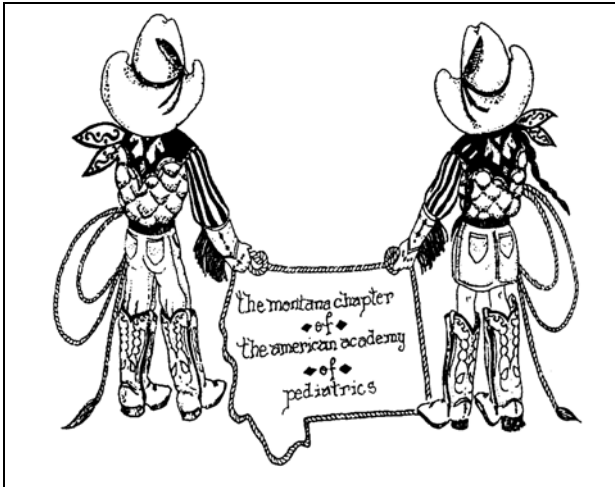


Montana Chapter

American Academy of Pediatrics Fall 2007 Newsletter



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President's Message

Hello Everyone,

Just back from the NCE – very informative and fun to catch up with Montana fellows in attendance.

Two big topics:

1. Release of the new **Bright Futures 3rd edition**, revised into a 10 themed section and a visit section to help with well-child visits.
2. **The Autism Toolkit**, with emphasis for ongoing surveillance of developmental milestones at each visit and an objective standardized screening of global development at 9, 18, and 24-30 months (or whenever a doctor, health professional or parent is concerned re delays).

The Ages and Stages Developmental Screening tool can be acquired free from the ABCD Program at the MT Dep't Public Health/Human Services (contact Keith Ouzts at 406-444-4148). Sheila Idzerda is our contact person with the ABCD Program (sidzerda@aol.com).

Additionally, autism-specific screening is now recommended at the 18/24 mo. WBC. Many of the screening tools recommended at Level 1 are available free (CHAT, CAST, etc), take 5-10 minutes to complete, at www.autismresearchcentre.com. Level 2 questionnaires take 10-20 minutes and most have a purchase fee. **Caring for Children With Autism Spectrum Disorders: A Resource Toolkit for Clinicians** is available at www.aap.org/bookstore (members: \$69.95), and is helpful in recognition, evaluation and ongoing management of ASD through your patients' lifespan.

Video clips that illustrate the glossary of terms used to describe autism available at www.autismspeaks.org, www.firstsigns.org and www.firstwords.fsu.edu. They display typical behavior contrasted with red flags for autism.

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MONTANA AAP

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John Curtis	Ed Young
Paul Visscher	Nancy Maynard
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PALS: Laurie L. Carter
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CHAPTER COMMITTEES

Awards: Cathy White, Marian Kummer
Legislative: Cathy White, Kathy Rogers
MMA Liason: Lionel Tapia

EXECUTIVE COMMITTEE

Members At Large: Pepper Henyon, Claire Kenamore, Sonja Samsoundar
Past President: Marian Kummer
Secretary-Treasurer: Sheila Idzerda
Vice President: Kathy Rogers
President: Cathy White

REPORT ON ROUNDUP 2007 held at Great Northern Hotel, Helena September 28-30, 2007

Once again, we had a very successful Annual Meeting and CME Conference. Kathy Rogers did a great job recruiting speakers in a variety of subjects. We had over 50 in attendance, including a number of members and friends who had not attended previous meetings.

The conference evaluations were primarily positive and gave useful information re planning future CME events. The Executive Committee will be sending out **post-meeting surveys** to evaluate the practical benefits of the CME activities to individual pediatric practice. If you attended Roundup 2007, **please take the time to answer the questions and return them.** Thanks.

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CHAPTER NEWS

We have some new people willing to serve as resource people for the chapter:

Sandra Short-Bartlett, MD, FAAP

is the new spokesperson for Perinatal. Dr. Short-Bartlett practices at the Great Falls Clinic and is Co-Director in the Benefis NICU. She attended medical school at Johns Hopkins, served a residency at UCLA and a neonatal fellowship at UC/San Diego. She has worked in both level II and level III NICUs in CA, prior to moving to Montana. She enjoys hiking, sailing, contemporary jazz and Greek cooking.

Contact info: scshort@gmail.com

NICU: 406-455-5505 Cell: 858-945-8104

**Please see her article for this newsletter on
Gentamicin Dosing in Neonates.**

Laurie L. Carter, MD, FAAP

has agreed to serve as the spokesperson for PALS (Pediatric Advanced Life Support). She is the Medical Director for the Pediatric Hospitalist Program at Community Medical Center in Missoula. She attended Loyola Stritch School of Medicine in IL and served a residency in pediatrics at Children's Nat'l Med. Center in Washington, DC. She has worked as a pediatric hospitalist in CA for several yrs. Contact: lcarter@communitymed.org.

CHAPTER NEWS (continued)

We have two new members of the Executive Committee:

Pepper Henyon, MD, FAAP

was elected to a 3-year Member-at-Large position (through fall 2010), replacing Deb Garrity who served 4 + years (filling out a vacant term plus her own). Pepper, a pediatrician in Bozeman, graduated from the Medical School of Iowa College of Medicine and participated in a pediatric residency at the Univ. of VA. She likes to hike, mountain bike, rock climb and ski.

Claire Kenamore, MD, FAAP

has agreed to fill out the term of Blaise Favara, who resigned for personal reasons (through fall 2008). Claire is a pediatrician at the Billings Clinic, attended medical school at the Univ. of Texas/Galveston and served a pediatric residency at the Children's Hospital/Denver.

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Sonja Samsouandar, MD, FAAP

a Member-at-Large of the Executive Committee has agreed to serve as a pediatric representative to a recently created Blue Cross Blue Shield Physician Advisory Committee (PAC). This committee was formed as a part of a settlement agreement by 22 BCBS carriers. Montana was one of the plans involved in the settlement.

For details on the settlement agreement, contact Jan Donaldson at sweenycrik@aol.com. If you have issues to bring before this committee, please contact Sonja Samsouandar at 406-345-8910 or sonjarohini@yahoo.com.

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Joseph W. Brinkley, MD, FAAP

a retired pediatrician from Great Falls died in August at age 93. Dr. Brinkley received his medical degree from the University of Tennessee.

NEWSLETTER INSERTS

Enclosed with the newsletter are three different inserts.

One is **submitted by Sandra Short-Bartlett**, the new Perinatal spokesperson for the Montana Chapter, on appropriate gentamicin dosing for neonates.

The second is an interesting report from a long-time chapter member, **Susan Shepherd**, a pediatrician from Butte, who works with the organization, Doctors Without Borders. She shares her recent experience in Niger and information on a new approach to malnutrition in children.

And third, an update on **extended benefits to the Montana Children's Health Insurance Program (CHIP)**.

We were fortunate to have Jackie Forba, director of CHIP, participate in a forum on Montana health care issues at the Roundup meeting in September. Please share this information with your staff.

President's Message (con't)

Our chapter needs a **Childcare and Early Childhood spokesperson** to co-chair a state committee. I have been filling in that role, but would like to pass it onto someone else. Time commitment: following a listserv and some implementation.

I hope everyone enjoys the holidays and can take some time away from work to return refreshed and ready to face the new year! As many of you know, Jan Donaldson, our ED, will be stepping down by the end of the year. She will be greatly missed. I wish her the best and want to personally thank her for all she has done for me and for the chapter.

Cathy White, MD, FAAP

President, Montana Chapter AAP

What's new with CHIP

Montana's Children's Health Insurance Plan (CHIP) provides free or low-cost health insurance for children up to age 19 who are not eligible for Medicaid and whose families cannot afford other health insurance.

CHIP extended mental health benefits

Beginning March 1, 2006, CHIP provides extended mental health benefits for children diagnosed with serious emotional disturbance (SED).

The basic CHIP mental health plan covers prescription medications, and limited inpatient mental health services and counseling sessions. The extended plan covers the following community-based mental health services: therapeutic group home services (including room and board); therapeutic family services; day treatment; community-based psychiatric rehabilitation and support services; individual and family counseling sessions; and respite care.

In order to receive these specialized services, a child must be enrolled in CHIP and be determined by DPHHS to have a serious emotional disturbance (SED).

CHIP estimates that 200-300 children may qualify for the extended mental health benefits.

CHIP income guidelines increase

The 2007 State Legislature and Governor Brian Schweitzer approved an increase in the CHIP income guidelines from 150 percent to 175 percent of the federal poverty guideline. The new guidelines went into effect July 1, 2007.

Under the new guidelines, children from a family of four with an annual income of \$36,138 may be eligible for CHIP. That means a family can earn \$5,163 more and still qualify.

CHIP enrollment has increased over 1,200 since the new guidelines have been in place. There is no current waiting list so families with uninsured children are strongly encouraged to apply.

CHIP extended dental benefits

Effective October 1, 2007, CHIP will provide extended dental benefits for some children enrolled in CHIP.

Under CHIP's basic dental plan, services are limited to \$412 in billed charges per benefit year (October 1 – September 30). The CHIP Extended Dental Plan (EDP) allows children with significant dental needs, beyond the \$412 limit, to receive additional services up to a total of \$1,588 in billed charges. EDP will reimburse only for services covered under the basic plan.

For CHIP-enrolled children to be eligible for EDP, providers must submit a "Request for Extended Dental Benefits" form to CHIP for approval. Upon approval of the request, extended services can be provided and reimbursed.

Fluoride treatment

Reminder: CHIP covers fluoride application by medical providers.

For more information about CHIP, visit us online at www.chip.mt.gov or by calling CHIP toll-free at 1-877-KidsNow (1-877-543-7669).

Gentamicin Dosing in Neonates

Sandra Short-Bartlett, MD Co-Director, Benefis NICU scshort@gmail.com

Aminoglycosides were originally developed in the 1940's after screening soil actinomycetes for antibacterial killing. They are principally active against most aerobic gram negative organisms. The precise mechanisms of the different aminoglycosides are unknown, but the aminoglycosides have synergy with antibiotics that attack the cell wall (particularly penicillins and cephalosporins). They do not penetrate lipid-containing cellular membranes well, especially after inflammation resolves. This has led to the treatment of meningitis, for example, with third generation cephalosporins.

New recommendations for neonatal gentamicin dosing may increase efficacy and decrease toxicity. These are similar to extended interval "once daily" dosing regimens that have been used with increasing frequency in adults in recent years.

Improving Efficacy

Concentration-Dependent Bacterial Killing: Studies during the 1980's demonstrated that clinical effectiveness correlated with the aminoglycoside peak. The goal for adult dosing has been to increase the ratio of the maximum peak inhibitory concentration (C_{max}) to the bacterial minimum inhibitory concentration (MIC) [C_{max}/MIC ratio]. The newer gentamicin dosage recommendations for neonates allow for *achievement of a higher peak after the first dose*. This is similar to previous studies using a loading dose.

Postantibiotic effect (PAE): When aminoglycoside levels drop below the MIC, there is a lag time of hours before bacterial growth resumes. This does not apply to beta-lactam antibiotics, and it does vary with different bacteria. An increased peak lengthens the PAE. More studies in neonates are needed in this area, but it appears that there is no decrease in efficacy when levels are below the MIC for several hours. *The PAE allows for a longer interval.*

Adaptive Resistance: In vitro and animal studies have suggested that initial rapid bacterial killing is due to binding at the bacterial membrane. There is a second step in which the drug is rapidly transported into the cell, allowing for high intracellular drug concentrations. Downregulation of this step occurs in surviving bacteria within 1-2 hours of the first aminoglycoside dose, and it reverses slowly as the drug concentration drops. *A longer interval decreases adaptive resistance*, making surviving bacteria more susceptible to subsequent doses.

Decreasing Toxicity

Aminoglycoside nephrotoxicity correlates with elevated trough concentrations (gentamicin >2mcg/mL) and with prolonged therapy (>10 d). There is no correlation with high peak concentrations. Extended dosing intervals leads to less nephrotoxicity. The mechanism for ototoxicity is less understood, and has a genetic component in some patients. There is a higher risk if the patient is concurrently exposed to other nephrotoxic drugs.

Neonatal Gentamicin Dosing (Table 1)

Preterm neonates have a greater volume of distribution (V_d) than term neonates. *The dose of gentamicin must be higher for preterm than for term neonates.* The half-life of gentamicin correlates inversely with gestational age, especially during the first week of life. *Preterm neonates, therefore, need longer dosage intervals than term neonates.* Nephrotoxicity in neonates tends to be mild and generally resolves with 2 days of drug cessation. The incidence of sensorineural hearing loss is the same as with previous dosage regimens, and may be detected by OAE. Longer dosage intervals may also lessen the chance of antibiotic resistance.

Gentamicin Levels

The goals for gentamicin levels are as follows:

Peak 5-12 mcg/ml

Trough 0.5-1mcg/ml

Please note that the trough is lower than previous recommendations, for reasons described above. Studies are in progress in order to see if even higher peaks may be warranted in certain situations.

Gentamicin Dosing Intervals (Table 2)

There is no need to monitor gentamicin levels unless the neonate will be treated for more than 48 hours, or in cases of asphyxia, renal insufficiency, or unstable hemodynamics. If treating for >48 hours, you may get levels as soon as after the first dose (peak) and before the second dose (trough). In infants >1 week of age, give an initial dose of 4mg/kg (regardless of gestational age), then measure a peak 30 min after the end of the infusion, and a 24 hour trough.

Summary

Aminoglycosides have markedly improved the treatment of aerobic gram negative infection. New aminoglycoside dosing strategies utilizing higher doses at longer intervals have been designed to increase efficacy and decrease toxicity. Further research is ongoing in order to refine these goals for gentamicin as well as other aminoglycosides.

Table 1

Gentamicin Dosing Chart			
PMA (weeks)	Postnatal (days)	Dose (mg/kg)	Interval (hours)
<=29*	0 to 7	5	48
	8 to 28	4	36
	>=29	4	24
30 to 34	0 to 7	4.5	36
	>=8	4	24
>=35	ALL	4	24

* or significant asphyxia, renal dysfunction, PDA, or treatment with indomethacin

Table 2

Gent Dosing Intervals		
Level @ 24h (mcg/mL)	Half-life (hours)	New DI (hours)
<=1.0	8	24
1.1 to 2.3	12	36
2.4 to 3.2	15	48
>=3.3		Measure in 24h

References:

NeoFax Nineteenth Edition. 2006. Thomas E. Young and Barry Mangum, Editors. Acorn Publishing, Inc. Raleigh, NC (published initially in 1998 11th Edition).

Aminoglycoside Therapy in Neonates: With Particular Reference to Gentamicin. Thomas E. Young, MD. NeoReviews vol 3 No. 12 December 2002 e243

Susan Shepherd, MD, FAAP, is a Butte pediatrician who has worked overseas in Doctors without Borders, and just returned from Niger.

She can be reached at susanshepherd1959@yahoo.com

Imagine a practice where you see 50-60 kids day in and day out and about half of them are Failure to Thrive. Mothers and children arrive in droves every day – mothers dressed in brightly colored prints, children snugly secured on their mothers' backs. The grandmothers come too; you can recognize them by the large calluses they develop on their thumbs from years of pounding millet to make porridge – the staple food. The women walk, sometimes up to 20 kilometers, to find help for their children.

This is the every day reality in places like Niger, a country of 13.5 million people, about twice the size of Texas in the dry sub-Saharan belt called the Sahel. The Sahel, which stretches from Ethiopia through Sudan, Chad, Niger, Northern Nigeria, Burkina Faso and Mali is one of the main malnutrition 'hotspots' on the globe. I just came back from 1 ½ years in Niger working for Doctors without Borders.

Malnutrition is a deadly pathology and is the major reason why 1 in 5 children in Niger die before their 5th birthday. All those trace elements, minerals and vitamins that we may take for granted in our fortified diets truly are indispensable to healthy normal metabolic and immune function as well as growth. Although the statistics say that they die of respiratory infections, diarrhea and malaria – in fact children die mostly because their immune systems and their metabolism are so weakened by malnutrition that they can't fight back. So in Niger, an upper respiratory virus can kill and it does with alarming frequency.

A frameshift in the responsible use of antibiotics was the most difficult change for me to make – moreso than learning to recognise malaria in all its protean presentations or remaining on the alert for the child with tuberculosis. Lets say you have an 18 month old child in front of you with a runny nose and a cough; she's a little thin but hasn't lost enough weight to qualify for the nutrition program . Her mother has walked for 3 hours to come to the dispensary. The child's temperature is 99 F and she's not breathing fast, but you prescribe the Amoxicillin any way – you don't dare not to. You know that mom is not making the trip again and you've got to maximise the chances this child will get well.

But maybe more important than giving her antibiotics, is giving this child food – or more precisely nutritious food. This is what Doctors without Borders is starting to do in its projects in Niger. Most of us have seen the profoundly sad images of children who are no more than skin and bones. For several years now the humanitarian aid community has been treating these severely affected children successfully with a nutrient dense spread called Plumpy'Nut. Made of powdered milk, ground peanuts, sugar, oil and essential vitamins and minerals, it has a taste most children love. Metabolic recovery and weight gain are quick and treatment can be entirely outpatient. The mom simply gives the child 2 packets of spread daily (1000 kcal). Nutritionally, it is like PediaSure except that Plumpy'Nut has a greater caloric density: 5 kcal/gram vs 1 kcal/gram. There is no

water used in Plumpy'Nut preparation so bacteria can't grow in it (you don't have to keep peanut butter in the fridge) and the packets have a shelf life of 2 years. It generally takes about 5-6 weeks to recover a healthy weight. Treatment for one child costs about \$30.

However, waiting for children to deteriorate to the point of skin and bones flies in the face of all common sense. So many children are like the one I described above suffer from nutritional deficiencies without meeting weight/height criteria for malnutrition. The staple diet for young children in Niger is breast milk and millet porridge: the equivalent of trying to grow an infant on breast milk, bread and water. Monotonous, limited diets are a set-up for nutritional deficiency. Ready-to-use food recipes can also be adapted to replete these moderate nutritional deficiencies and prevent severe malnutrition. The challenge here is to bring them to scale. Whilst treating severe malnutrition in Niger means caring for tens of thousands of children, preventing malnutrition means reaching hundreds of thousands or even millions. This is why this year we undertook a monthly distribution of ready-to-use food (we call this version Plumpy'Doz) to all 63,000 children between 6 months and 3 years of age in the district where we work.

If we are serious about decreasing childhood mortality – millenium development goal #4 – we have to think big. Almost 40 years ago the World Health Organisation decided infant vaccination must be available to all and nutrition should be no different. Indeed, good nutrition in the early years of life is a form of vaccination or protection against illness. I see this as the biggest innovation to come along since oral rehydration therapy; ORS technology originated in the developing world and has had major implications for children in the industrialized world as well. I don't see why ready-to-use therapeutic and supplementary foods would be any different. They may offer us new ways to feed neurologically impaired children or those with eating disorders, as well as the vast masses of undernourished children in developing nations.

We must as pediatricians, doctors and humanitarian workers convince governments – both ours and others – that food with high quality protein and essential nutrients are absolutely indispensable for child survival and optimum development. We must drive home the point that hunger and malnutrition are not the same thing and we cannot treat malnourished children just by throwing more calories their way. The emphasis must be on nutritional quality and not just caloric quantity. As Hippocrates wrote, “Let food be your medicine.”