus and that your current basal is correct



Bolus with your pump using your correction formula



Recheck blood sugar in two hours. If BG >250, check for ketones within two hours. If positive, follow ketone guidelines.

If negative for ketones, bolus once more through the pump and repeat this step in two hours.



If you have three readings above 250, even if ketones are negative, you should change your site.

### Trace or Small Ketones

Blood sugar under 400

Drink 8-16oz of sugar free fluid each hour and call diabetes person on call



If no known problems, bolus through your pump with the correction



Recheck blood sugar and ketones in two hours



If still positive for ketones and blood sugar remains above 250, take insulin coverage by injection and change your site

### Moderate or Large Ketones

Drink 8-16oz of sugar free fluid each hour and call diabetes person on call



Give insulin by injection for blood sugar correction and ketones and also change your infusion site



Recheck blood sugar and ketones in two hours



If still positive for ketones and blood sugar remains above 250 repeat coverage for correction and ketones

You can set a temporary basal only in manual mode, not in automated mode.

**IF YOU GIVE INSULIN BY INJECTION, TURN OFF AUTOMATED MODE FOR 4 HOURS**



# School Nurse

## PUMP REVIEW

- How to give a food bolus
- How to give a correction bolus
- How to give a combined food + correction bolus
- How to review the bolus history
- How to do a temporary basal
- How to change a battery or charge a pump.
- The number for technical support: \_\_\_\_\_
- The number for medical support: \_\_\_\_\_
- When to check for ketones
- When to call for medical intervention
- Plan for pump or site failure

Optional features that may need reviewed if being utilized:

- How to use the remote meter
- How to lock and unlock the device
- How to calibrate with sensor integration

# The InPen App.

Real-time glucose

Calculates personalized doses

Tracks active insulin

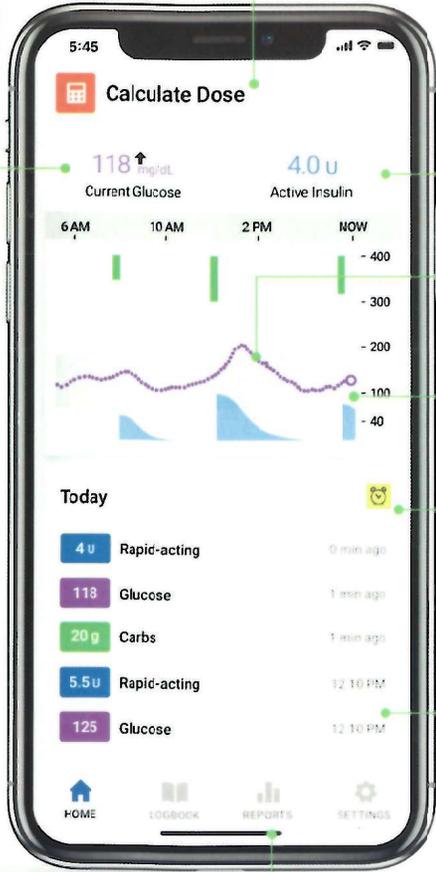
Glucose history

Syncs with CGMs and blood glucose meters

Reminds you to dose

Automatically logs doses given by InPen

Creates shareable reports with up to 90 days' data



1. Vallejo-Mora MdR, Carreira-Soler, Linares-Parrado F, Oliveira G, et al. The Calculating Boluses on Multiple Daily Injections (CBMDI) study: A randomized controlled trial on the effect on metabolic control of adding a bolus calculator to multiple daily injections in people with Type 1 diabetes. *Journal of Diabetes*. 2017 (9):24-33.
2. Aanstoot H-J, Rodriguez H, Weinzimer S, Vint N, Koenen L. Precision Dosing of Rapid-Acting Insulin Matters. *Diabetes Technology & Therapeutics*. 2020;22(5).
3. Zaugg, S.D., et al. Diabetes numeracy and blood glucose control: association with type of diabetes and source of care. *Clinical diabetes: a publication of the American Diabetes Association* 32.4 (2014): 152-157.
4. Anderson DG. Multiple daily injections in young patients using the ezy-BICC bolus insulin calculation card, compared to mixed insulin and CSII. *Pediatric Diabetes*. 2009. 10(5):304-309.

Smart insulin pens connect to a mobile app to provide dosing calculations, reminders and CGM system integration.

\*Data may not appear or be delayed in certain instances, including when there is no internet connection. A confirmatory fingerstick is required prior to making adjustments to diabetes therapy.

\*\*Humalog® is a registered trademark of Eli Lilly and Company. Fiasp® and Novolog® are registered trademarks of Novo Nordisk A/S.

**Terms and Conditions:** Eligibility Requirements for InPen™ Patient Access Program: Open to uninsured patients and patients with commercial prescription insurance and who are not enrolled in any government-funded program that pays for prescription devices or treatments. Excluded participants include patients enrolled in any federal, state, or government-funded healthcare program such as Medicare, Medicare Advantage, Medicare Part D, Medicaid, Medigap, Veterans Affairs (VA), the Department of Defense (DoD) or TRICARE® that provides coverage for InPen, or where prohibited by law. Cash Discount Cards and other non-insurance plans are not valid as primary under this offer. If at any time a patient becomes enrolled under any such federal, state, or government-funded healthcare program, he/she will no longer be able to use this program and must call 844-843-7903 to stop participation. Restrictions may apply. Offer subject to change or discontinuation without notice. This is not health insurance. Offer applies to a maximum of 2 prescribed InPens per Patient per benefit year. Offer good only in the USA at participating pharmacies and cannot be redeemed at government-subsidized clinics.

**Important Safety Information: Guardian™ Connect CGM System**  
The Guardian™ Connect system requires a prescription and is indicated for continuous or periodic monitoring of glucose levels in the interstitial fluid under the skin, in patients (14 to 73 years of age) with diabetes mellitus. The system is intended to complement, not replace, information obtained from standard blood glucose monitoring devices, and is not recommended for people who are unwilling or unable to perform a minimum of two meter blood glucose tests per day, or for people who are unable or unwilling to maintain contact with their healthcare professional. The system requires a functioning mobile electronic device with correct settings. If the mobile device is not set up or used correctly, you may not receive sensor glucose information or alerts. For complete details of the system and its components, including warnings, contraindications, and precautions, please consult the user guide at [www.medtronicdiabetes.com/support/download-library/user-guides](http://www.medtronicdiabetes.com/support/download-library/user-guides) and important safety information.

**Important Safety Information: InPen™**  
The InPen™ is a home-use reusable pen injector for single-patient use by people with diabetes under the supervision of an adult caregiver, or by a patient age 7 and older for the self-injection of a desired dose of insulin and for calculating an insulin dose or carbohydrate intake based on user entered data. A healthcare professional must assist in dosage programming of the device prior to use, based on various patient-specific criteria and targets. The InPen™ requires a prescription. For additional product and safety information, please consult the Instructions for Use and bit.ly/InPenSafety.

© 2021 Medtronic. All rights reserved. Medtronic, Medtronic logo and Further, Together are trademarks of Medtronic. Third party brands are trademarks of their respective owners. All other brands are trademarks of a Medtronic company.

The Bluetooth® Wordmark and logos are owned by Bluetooth® SIG, Inc. and any use of such marks by Companion Medical, Inc. is under license. InPen™ logo is a trademark of Companion Medical. Copyright © 2021 Companion Medical and/or its affiliates. All rights reserved. 1 year warranty.

US-DBA-2100057

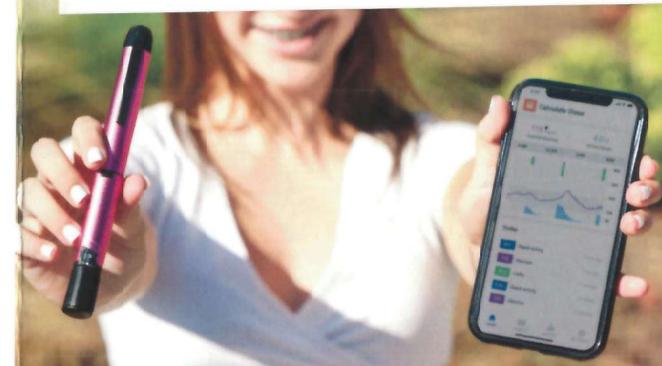
# inpen™

Medtronic

**Julia Ross**  
Senior Territory Manager  
InPen  
Guardian Connect

**Medtronic**  
Diabetes Group  
1800 Devonshire Street  
Northridge, CA 91325  
USA

cell 412-779-1389  
fax 412-291-1018  
julia.ross@medtronic.com  
www.medtronicdiabetes.com



Pay as little as \$35  
per prescribed InPen™

Offer available to eligible patients with commercial insurance. Terms and conditions apply. Learn more bit.ly/35option

# GUESS LESS. LIVE MORE.

Finally. Diabetes technology  
created with you in mind.



GET STARTED TODAY!



Scan the code  
or call 844-394-5770  
[www.MyInPen.com](http://www.MyInPen.com)

Medtronic



## An insulin pen, but smarter.

InPen™ smart insulin pen is the only smart insulin delivery system combining a reusable, Bluetooth®-enabled insulin pen with an intuitive mobile app to help people with type 1 or type 2 diabetes take the right amount of insulin, at the right time.



Compatible with NovoLog®, Humalog®, and Fiasp® cartridges (not included)

Connects to the app via Bluetooth®

Monitors insulin temperature

Battery lasts a full year with no need to charge

Delivers half-unit doses

For the first time, you can have the freedom of an insulin pen without sacrificing data and decision support. Smart insulin pens can change how you manage your multiple daily injections (MDI) by tracking your diabetes data and providing personalized recommendations to help you make smarter decisions and achieve better results.<sup>1</sup>

## It works smarter, so you don't have to.

- Tracks active insulin
- Calculates insulin doses
- Missed dose reminder
- Long-acting insulin reminder
- Blood glucose check reminder
- Insulin expiration & temperature alerts
- Shareable reports for healthcare team
- Integrates with CGM and BGM with Bluetooth® through the Apple Health app
- Real-time\* CGM readings now available through the Guardian™ Connect system
- Reusable for one year - no charging needed
- Pair multiple pens to the app
- Convenient for travel and physical activities
- Delivers in half units



1/2-unit dosing positively affects A1c and blood glucose variability.<sup>2</sup>



60% of insulin doses are taken with some insulin-on-board.<sup>3</sup>



2 out of 3 people need help calculating their insulin doses.<sup>3</sup>



A bolus calculator is associated with 0.7-1% reduction in A1C.<sup>4</sup>

## Insights Report

Before each visit with your healthcare provider, simply email, text or fax your report directly from the app. With integrated, reliable diabetes data the conversation with your healthcare provider has never been easier.



## Meal therapy modes.

Take the right amount of insulin at the right time – the InPen app now offers three standard modes to help you manage your diabetes:

### Carb Counting

Traditional insulin management carb counting with a truly smart calculator that considers active insulin, glucose target and insulin sensitivity.

### Meal Estimation

Meal size estimation makes it easier for you to take the correct amount of insulin without the challenge of counting carbs.

### Fixed Dose

Do you use a fixed dose of insulin? The InPen app keeps track of active insulin to adjust the suggested amount to reach your dose equivalent.

### CARB COUNTING



### MEAL ESTIMATION



### FIXED DOSE



We have reduced the guesswork from insulin dosing to help you feel safer and more in control, regardless of your insulin therapy or carb counting expertise.

inpen

Join the community



@MyInPen #MyInPen

NOW AT YOUR LOCAL PHARMACY!

## ADRENAL INSUFFICIENCY

### DIAGNOSIS AND TREATMENT:

Adrenal Insufficiency is a condition that causes the adrenal glands to not make enough hormones. Some people have AI that lasts their whole lives and others have the condition temporarily. There are many causes for AI, but the treatment is the same. Patients with AI do not make the hormone Cortisol which is very important for the body to function normally. Patients with AI take a medication called Hydrocortisone (Cortef) to replace the Cortisol that their body is unable to make. This is generally administered three times a day and is referred to as a "replacement dose". Often times a patient may need to take their Hydrocortisone at school/daycare and parents will let you know the time to administer. There are no side effects of this medication.

### ACTIVITY:

There is no restriction of any type of exercise or activity for patients with AI unless otherwise specified. They are also not at increased risk for infection or injury.

### SYMPTOMS/ILLNESS:

Normally our bodies make extra Cortisol during times of physical stress. Patients with AI are unable to make extra, therefore if they are experiencing stress/illness/injury they will require extra Hydrocortisone which is referred to as a "stress dose". The stress dose may be extra oral tablets or an IM injection. Please refer to the dosing sheet for additional dosing information for stress. Symptoms requiring stress doses are the following:

#### ORAL STRESS DOSING:

FEVER (>101 F)

INJURY SUCH AS BROKEN BONES

VOMITING/DIARRHEA

POST-OP SURGERY if allowed to take medication by mouth

\*Special circumstances not listed above may require stress dosing at the discretion of the family, under the guidance of our office\*

#### INJECTABLE STRESS DOSING:

REPEATED EPISODES OF VOMITING: UNABLE TO RETAIN ORAL X 30 MIN

SEVERE DIARRHEA: MORE THAN 3 WATERY STOOLS PER HOUR

SEIZURES

SEVERE TRAUMA/UNCONSCIOUSNESS\*\*

**\*\*CALL 911—INFORM EMS PERSONNEL OF CHILD'S MEDICAL CONDITION\*\***

### SIDE EFFECTS:

During physical stress in illness/injury if the patient does not receive proper stress dosing of Hydrocortisone this can lead to an adrenal crisis and would require immediate medical attention. If any of the following symptoms are noted, please contact the parent as soon as possible.

### SYMPTOMS OF ADRENAL CRISIS:

**CONFUSION, DEHYDRATION, SEVERE DIARRHEA, DIZZINESS, SEVERE FATIGUE, FEVER (>101 F) FLOPPINESS, SEVERE HEADACHE, LETHARGY, LISTLESSNESS, RESTLESSNESS, WEAKNESS, UNUSUAL LOSS OF APPETITE, NAUSEA, PALE SKIN, REDUCED URINE OUTPUT, OR REPEATED EPISODES OF VOMITING.**

PATIENT NAME: \_\_\_\_\_ DOB: \_\_\_\_\_

PARENTS' NAME: \_\_\_\_\_ HOME# \_\_\_\_\_ WORK# \_\_\_\_\_

CELL# \_\_\_\_\_ CELL# \_\_\_\_\_

EMERGENCY CONTACT: \_\_\_\_\_ PHONE# \_\_\_\_\_

PEDIATRIC ENDOCRINOLOGIST:

OFFICE PHONE: 412-692-5170

EMERGENCY PHONE: 412-692-5437 \*TELL THE OPERATOR TO PAGE THE ENDOCRINOLOGIST ON CALL\*

**MEDICATION INFORMATION:**

**DAILY HYDROCORTISONE:**

AM:

AFTERNOON:

EVENING:

**STRESS DOSAGE HYDROCORTISONE:**

AM:

AFTERNOON:

EVENING:

**IM SOLUCORTEF DOSAGE (INJECTABLE):**

**PHYSICIAN SIGNATURE & DATE:** \_\_\_\_\_

This PANTHER Program® tool for Dexcom CGM was created with the support of danatech.

PANTHERTOOL® for  
**DEXCOM**  
Continuous Glucose Monitor



**INSTRUCTIONS FOR USE**

- 1 In the Clarity account set the "Patient Glucose Ranges" to:  
Target Range: 70-180 mg/dL, very low: 54 mg/dL, very high: 250 mg/dL
- 2 Create reports → 2 weeks → Select: a. AGP Report; b. Daily Report
- 3 Follow this worksheet for step-by-step guidance on clinical assessment, user education and insulin dose adjustments.

- STEP 1 **BIG PICTURE** (PATTERNS)  
→ STEP 2 **SMALL PICTURE** (REASONS)  
→ STEP 3 **PLAN** (SOLUTIONS)

STEP 1 **BIG PICTURE** (PATTERNS)

Use captūrAGP® report to assess CGM use, glycemic metrics, and identify glucose patterns.

**A** Is the person using the CGM consistently?

% Time CGM Active:

If <90%, discuss why:

- Problems accessing supplies/sensors not lasting 10 days?  
→ Contact Dexcom for replacement sensors
- Skin problems or difficulty keeping sensor on?  
→ Rotate sensor insertion sites (arms, hips, buttocks, abdomen)  
→ Use barrier products, tackifiers, overtapes and/or adhesive remover to protect skin



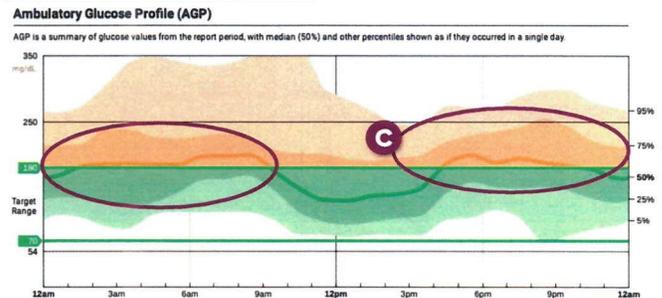
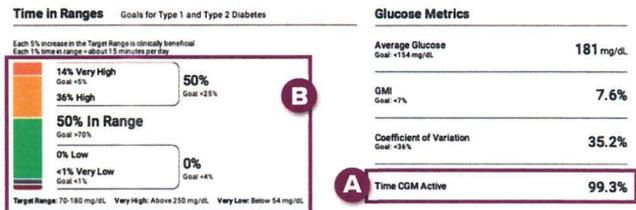
SCAN TO VIEW:  
[pantherprogram.org/skin-solutions](http://pantherprogram.org/skin-solutions)

**B** Is the user meeting Glycemic Targets?

Time in Range (TIR)  Goal is >70%  
70-180 mg/dL (3.9-10.0 mmol/L) "In Range"

Time Below Range (TBR)  Goal is <4%  
<70 mg/dL (<3.9 mmol/L) "Low" + "Very Low"

Time Above Range (TAR)  Goal is <25%  
>180 mg/dL (>10.0 mmol/L) "High" + "Very High"



**C** What are their patterns of hyperglycemia and/or hypoglycemia?

Ambulatory Glucose Profile compiles all data from reporting period into one day; shows median glucose with the solid line, and variability around the median with the shaded ribbons. Green shading indicates glucose values in range; orange = above range; red = below range. Wider ribbon = more glycemic variability.

Identify the glycemic patterns by focusing on the dark shaded ribbon around the median line.

Hyperglycemia patterns: (eg: high glycemia at bedtime)

---



---

Hypoglycemia patterns:

---



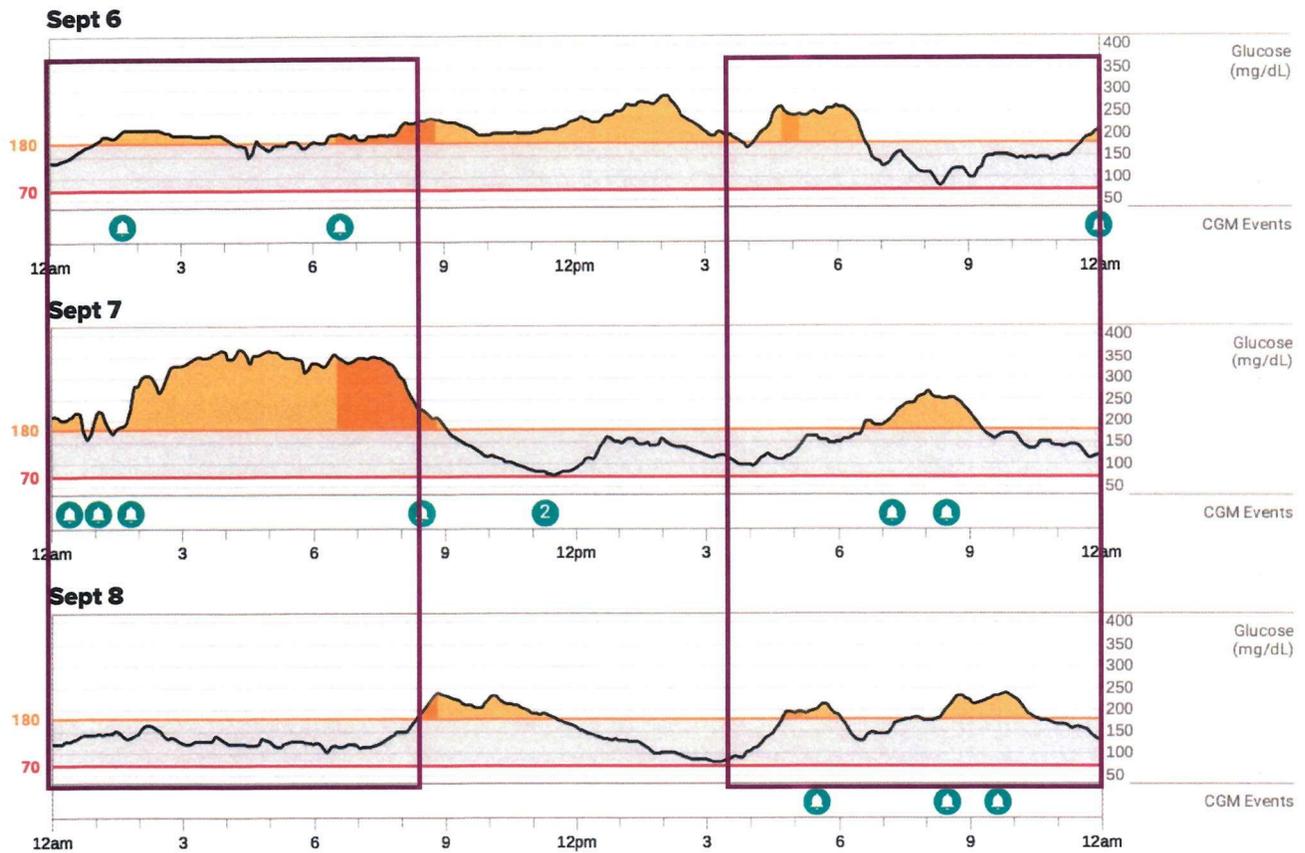
---

**PANTHERPOINTERS® FOR CLINICIANS**

- 1 The goal of this therapy review is to increase Time in Range (70-180 mg/dL; 3.9-10.0 mmol/L) while minimizing Time Below Range (<70 mg/dL; <3.9 mmol/L)
- 2 Is the Time Below Range **more** than 4%?  
If **YES**, focus on fixing patterns of **hypoglycemia**  
If **NO**, focus on fixing patterns of **hyperglycemia**

## STEP 2 SMALL PICTURE (REASONS)

Use the **Daily Report** and discussion with the user to identify causes of the glycemic patterns identified in STEP 1 (hypoglycemia or hyperglycemia).



Identify the predominant 1-2 causes of the hypo- or hyperglycemia pattern.

Is the **hypoglycemia** pattern occurring:

- Fasting / Overnight?
- Around mealtime?  
(1-3 hours after a meal or snack)
- Where low glucose levels follow  
high glucose levels?
- Around or after exercise?

Is the **hyperglycemia** pattern occurring:

- Fasting / Overnight?
- Around mealtime?  
(1-3 hours after a meal or snack)
- Where high glucose levels follow  
low glucose levels?
- After a correction bolus was given?  
(2-3 hours after correction insulin and  
glucose remains high)

**ADJUST insulin doses and EDUCATE**

<b>Hypoglycemia</b>	<b>PATTERN</b>	<b>Hyperglycemia</b>
<b>SOLUTION</b>	<b>SOLUTION</b>	<b>SOLUTION</b>
<p>Decrease basal insulin dose by 10-20%</p>	<p><b>Fasting / Overnight</b></p> 	<p>Increase basal insulin dose by 10-20%</p>
<p>Reduce meal dose/weaken I:C Ratios by 10-20% (e.g. if ratio is 1:10g, change to 1:12g)</p>	<p><b>Around mealtime</b> (1-3 hours after a meal/snack)</p> 	<p>Ask if the meal dose was missed. If yes, educate on giving all meal doses prior to eating.</p> <p>Increase meal dose/strengthen I:C Ratio by 10-20% (e.g. if ratio is 1:10g, change to 1:8g)</p>
<p>If hypoglycemia is occurring 2-3 hours after correction insulin is given:</p> <p>Reduce correction dose/weaken correction factor by 10-20% (e.g. if correction factor is 1:50 mg/dL, change to 1:60 mg/dL)</p>	<p><b>Low glucose follows high glucose</b></p>  <p><b>High glucose follows low glucose</b></p> 	<p>Ask how user is treating low glucose and educate:</p> <ul style="list-style-type: none"> <li>• Treat with 10-15g of carbs if on injections/manual pump therapy; treat with 5-10g if using Automated Insulin Delivery (AID)</li> </ul>
<p>Discuss current exercise strategies, educate on:</p> <ul style="list-style-type: none"> <li>• Small snacks as needed before and during exercise without an insulin dose if on injections or manual mode pump</li> <li>• Use temp basal feature on a manual pump OR exercise features on AID pump to reduce basal insulin delivery 1-2 hours before, during and/or after exercise</li> <li>• Reduce meal time insulin dose if meal is within 2 hours of exercise start</li> </ul>	<p><b>Around or after exercise</b></p>  <p><b>After correction insulin was given</b> (2-3 hours after correction insulin given)</p>	<p>Increase high glucose correction dose/strengthen correction factor (e.g. if correction factor is 1:50 mg/dL, change to 1:40 mg/dL)</p>

**OPTIMIZE CGM Alerts**

Personalize CGM alert settings with user to be **useful** and **actionable**.

To reduce alert burden:

- Turn OFF all predictive glucose alerts and rise/fall rate alerts.
- Consider turning off all alarms except for the low threshold alarm and set at the glucose level requiring low treatment.
- If high alarm is ON, set to an extreme high (e.g., 250-300 mg/dL) to reduce frequency. Turn off the high repeat, or set to 2 hours.

CGM alerts should result in action from the user most of the time (e.g. low glucose treatment, or high glucose correction). If the user is getting alerts but there is no action to take, change the alert setting and develop an action plan for how to respond to the alerts.

The Dexcom CGM alert settings can be found on the 'Overview' report on Dexcom Clarity.



## Dexcom G6 Mobile App

### CGM ID

Serial Number	iPhone G6
Uploaded On	September 9, 2022
Model	G6

### Alert Settings for Device

**General**

Low	<b>Off</b>	
Low Repeat	<b>Off</b>	15 min
High	<b>Off</b>	
High Repeat	<b>Off</b>	60 min
Fall Rate	<b>Off</b>	
Rise Rate	<b>Off</b>	
Urgent Low	<b>On</b>	55 mg/dL
Urgent Low Repeat	<b>On</b>	30 min
Urgent Low Soon	<b>Off</b>	
Urgent Low Soon Repeat	<b>Off</b>	30 min
Signal Loss	<b>On</b>	20 min

# Great job using **Dexcom!**

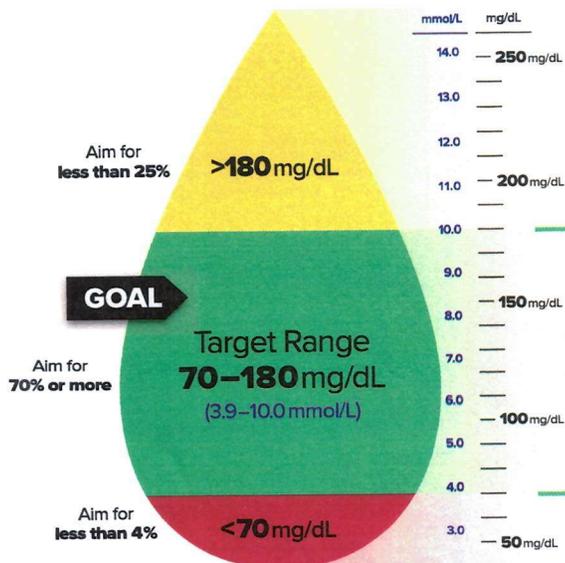
**Using a Continuous Glucose Monitor (CGM) can help you achieve your diabetes goals.**

The American Diabetes Association suggests aiming for **70%** of your glucose levels to be between **70-180 mg/dL** (3.9-10.0 mmol/L), called **Time in Range** or **TIR**. If you are not currently able to reach 70% TIR, don't be discouraged! Start from where you are and set smaller goals to increase your TIR. Any increase in your TIR is beneficial to your lifelong health!



## REMEMBER...

Don't over-analyze each individual glucose value you receive from the Dexcom CGM. Instead, **focus on the glucose trends**. If you notice a similar pattern of highs or lows happening each day, talk to your doctor or educator about how to help.



## TIPS for DEXCOM CGM

- **Rotate where you place your sensor** to keep your skin healthy. If you have problems with skin rashes or difficulty keeping your sensor on, check out our Skin Solutions: [PANTHERprogram.org/skin-solutions](https://PANTHERprogram.org/skin-solutions)
- **High glucose levels >300 mg/dL for 2 hours or more?** Check ketones first! If ketones are elevated (>1.0 mmol/L on a blood meter OR mod/large on a urine stick), give correction insulin from a syringe or pen (not through a pump) and contact your doctor or educator for help.
- **Give your insulin dose before eating**, ideally 10-15 minutes before all meals and snacks.
- **Are you getting too many alerts?** Sometimes less is more! Personalize your alerts so you only get alerts that are useful to you and require a response most of the time (e.g., low treatment, high glucose correction).



SCAN TO VIEW:  
Skin Solutions



SCAN TO VISIT  
[PANTHERprogram.org](https://PANTHERprogram.org)

**Have questions about your CGM?**  
Visit [dexcom.com](https://dexcom.com)

Dexcom customer support  
**1-888-738-3646**

Dexcom technical support  
**1-844-607-8398**

## **GUIDELINES FOR SUCCESSFUL PUMPING- OmniPod 5**

- 1. Test urine for ketones:**
  - A. Each morning
  - B. During illness
  - C. When blood sugar is greater than 250
    1. Test even at night
    2. Troubleshoot the pump
      - a. check the last bolus
      - b. check the basal rates
      - c. check the battery
    3. If ketones are positive, follow the DKA Prevention Tree
  
- 2. Change your infusion site:**
  - A. Every 72 hours
    1. Rotate, at least 1 to 2 inches from the last site.
    2. Stay 2 inches away from scars and navel
    3. Stay at least 3" from Dexcom sensor/transmitter
    4. CGM and pod must be in direct line of site
  - B. Preferably not before bed
  - C. When site is reddened, swollen, painful or if drainage is noted
  - D. If ketones are present without explanation
  - E. If you have more than 2 readings over 250 even after taking correction boluses in a row that you cannot explain.
  
- 3. Monitoring blood sugars:**
  - A. If connected to Dexcom and sharing data with CHP, we ask that you monitor these times of the day to assess need for dose adjustments.
    1. Prior to meals and snacks.
    2. Two hours after evening snack and 3 am for the first week then weekly midnight and 3 am.
    3. Occasional 2 hour post-prandial (after a meal) as requested by the diabetes team.
  - B. For safety/DKA prevention:
    1. 2-4 hours after changing an infusion site.
    2. If blood sugar is under 70 at night: retest the following night after adjustments have been made.

**4. Treating low blood sugars:**

- A. Low blood sugars can happen on a pump if:
  - 1. Basal or bolus amounts are too high
  - 2. Coverage scale is too high
  - 3. Exercise or post exercise hypoglycemia
  - 4. Alcohol consumption
- B. Do not bolus for the first 15 grams of carbohydrate consumed (4 oz. of juice or 3 glucose tablets)
- C. You may not need an additional snack unless exercising
- D. If you eat a snack you may need to bolus to cover the extra carbohydrate consumed if not exercising

**5. Exercise Issues in Manual Mode:**

- A. If wearing your pump during exercise, do a temporary basal decrease of 50% LESS for the duration of the activity.
- B. Some kids get exercise induced hyperglycemia (from adrenaline) and do not need a decrease in basal.
- C. Many kids get post-exercise hypoglycemia, so need to do a temporary basal decrease of 20% LESS for as many as 8 hours after an intense work-out.

**6. Automated Mode**

- A. After about 2 weeks of using Omnipod 5 in manual mode with insulin and settings having been optimized, we will recommend transitioning to automated mode.
  - 1. Automated mode utilizes SmartAdjust technology to maintain blood sugars to predetermined target levels.
  - 2. To begin and remain in automated mode the child must be utilizing Dexcom G6 sensor and transmitter with G6 app on smartphone.
- B. Insulin Delivery in Auto Mode with SmartAdjust technology will:
  - 1. Increase insulin delivery every 5 minutes for predicted hyperglycemia.
  - 2. Decrease or pause insulin delivery for predicted hypoglycemia.
  - 3. Will always pause if glucose is below 60 mg/dl.

### Automated Mode (cont)

#### C. Low Treatment in Automated Mode:

1. Remember that the pump is pausing or suspending the background insulin as it tries to prevent the low, this may result in needing less juice or tabs for treatment.
2. The 1st time you have a low, please treat as you normally would. If blood sugar rebounds too high, then at the next low take away a little, e.g., 3 tabs instead of 4. Continue this trial and error to find what a good treatment is for your child.

#### D. Exercise issues in Automated Mode:

Consider utilizing Activity Feature during times of increased risk of hypoglycemia. The Activity Feature will reduce basal delivery and sets basal delivery target to 150 mg/dl.

#### E. Automated Mode: Limited

1. CGM connection to Pod is interrupted for at least 20 minutes.
2. When system enters Limited Mode the pump will give lowest basal rate from manual or automated mode settings
3. When CGM connection is restored, full automated insulin delivery will resume.
4. Troubleshooting:
  - a. Make sure Pod and CGM are in direct line of site.
  - b. Check Dexcom G6 app to see if CGM values are still being received – troubleshoot Dexcom connectivity if not.

#### F. If Dexcom is not within 20% of fingerstick glucose (when trend arrow is flat/steady), temporarily turn off Automated Delivery until sensor data is reliable. Consider changing sensor if it not tracking accurately for over 24 hours.

#### G. Tips

1. When using SmartBolus calculator in Auto or Manual mode, choose “use CGM” for glucose value. This will allow for the blood sugar **and trend** to be used when calculating the dose.
2. Child must be within a 5 ft range of OP5 Controller and Dexcom App on phone for giving boluses and making edits to settings.
3. If insulin is given by injection for any reason, turn OFF Automatic Delivery mode for 4-5 hours, as the pump will not **know** you have injected insulin which can cause an overdose.

**7. Always Carry:**

- A. Treatment for low blood sugar.
- B. An alternative source of insulin (insulin pen or vial and syringe).
- C. Meter for blood glucose testing.
- D. Urine strips for ketone testing.
- E. An extra pod, insulin, and charger for controller.
- F. Glucagon emergency kit/ Gvoke/ Baqsimi
- G. Medical identification for diabetes.

**8. Sick day management:**

- A. DO NOT DISCONNECT pump.
- B. Test for ketones every four hours and when above 250.
- C. Call for help (412-692-7799 option 0) if:
  1. Ketones are positive
  2. Nauseated, vomiting or unable to eat
- D. Temporary basal may need to be established based on blood sugar and ketone level.
- E. Drink at least 8 oz fluids each hour, sugar or sugar-free will depend on the food intake and blood sugar levels.

**9. Always keep a written record of:**

- **your basal profile**
- **your insulin to carbohydrate ratio**
- **your sensitivity / correction formula**
- **insulin on board amount**

# Tips and Tools for Insulin Pump Use

By Jean Betschart Roemer, MSN, MN, CPNP, CDE

Published July 24, 2012

Updated November 25, 2015

Insulin pumps can be great tools for managing diabetes in people of all ages, including children, teens, and even infants. Because pumps constantly deliver a low level of “background” insulin, and larger doses need only be taken before meals (or to “correct” unexpected high blood glucose), they can allow a user greater flexibility with respect to meal schedules and food choices than conventional insulin injections. Pumps also deliver more precise amounts of insulin than can be measured with a syringe. And modern pump technology tracks how much insulin has been delivered, when it was delivered, and how much of it is still active in the body, so there’s less of a chance of taking too much and ending up with low blood glucose (hypoglycemia).

Clearly, all of these characteristics can help a person achieve optimal blood glucose control. However, an insulin pump is only a tool: It can’t think for itself, and it is therefore only as “smart” as the person who is using it. In the hands of a motivated, diligent user, a pump can be a very helpful and precise tool. In the hands of a user who expects the pump to do the work for him, however, it may help to control blood glucose levels no better than any other method of insulin delivery. Even with a pump, it’s still necessary to count the carbohydrates in meals and snacks, match insulin doses to the foods being eaten, monitor blood glucose levels frequently, and make adjustments to meals, exercise, or insulin doses based on monitoring results.

Everyone who uses a pump should receive comprehensive training on how to use it. But no matter how much training you receive or how many instruction manuals you read; some issues don’t become apparent until a person is actually using a pump. Some pump-related issues seem to be more common among children and teens, possibly because of their active lifestyles or their developmental stages.

In this article, parents whose kids use pumps, kids who use pumps, and health-care professionals who work with kids who use pumps offer ideas, tips, hints, and advice on common problems and how to avoid them. Your pump trainer and diabetes educator are also great resources to call on when problems arise with pump therapy.

## “Bad” sites

The most common mechanical problem that occurs with pump use is a bad infusion site. The infusion site is where the very thin Teflon or stainless-steel cannula that

delivers the insulin to the tissue just under the skin is inserted. Some cannulas are inserted manually, while others are inserted with a spring-loaded insertion device.

In most cases, a plastic connector joins the cannula to a length of thin plastic tubing, which carries insulin from the pump to the cannula. The connector is generally mounted on an adhesive patch that is stuck to the skin at the insertion site to help keep the cannula in place.

When a site goes “bad,” insulin is not being delivered properly at the infusion site. This can happen if the cannula becomes kinked or crumpled upon insertion or if the tip of the cannula is pressed against muscle or other tissue that does not absorb insulin well. Sometimes it’s not clear what the cause of the problem is, but signs that there is a problem include suddenly higher blood glucose or a gradual but steady rise in blood glucose.

If you see this happening, take (or give your child) a correction dose of insulin, then monitor to see what is happening. If blood glucose numbers do not begin to drop within an hour of taking the correction dose, change the site. Although some pump users just change the cannula and insertion site when they have apparent site problems, most diabetes educators recommend changing the tubing and reservoir (or pod) as well, just in case the insulin delivery problem involved the tubing, reservoir, or connections between the various parts.

***Hints from Parents:***

“Bad sites have been a problem for our nine-year-old. Move to the other side of the body, find some fat, and change often. We had to try a bunch of different cannula products from different companies until we found one that worked well for us.”

“Test often after a change of site. If you have a very high number twice in a row, change the site again.”

“We were told not to change the pump site right before bed. We ignored that once or twice, and wouldn’t you know that that was when we got a bad site, and she was high all night and sick in the morning. We quickly learned to change the site right after dinner so we could see what was going on before bedtime and change the site if we needed to rather than go all night with a bad site.”

“We thought our son was having a series of bad sites, but when we went back and checked the procedures, as it turns out, he was forgetting to prime (fill) the cannula with insulin after the steel introducer needle was pulled out. He was requiring such a small amount of insulin at the time that it took 2 or 3 hours for insulin from the pump

to fill the cannula, then he was high after every site change. After we got into the habit of priming, the problem went away.”

Note: Your pump manufacturer and trainer will provide instructions for priming the cannula as well as the tubing if your pump uses tubing (all but one currently does).

## **Site falls out**

Probably every child (and adult) who has used a pump has had a site pull out at some time. In kids, this happens most commonly when kids are very active and sweaty, playing contact sports, or pulling on or taking off tight clothing such as jeans or items made of spandex. It can also happen at night in restless sleepers. The most dangerous of these is at night, because a child could go for hours without insulin if it goes unrecognized.

Although all pumps have built-in alarms for “no delivery,” the alarm sounds only if there is a blockage in the cannula or tubing. As long as insulin is flowing freely, the pump does not know whether it is being delivered under the skin, as desired, or into the air.

Sometimes a pump user will see that a cannula has pulled out, feel it, or notice that clothes or skin are wet from insulin. Sometimes, however, a cannula will pull out under a layer of tape and not be visible. There are times when the only way a dislodged cannula gets noticed is because of high blood glucose or symptoms of high blood glucose.

If you’re having trouble getting your child’s sites to stay in, ask your health-care provider or your pump’s customer support line for tips on tapes, adhesives, and other solutions to sites pulling out.

### ***Hints from Parents:***

“Try to secure the pump in a pocket or waistband at night, and keep the tubing rolled up and out of the way so that it cannot pull out. When our son had it loose in the bed, he’d get all wrapped up in the tubing, and the cannula pulled out.”

“We recently went to the tubeless pump, and that has solved the tubing problem at night. You have to make sure that the insulin pod is in a comfortable spot, although it seems to stick pretty good.”

“In the summer, we put IV prep [an antiseptic product that cleans the skin and leaves a tacky surface when dry] on, let it dry, put it on again, let it dry, etc., so that the

adhesive really sticks well. Sometimes it is hard to get off, but we've learned that there are products to take off the adhesive, or even Avon Skin So Soft does the trick."

"Grandma, bless her heart, sewed little pockets into all her undershirts for the pump."

"I sewed a waist pouch of rather stiff fabric and put fleece on the inside so that it is soft. It has a wide band fastened with Velcro, and it holds the pump around the waist at night." (Similar products are sold commercially.)

"If you think that the adhesive is lifting a little, don't ignore it, because it will probably fall out."

"Always, always be prepared with supplies to change the site, wherever you go. It is really stressful to get caught somewhere without supplies available."

"In the summer months, with sweating and swimming, we have trouble with the adhesive not sticking. Ask for Skin Tac [a liquid adhesive] for the summer months. It seems to work great to keep it on during swimming." (Skin Tac and similar products are available over the counter but may be reimbursed by insurance if you get a prescription for them.)

"We found that the cannulas that go in at a 45-degree angle stay in better than the ones that go straight in. They look a little scarier, but we usually use the hip as a site for our three-year-old, and we try to distract him when it is going in. When he doesn't see the needle, he is fine with it."

## **Not taking bolus insulin**

The most common nonmechanical problem that occurs with pump use in children and teens is that they intentionally or unintentionally forget to take their bolus insulin doses. It should be so easy to do, particularly since all current pumps (if correctly programmed) can determine the right bolus dose of insulin, as long as the user enters his current blood glucose level and the number of grams of carbohydrate he is going to eat.

But sometimes kids don't feel like taking those steps, they get distracted, or they forget. So, when you see your child having episodes of very high blood glucose, the first thing to check is whether one or more bolus doses have been missed. Either look at the bolus history on the pump's display screen, or better yet, upload the information from the pump to a computer and look at the data in graphic form. Most often, when you look at the uploaded data, you can clearly see when bolus insulin was given and when it most likely wasn't.

If boluses are being missed, you may need to take some action such as setting reminder alarms on the pump or taking away privileges until boluses are remembered and taken.

***Hints from Parents:***

“When I looked at her data, I was very surprised to see that Sarah was not often taking her breakfast bolus. I remind her every day! She tells me that she has or will take it, but it clearly was missing in the breakfast bolus data. The school calls every day at lunch with a high reading, and we’ve been increasing her basal rates. My advice to other parents is not to be naive about it and check the pump or uploaded data often to see what is going on.”

“I think that after a while on a pump, life becomes more normal, and the kids start feeling or pretending that they don’t have diabetes. They think they can get away with not taking their bolus insulin, but it shows up later. When we realized that our son (age 16) was not taking his boluses, we took the car keys away. Funny how that reminds him.”

“We have gotten into a habit of uploading Jenn’s pump data to the computer every Sunday. Actually, she does most of the work, then we look at it together. There is a lot of information that is kind of overwhelming at first, but if you pick out one or two charts to look at, and keep doing it, you get familiar with it and can pick up changes from one week to the next pretty quickly. Jenn is getting better at it than me now and is kind of ‘into’ it. The hardest part for me is to try not to jump all over her when I see that she hasn’t done things right.”

## **Not changing site on time**

All pump users are advised to replace their cannula, tubing, and reservoir (or pod) of insulin every 2–3 days and to insert the new cannula into a different place on the skin. However, it’s not uncommon for children and teens to get lazy or busy or to otherwise forget to change their sites at the recommended intervals. They may still have insulin in the pump (and you or they may not want to waste it), and of course they are not eager to poke themselves or take the time to change it. However, not making site changes at the recommended intervals can lead to skin infections and to high blood glucose, for a variety of reasons, including the following:

- The insulin in the reservoir and tubing is degrading because of warm body and outside temperatures.
- The tissue at the cannula site is saturated and cannot absorb additional insulin. After several days, a depot, or accumulation, of insulin develops under the skin; it can

sometimes be felt as a hard lump. Insulin is not well-absorbed into the tissues from these depots.

- The reservoir is so low that there is not enough pressure to deliver the remaining units of insulin.
- The reservoir has been allowed to become completely empty.

***Hints from Parents:***

“We had a problem because in our scramble to get kids out the door to school in the morning, our son never remembered to change his site until it was time to leave for school. We had to write it on the calendar, and even then he forgot. We’ve been in the mode recently of doing it on the odd calendar days.”

“My son (who is four) doesn’t like to change or rotate sites. We just reason with him and explain why it has to happen. We’ve been trying some behavior modification techniques so that if he allows us to change the site without a fuss or tries a new site, he accumulates stars, and he is saving up his stars for little Lego Star Wars action figures.”

## **Disconnecting the pump**

When your child is extremely active and/or involved in a contact sport, it is often best to disconnect the pump (if you use other than a tubeless pump). In most cases, the cannula can be left inserted and a plastic cap attached to it to keep it clean. This makes it possible to simply take the cap off and reconnect the tubing when you’re ready.

Recommendations for disconnecting include taking an hour’s worth of basal insulin before disconnecting, and not leaving the pump off for more than an hour. Even so, there is a window of time during which no insulin is infused, and practically speaking, many kids and teens stretch the one-hour rule as long as they can. This often leads to high blood glucose later.

***Hints from parents:***

“It can be a little tricky if you want to take the pump off for more than an hour, like when we go to a water park or the beach. We always keep it in a Ziplock bag so sand doesn’t get into it. Usually, we check blood sugar about every hour and 15 minutes and take some basal (maybe not the full basal) insulin every hour while he’s off his pump. That has worked best for us although it’s not perfect.”

“When you disconnect, always put your pump away in a purse, backpack, or somewhere where it won’t get lost. A pocket is not a good idea [pumps in pockets have been known to end up in washing machines], nor is a very hot car.”

“When we go to the beach, Jason is so active and such a water lover that he is in the pool or surf all day long. We have found it easiest for him to take an injection of long-acting insulin (Lantus or Levemir) for those days and disconnect the pump completely except for bolus insulin for meals or snacks.”

## **Parents’ perspectives**

Not all kids do well with an insulin pump, and as these comments from parents demonstrate, switching to a pump does not reduce the diabetes self-care workload. For those families who are able to stick with it, however, the positives of pump use outweigh any negatives, such as the additional time and effort that must be put into learning new skills and trying different approaches to see what works best. Here are some parent perspectives on pump use:

“Pumping makes your child feel more like other kids. Not as much fighting over food issues. If they don’t feel like eating, they don’t have to.”

“Learn as a family how to use the pump and how it works. Make sure everyone is familiar, so that your child is never on his own to make decisions.”

“Before you actually use the pump, make sure that you are familiar with all aspects of it and know how to change the tubing. Use all the pump features — you have paid for them!”

“Stay with a diabetes educator, nurse, or doctor you like and one who has a lot of pump experience. Do not see several doctors. You build a relationship, and they know and trust your instincts.”

“A pump is great for giving more freedom. If your child wants something to eat, he can usually have it as long as he boluses for it. However, we’ve found that it still works best for our daughter to follow a regular meal schedule.”

“Be careful not to give too much freedom with the diet. There is more flexibility with a pump, but diet is still important.”

“Try to be as exact as possible when counting carbohydrates: Read package labels for portion sizes and carbohydrate amounts, ask fast-food restaurants for nutrition

## **GUIDELINES FOR SUCCESSFUL PUMPING: T-SLIM PUMP with CIQ**

### **1. TESTING URINE FOR KETONES:**

- Each morning
- When sick (especially stomach pain or vomiting)
- When blood sugar is greater than 250
  - Test even at night
  - Troubleshoot the pump: all of this information is located on the face of the pump
    - check the last bolus
    - check the amount of insulin in cartridge
    - check the basal rates
    - check the battery
  - To check for the last bolus and current basal rate, tap the right upper corner of the pump where the amount of insulin is located.
  - Battery is located at the top left corner
  - If ketones are positive follow the DKA Prevention Tree

### **2. CHANGING YOUR INFUSION SITE:**

- Every 48-72 hours
- Rotate at least 1-2 inches from the last site
- Stay 2 inches away from scars or navel
  - Preferably not before bed
- When site is reddened, swollen, painful or drainage, or if blood is at the site or in the tubing
- If ketones are present without explanation
- If you have more than 2 readings over 250 that are unexplained and seem to not be affected by correction boluses

### **3. MONITORING BLOOD SUGARS:**

- If connected to Dexcom and sharing data with CHP, we ask that you monitor these times of the day to assess need for *dose adjustments*.
  - Prior to meals and bedtime snack
  - Midnight and 3 am for the first week then weekly midnight and 3 am.

- Occasional 2 hour post-prandial (after a meal) as requested by the diabetes team
- *For safety/DKA prevention:*
  - 2-4 hours after changing an infusion site
  - If blood sugar is under 70 at night: retest the following night after adjustments have been made.

#### **4. DISCONNECTING:**

- After one hour off the pump check your blood sugar, take a correction if needed.
- If you want to disconnect for another hour, eat a small snack or take a correction, then disconnect.
- Do not disconnect for more than 2 hours. Ketones can develop even if the blood sugar is within a normal range, especially with exercise.
  - If greater than 250 when you reconnect, test for ketones, follow decision tree guidelines
- Suspend the pump. You will get reminders to remember to reconnect. Helpful to see what happens after suspending when downloading.

#### **5. EXERCISE ISSUES:**

- It is best to remain connected for exercise.
  - If wearing your pump during exercise *in manual mode*, do a temporary basal at 50% for the duration of the activity.
    - For best results, start this temporary basal rate 30 minutes prior to the activity
    - Some kids get exercise induced hyperglycemia and do not need a decrease in basal.
  - Many kids get post exercise hypoglycemia so need to do a 50%-80% temporary basal for as many as 8 hours after an intense work-out.

#### **6. TREATING LOW BLOOD SUGARS:**

- Low blood sugars can happen on a pump if:
  - Basal or bolus amounts are too high
  - Exercise or post exercise hypoglycemia
  - Alcohol consumption
- Guidelines:
  - A. Do not bolus for the first 15 grams of carbohydrate

- Consumed (4 oz. of juice or 3 glucose tablets – as normal)
- B. You may not need an additional snack unless exercising
  - C. If you eat a snack you may need to bolus to cover the extra carbohydrate consumed if not exercising.

## **7. CONTROL IQ (CIQ)**

- This feature is active when the pump is connected to a Dexcom G6 sensor and transmitter & the feature is toggled on.
  - When active: CIQ uses the predictive technology of the Dexcom G6 change basal rates based on estimated blood sugars.
  - The Dexcom and pump are predicting blood sugars 30 minutes in the future and changing basal rates based on this predicted number, not what you see on the face of the pump.
- The pump becomes the receiver
  - You may still use your phone as a receiver (with the blood sugars also displaying on the pump). BUT both the true receiver that comes with the Dexcom and the pump cannot be on at the same time. This will block signal to both.
- If the pump is suspended at a meal or snack time you must restart your insulin delivery first before bolusing.
  - Options – Resume Insulin then bolus will be active again
- Low Treatment on CIQ
  - Remember this is pausing or suspending the background insulin, this may result in needing less juice/tabs/treatment
    - 1<sup>st</sup> time that you have a low, please treat as normal. If blood sugar rebounds too high, after at the next low take away a little
      - a. Ex. 3 tabs instead of 4, or a sip less juice
    - Continue this trial and error to find what a good treatment is for your child

## **8. ALWAYS CARRY:**

- Treatment for low blood sugar
- An alternative source of insulin (insulin pen or bottle and syringe).
- Meter for blood glucose testing.
- Urine strips for ketone testing.
- An extra set of tubing, cartridge, battery (or charger) and insulin.
- Glucagon emergency kit.
- Medical identification for diabetes.

**9. SICK DAY MANAGEMENT:**

- Do **NOT** disconnect your pump.
- Test for ketones every two to four hours and when above 250.
- Call for help if: 412-692-7799, dial "0"
  - Ketones are positive
  - Nauseated, vomiting or unable to eat
- Temporary basal may need to be established based on blood sugar and ketone level.
- Drink 8 oz. of fluids each hour, sugar or sugar-free will depend on the food intake and blood sugar levels.

**\*Always keep a written/electronic back-up record:**

- **your basal profile**
- **your insulin to carbohydrate ratio**
- **your sensitivity or correction formula**
- **insulin on board amount**

## T-Connect:

- T-Connect is now available as a software program and an App
- If using the computer:
  - Follow the on-line directions to set up your account. This information should have come with the pump as an insert
- If using the App:
  - Download T-Connect App to child's phone (App looks like a beachball)
  - Create a username and password – follow set up instructions for App preferences
  - Once in App, you will be asked to pair a pump. To do this, have the App up on the phone and then you will also need to access the pump
    - In the pump: Options – Device settings – Bluetooth Settings – toggle on mobile connection
  - At this step, you will then hit “Pair Pump” and the pump will give you a code. Put this code into the app on your phone. You are then paired!
  - Having the devices paired allows remote uploading to the cloud.
    - If the App is running in the background and synced, this information will be sent through the cloud and can then be accessed by CHP with physically “plugging in” the pump.
- For either the computer or App: once profile is set up please get this information (username and password) to CHP. This is how we can access your information when you upload or when the App is running.

# Disconnecting for Special Events

Reasons you may want to disconnect for longer than 1 hour:

- All day sporting events such as tournaments
- Waterparks
- Amusement parks
- Beach vacations
- prom

## How to Maintain control of diabetes:

- A little Lantus /Levemir goes a long way.
- If your child has an all day event which requires them to be disconnected for more than the recommended maximum of 1 hour a day, you can supplement their missed amount of basal insulin with a dose of Lantus or Levemir.
- If they receive a portion of their basal insulin by injection they can disconnect for their day activities as needed without the risk of developing ketones.
- Your child would then reconnect when eating or if they need to correct for a blood sugar above their goal. They would use their bolus feature to administer their dose.
- The basal dose would need to be determined by your diabetes team to keep your child safe.

## Special Considerations:

### ***All day sporting events:***

1. When kids have all day sporting events their basal needs may be less than on an inactive day.
2. Exercise can affect blood sugars up to 24 hours after the exercise has occurred.
3. Test midnight and 3 am readings when supplementing missed basal with Lantus/Levemir to make sure your child isn't sleeping through a low blood sugar.
4. If only a small amount of Lantus/Levemir was given by injection, your child should reconnect to their pump whenever possible.

### ***Waterparks, all day swimmers and Beach vacations:***

1. Pumps sink! Even if your child has a waterproof pump, if it would fall off on a slide or wave pool it may be difficult to find.
2. Pumps and sand do not mix. Sand at the beach can get into pump insertion sets and cause clogging. When disconnecting, cover the site with a protective cover such as IV 3000.
3. Insulin is sensitive to temperature. If the pump is in direct sun for many hours the insulin may become ineffective.
4. Pumps should never be taken in salt water. The pump mechanisms can become damaged by the salt or lost at sea.

### ***Amusement Parks:***

1. Pumps can be affected by the magnetic rides such as certain roller coasters and rides like the PITT Fall at Kennywood.
2. Most pumps are water resistant but not waterproof. This means getting splashed should be ok but total soaking on rides such as the Raging Rapids would not.

*Broken or damaged pumps will be replaced by the pump company. If a pump is lost, you may need to attempt to claim it on your home owner's insurance for replacement. You may want to explore adding a rider for the pump on your homeowner's insurance.*