Chair Update

Vikas Dharnidharka, MD, MPH, FAAP

My fellow AAP Nephrology Section members,

Greetings! Since beginning my term in November 2018, this is my first opportunity to write the Section of Nephrology (SONp) Chair article. Knowing that I have big shoes to fill, it will be my privilege and honor to serve as the Section Chair for the next 2 years. I joined the Section's Executive Committee (EC) in 2014 and watched Doug Silverstein admirably and elegantly shepherd the Section through many important initiatives. We honored Doug at our last Executive Committee meeting for his many years of great service. Luckily for us, Doug gets to stay on the Executive Committee as Past Chair, and I will look to him many times for guidance and wisdom.

At our last meeting we also honored retiring Executive Committee member Teri Jo Mauch. Teri was a valuable contributor to the Section leadership. Her knowledge and enthusiasm mean that we hope to keep her engaged with many Section activities in the future. I also want to welcome two new members to the Executive Committee: Juan Kupferman from New York and Dan Feig from Alabama. Both have participated in our section activities over the years and we are thrilled to have them join our EC. Continuing EC member Stephanie Jernigan takes over from me as the Nephrology Program Chair for the AAP’s National Conference and Exhibition (NCE), where she will propose Nephrology talks for the general NCE audience, plus co-programming with those sections that have their own programming at the NCE.

We also were privileged to have Nephrology fellow Brian Stotter serve as our EC’s Fellow representative. Brian has raised the idea of using social media in future efforts and we will be looking for opportunities to do so going forward. He also was the driving force behind a series of slide talks on common pediatric nephrology (PN) topics that our SONp will be making freely available to AAP members using the AAP Pediatric Care Online platform. We gratefully acknowledge Brian’s service as he graduates from fellowship this summer. We have, therefore, also

Continued on Page 2
sent out a call for a new Fellow member on the EC. (see the additional information in this newsletter) If you know of a first or second-year Pediatric Nephrology fellow who is interested, please submit or have them submit their nomination information to us.

In the last few months, your AAP SONp also participated in/commented upon 3 key issues:

- The SONp supported a sign on letter for Title VII Pediatric Subspecialty Loan Repayment – the AAP worked with other stakeholder organizations, including the ASPN.
- The AAP Committee on Coding and Nomenclature (COCN) requested that the SONp participate in a valuation survey for revisions that will be made to the Office Visit Evaluation & Management (E/M) CPT codes in 2021. As background, in its 2019 Medicare Physician Fee Schedule rule, the Centers for Medicare and Medicaid Services (CMS) proposed extensive changes to documentation and payment for E/M services, including simplifying the payment for applying a single payment rate for level 2 through 5 office visits. Due to many concerns, comments by organized medicine to the rule overwhelmingly called on CMS to postpone implementation of the payment collapse pending further efforts by the CPT Editorial Panel and the AMA/Specialty Society RVS Update Committee (RUC) to develop a new coding structure and consider relativity issues. As such, a Joint CPT-RUC Workgroup on E/M was formed to develop a coding proposal, which was recently approved during the February 2019 CPT Editorial Panel meeting.

- The AAP submitted comments to the Coverage & Analysis Group of the Department of Health and Human Services CMS regarding coverage of ABPM that were informed by feedback provided by the SONp and information from the AAP Clinical Practice Guideline for Screening and Management of High Blood Pressure in Children and Adolescents. The AAP indicated its support for the coverage for ABPM as currently indicated for the diagnosis of white coat hypertension and encouraged CMS to expand the National Coverage Determination to additional hypertension indications.

The SONp EC, in conjunction with the Committee on Hospital Medicine, submitted an application to develop a clinical practice guideline regarding fluid and electrolyte therapy in children. Dr. Leonard Feld co-chaired the guideline committee and Dr. Michael Moritz served as the SONp representative. The clinical practice guideline, "Maintenance Intravenous Fluids in Children" was published December 2018. We would like to extend our congratulations to Leonard and Mike for their leadership in the development of this important guideline.

On April 27, 2019, the Henry Barnett Award will be presented to Dr. Joseph Flynn to honor him for his many accomplishments, particularly in the field of pediatric hypertension, including the recent AAP Clinical Practice Guideline. (See the separate article in the newsletter.) At the same time, former 2015 Barnett awardee Dr. Brad Warady will receive the ASPN Founders Award. Our section clearly knows how to pick great award winners!

As you may have surmised, we have many initiatives that AAP SONp members have the unique opportunity to participate in. Some of these opportunities have already been mentioned above, such as the chance to speak at the AAP national conference, to serve on the Henry Barnett lifetime achievement award selection committee, the SONp EC or Nominations Committee, to participate in reviewing draft AAP guidelines or policy, or to serve as a guideline or policy author. We also share other opportunities to serve on AAP-wide Committees and Editorial Boards. These opportunities can be important credits for you in the promotion process. Please take advantage! Also ask your PN colleagues who are AAP members whether they are SONp members or not. The added value, for the minimal extra dues ($25), is immense. Last month we encouraged you to check out the new SONp collaboration site (AAP login and password required). This site is for SONp members and includes information regarding the section initiatives and many of the opportunities noted above. See additional information on page 10 of the newsletter.

One of the first tasks for the newly constituted EC is to review our last strategic planning document, created several years ago. We hope to have this completed during first half of 2019 and will highlight features of the new plan in future communications.
Chair Update *Continued from Page 2*

Finally, let me end with a special tribute to Dr. Tej Mattoo, who just retired after 11 years in his role as the founding Editor for AAP's PREP Nephrology. Many of you may not be aware of just how critically important Tej was in getting PREP Nephrology started in 2009. Tej had realized many years before that there were no resources for nephrologists to practice PN test question taking prior to our specialty's Board exams. Tej created, entirely on his own, a CD-ROM of such questions, along with critiques to explain the answers and the topic. AAP had just started a PREP Self-Assessment series and they approached him, based on his CD-ROM, to start a PREP Nephrology series. Tej and the aforementioned Doug Silverstein (busy guy!) were the founding editors and together they recruited a group of erudite and passionate writers that allowed the series to rapidly become a valuable resource. Prasad Devarajan was one of those original writers, and he now succeeds Tej as the Chief Editor, with David Kershaw as the new Deputy Editor. Tej can justifiably be proud of his legacy!

As always, we would appreciate your feedback on the newsletter and ways that we can increase the value of your membership in the SONp.

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**American Academy of Pediatric Section on Nephrology**  
**2019 Henry L. Barnett Award Recipient**

The AAP Section on Nephrology (SONp) recognizes one individual yearly for lifetime achievement in the field of pediatric nephrology. The SONp Executive Committee is pleased to present the 2019 Henry L. Barnett Award to Dr. Joseph T. Flynn.

Dr. Flynn is a Professor of Pediatrics at the University of Washington - School of Medicine. At Seattle Children's Hospital, he holds the Robert O. Hickman Endowed Chair in Pediatric Nephrology and is Chief of the Division of Nephrology. He also serves as the Associate Director of the Clinical Research Scholars Program at the Seattle Children's Research Institute. He is an internationally recognized authority and leader in the field of pediatric hypertension.

Dr. Flynn exemplifies the core qualifications of the Henry L. Barnett Award:

**Dedication to teaching nephrology:** Since early in his career, Dr. Flynn has worked to energize the next generation of pediatric nephrologists. He has participated as a faculty member in training over 50 trainees, 44 of them in pediatric nephrology. Fellows from these programs are among the current leaders in pediatric nephrology. He has also been recognized with outstanding teaching awards throughout his career. Dr. Flynn has served as a faculty member at the AAP National Conference for many years, receiving positive feedback from attendees for his presentations. During his tenure as a member of the AAP Section on Nephrology Executive Committee (2002-2008), he was charged with developing nephrology sessions for many AAP National Conferences. He has contributed to many other educational courses in the US and internationally and, has contributed to most of the leading textbooks used by learners worldwide.

**Distinguished service to the field of pediatric nephrology:** Dr. Flynn's main clinical and research focus has been in the field of pediatric hypertension. No one familiar with the subject would doubt Dr. Flynn's leadership and enduring impact. He has published widely (over 120 peer reviewed publications and over 100 additional reviews, editorials, and book chapters). He was a member of the National High Blood Pressure Education Program Working Group that produced the “Fourth report” on pediatric hypertension in 2004. He most recently co-chaired the AAP Education in Quality Improvement in Pediatric Practice committee on hypertension that produced the newest clinical practice guideline on pediatric hypertension: the “Clinical Practice Guideline for Screening and Management of High Blood Pressure in Children and Adolescents” in 2017.

*Continued on Page 4*
He also is lead author on the 2014 American Heart Association guidelines for use of ABPM in children. Dr. Flynn’s work has even greater reach, as he serves as a co-chair of the cardiovascular subcommittee of the ongoing NIH funded CKID study and as a project PI in the AHA funded SHIP AHOY study. These projects continually stretch the boundaries of our knowledge and will further improve children’s health.

Contributions to advocacy for children: Dr. Flynn has been instrumental in inducing the Food and Drug Administration to require pediatric trials for anti-hypertensive agents. He has been an effective advocate for children with end-stage renal disease, meeting with legislators and regulatory agencies in his roles as a member of the American Society of Pediatric Nephrology’s Public Affairs Committee and the Renal Physicians Association Board of Directors.

Dr. Flynn will receive the award during the ASPN Award Luncheon on April 27, 2019 at 12:00 pm in conjunction with the Pediatric Academic Societies Meeting in Baltimore, Maryland. Please join us in congratulating Dr. Flynn on this achievement!

AAP Academic and Subspecialty Washington Advocacy Report and Subspecialty Advocacy Toolkit

The latest AAP Academic and Subspecialty Advocacy Washington Report is now available! The report contains a special welcome message from AAP President, Dr. Kyle Yasuda and details the important advocacy work that the Academy is engaging in, highlighting issues of particular importance to medical and surgical subspecialty pediatricians. The report includes updates on AAP advocacy efforts to support Medicaid, prevent firearm-related injury and death, protect immigrant children, promote pediatric subspecialty workforce issues, and increase funding for pediatric research, among many other issues.

We are also excited to announce the release of the AAP Subspecialty Advocacy Toolkit. This toolkit provides information on ways for subspecialists to engage in advocacy across all levels of government with the support of the AAP’s advocacy team. We hope you find this to be a helpful resource and look forward to hearing from you about ways we can continue to improve this tool.

Please contact Suzanne Kirkwood at skirkwood@aap.org with any comments or questions. Thank you for all you are doing for children and families!

Fellow Corner: How To Utilize Quality Improvement In Your Pediatric Nephrology Practice

Brian Stotter, MD, FAAP, SOnp Training Fellow Liaison,
Boston Children’s Hospital, Division of Nephrology

As we spend time in the wards, outpatient clinic, or dialysis unit, we are bound to encounter challenges and inefficiencies that prevent us from being able to deliver the best possible care for our patients. Quality improvement (QI) is one methodical approach to address issues that require attention, identify obstacles for better care, study practice patterns, and implement incremental changes to guide improvement in performance. The origins of QI in the healthcare setting stem from a 1999 Institute of Medicine report “To Err Is Human: Building A Safer Health System” and other publications, which described the high incidence of errors occurring in the medical system that are preventable. The 2001 report “Crossing the Quality Chasm: A New Health System For The 21st Century” noted that a major reason for poor progress in identifying medical errors was physicians and other healthcare professionals feeling inadequately trained or empowered to address changes in the medical system that could improve care quality. QI initiatives at all levels, whether it be hospital-wide or nationwide, have focused on bridging this gap.

Continued on Page 5
To put this process into practice, there are several QI models for improvement that have been developed to help institutions and health care providers set pre-defined outcomes to achieve and meet these goals. Perhaps the most commonly used in clinical practice is the Model for Improvement, developed in the 1980s by the Associates in Process Improvement (https://www.apiweb.org), and further supported by the Institute for Healthcare Improvement (http://www.ihi.org). Upon identifying a specific problem area in need of improvement, with outcomes that can be measured, three questions are asked:

- What are we trying to accomplish?
- How will we know that a change is an improvement?
- What change can we make that will result in improvement?

Once a specific goal for improvement has been set, an intervention is developed and tested using Plan-Do-Study-Act (PDSA) cycles:

- Plan – Plan the test or observation (including plan for data collection)
- Do – Try out the test on a small scale
- Study – Analyze data and study the results
- Act – Refine the change based on what was learned from the test

There are several advantages to using PDSA cycles, including the ability to rapidly assess the effectiveness of your intervention as well as implement incremental changes to achieve one's goals. For example, let's say you want to reduce the number of extra hemodialysis treatments needed in your dialysis unit to achieve the target ultrafiltration in patients with poor adherence to fluid restriction:

- Plan – Identify patients requiring additional weekly dialysis treatments for ultrafiltration in your unit. Set a specific goal to achieve, such as reducing the number of additional dialysis treatments by 50% over the next 3 months.
- Do – Implement a change. For example, counsel patients and their families on how to measure and track their daily fluid consumption. Use visual aids; you'd be surprised how much water they may think is in a standard 8 oz. glass!
- Study – Measure changes in the amount of interdialytic weight gain and number of additional dialysis treatments needed to improve fluid balance. After 3 months of using the educational intervention, assess whether it was successful or unsuccessful, and why.
- Act – If the intervention worked, repeat the cycle including more patients in your unit. If not, identify barriers to reducing fluid intake to address when the cycle is repeated.

Whether or not your institution has a hospital-wide QI program, with dashboards and workflow maps, introducing small changes into your pediatric nephrology practice is straightforward and can lead to bigger transformations for improving the quality of patient care.

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**Call for Nominations**

**Section on Nephrology (SONp) Training Fellow Liaison**

The SONp Executive Committee is interested in engaging Nephrology training fellows in leadership opportunities. One Nephrology Training Fellow Liaison position was approved by the membership and the AAP leadership. Dr. Brian Stotter has served as the SONp Training Fellow Liaison and his term will end on June 30, 2019.

At this time, we invite all interested first or second year Nephrology fellowship trainees to submit their nomination by **Friday, April 19, 2019** to Suzanne Kirkwood at skirkwood@aap.org Below is the position description with the eligibility criteria.

**Continued on Page 6**
Call for Nominations SONP Training Fellow Liaison  Continued from Page 5

Should you have any questions, please feel free to contact Brian Stotter, MD FAAP at: brian.stotter@childrens.harvard.edu, Vikas Dharnidharka, MD, FAAP, Chairperson, Section on Nephrology at vikasD@wustl.edu or Suzanne Kirkwood, Manager, Section on Nephrology at 800/433-9016, ext. 6648 or at: skirkwood@aap.org

POSITION DESCRIPTION

Term:
Up to two years or upon completion of the training fellowship. The term shall be from July 1 – June 30th. Preference will be given for those able to participate for 2 years.

Eligibility:
• Current enrollment in a Pediatric Nephrology Fellowship Training Program
• Member of the American Academy of Pediatrics
• Member of the Section on Nephrology (may join at the time of application)

Appointment Criteria for Consideration by Executive Committee:
• Letter of Interest from the Training Fellow
• Curriculum vitae
• Recommendation letter from Training Program Director

Status: Member appointed by the SONp Executive Committee

Responsibilities:
The SONp Training Fellow Liaison was established to provide leadership opportunities for young physicians. The liaison should:

• Understand the responsibilities and goals of the section of Nephrology
• Attend one Section on Nephrology meeting per year held in the spring (starting in 2020).*
• Participate on 2 - 3 one-hour Executive Committee conference calls throughout the year.
• Provide input in current Section activities discussed at the meetings/during conference calls and throughout the year via email communications.
• Work with the Executive Committee to develop initiatives that would be beneficial to Training Fellows and Young Physicians and ways to communicate this information.
• Advocate for the AAP and SONp at any internal and external meetings and programs attended
• Explore opportunities to recruit and more fully engage SONp training fellows within the Section

Recent Accomplishments:
2. Coordinated the development of short, case-based information power point presentations on key inpatient and outpatient pediatric nephrology topics as “teaching on the go” resources with plans to offer as podcast-like webinars.
3. Wrote two articles per year for the fellow column in the SONp newsletter.
4. Wrote an article for the Section on Pediatric Trainee newsletter about pursuing a career in pediatric nephrology.
5. Wrote an article for the AAP medical student newsletter regarding the integrative research pathway.
6. Participated in the review of draft AAP and external policy relative to nephrology topics.
7. Developed a Fellows in Training webpage for the SONp website.
8. Attended advocacy training in Washington, D.C. sponsored by the AAP Department of Federal Affairs.

Continued on Page 7

* Expenses for meeting attendance will be covered by the Section and includes airfare (secured through the Academy Travel office), one day's expenses related to hotel, meals, and ground transportation.

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### Clinical Feature:

**Should Lactated Ringers Become the Default Intravenous Solution?**

*Michael L. Moritz, M.D.*

*Professor of Pediatrics, University of Pittsburgh School of Medicine*

*Clinical Director, Pediatric Nephrology*

*Medical Director, Pediatric Dialysis*

*UPMC Children's Hospital of Pittsburgh*

Intravenous fluids play a critical role in the management of acutely ill patients as a bolus infusion for resuscitation, a continuous maintenance fluid, and as a vehicle to administer medications. Acutely ill patients are at risk for developing hospital acquired hyponatremia due to numerous stimuli for arginine vasopressin secretions (AVP). The American Academy of Pediatrics (AAP) recently released a clinical practice guideline on maintenance intravenous fluids in children, recommending that patients 28 days to 18 years of age requiring maintenance IV fluids should receive isotonic solutions as they significantly decrease the risk of developing hyponatremia. This recommendation was based on the review of 17 prospective randomized clinical trials involving 2,313 patients which found the relative risk of developing mild (Na < 135 mmol/L) and moderate (Na 130 mmol/L) hyponatremia to be >2 and >5, respectively, when children received hypotonic versus isotonic fluids. The risk was increased regardless of age, medical versus surgical status and intensive care versus general pediatric ward setting. The clinical practice guideline did not make recommendations regarding which isotonic fluid to use, as there was insufficient data to recommend either 0.9% saline (normal saline) or balanced electrolyte solution (lactated Ringers or Plasma-Lyte). The clinical practice guideline specifically made no recommendations regarding the safety of lactated Ringers, as lactated Ringers was not used in any of the studies evaluated.

There has been a growing concern that 0.9% saline has a supraphysiological chloride concentration and may result in untoward complications such as hyperchloremic metabolic acidosis, renal vasoconstriction, delayed micturition, hyperkalemia and an increased incidence of acute kidney injury and need for renal-replacement therapy. The AAP clinical practice guideline was not able to identify complications related to 0.9% saline. Most of the studies they evaluated were not adequately designed or powered to assess these complications though. No well conducted clinical trials have been able to demonstrate the superiority of a balanced solution over 0.9% saline in clinical practice, until two recent studies published in the *New England Journal of Medicine*. These studies raise the question if lactated Ringers, a widely available balanced solution, should be the preferred solution for resuscitation and maintenance fluids.

The SALT-ED and SMART trials: Are balanced solutions superior to 0.9% saline in clinical practice?

Two large trials in adult patients recently published in the *New England Journal of Medicine* sought to address if balanced solutions are superior to 0.9% saline in clinic practice. The data suggested that there was a small benefit to balanced resuscitation solutions in comparison to normal saline. The Saline Against Lactated Ringers or Plasma-Lyte in the Emergency Department (SALT-ED) and Isotonic Solutions and Major Adverse Renal Events (SMART) trials involved almost 30,000 adult patients at one large tertiary care center in the United States. These were parallel pragmatic clinic trials, where there was a waiver of informed consent, fluid allocation was unblinded to either normal saline or a balanced solution on alternating calendar months, and the volume of the resuscitation solution and choice of balanced solution (either lactated Ringers or Plasma-Lyte) was left to the discretion of the treating physician. In the SMART, patients were admitted to 1 of 5 different ICU’s. Both studies demonstrate an absolute decrease of about 1% for a composite of...
major adverse kidney events at 30 days, defined as death, new renal replacement therapy or a persistent 2-fold increase in serum creatinine. Neither study was able to demonstrate a statistically significant benefit to any one factor independently though. The benefits of a balanced solution were primarily seen in critically ill patients with sepsis and those with preceding acute kidney injury and previous renal replacement therapy. Two groups of patients that fared better with 0.9% saline were patients admitted to the cardiac ICU or with traumatic brain injury.

Based on the findings of these two studies, many editorial commentaries and news outlets have recommended that balanced solutions be used in favor of normal saline. Given that millions of hospitalized patients require fluid resuscitation, even a modest benefit, with a need to treat 100 patients to prevent 1 major adverse renal event, could potentially translate into a benefit to tens of thousands of patients yearly. By extension, practitioners may choose to use balanced solutions over normal saline for not only resuscitation fluids, but as maintenance fluids as well, as there is no obvious theoretical advantage to using normal saline over a balanced solution. By extension, these results might be extrapolated to pediatric patients, even though evidence for the superiority of balanced solution over 0.9% saline in pediatrics is lacking.

What’s the difference between balanced solutions and normal saline?

Balanced solutions differ from normal saline in a few important ways. Foremost is that they have variable amounts of a buffering agent, such as lactate, acetate or gluconate. Balanced solutions do not have bicarbonate as it is not stable in polyvinyl chloride bags. Balanced solutions also have variable amounts of potassium, calcium and magnesium, and have a lower sodium concentration and osmolarity in comparison to normal saline (Table). 0.9% saline (Na 154 mmol/L) has the same sodium concentration as the aqueous phase of plasma, whereas Plasma-Lyte (Na 140 mmol/L) and lactated Ringers (Na 130 mmol/L) are slightly hypotonic in relationship to plasma. Plasma is 93% aqueous and 7% anhydrous, consisting of proteins and lipids.

Table. Composition of Commonly Used Isotonic Fluids

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Sodium</th>
<th>Chloride</th>
<th>Potassium mEq/L</th>
<th>Calcium</th>
<th>Magnesium</th>
<th>Buffer</th>
<th>Osmolarity mOsm/L</th>
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<tbody>
<tr>
<td>Human plasma</td>
<td>135-145</td>
<td>95-105</td>
<td>3.5-5.3</td>
<td>4.4-5.2</td>
<td>1.6-2.4</td>
<td>23 – 30 bicarbonate</td>
<td>308a</td>
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<td>Normal Saline</td>
<td>154</td>
<td>154</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>308</td>
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<tr>
<td>0.9% NaCl</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Balanced solutions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lactated Ringer’s</td>
<td>130</td>
<td>109</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>28 lactate</td>
<td>273</td>
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<tr>
<td>Plasma-Lyte</td>
<td>140</td>
<td>98</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>27 acetate &amp; 23 gluconate</td>
<td>294</td>
</tr>
</tbody>
</table>

a The osmolality for plasma is 275-295 mOsm/kg

The history of intravenous solutions

British physician Sydney Ringer developed a 0.75% saline as a frog tissue preservation solution in the 1870’s. The fluid was slightly hypotonic, as frogs have a lower plasma sodium concentration (105 mmol/L) in comparison to humans. Dutch physiological chemist Hartog Jakob Hamburger developed 0.9% saline (154 mmol/L) in the 1890’s, which has a similar sodium concentration to the aqueous phase of plasma in humans and mammals (151 mmol/L). 0.9% saline came into clinical practice in the 1910’s. It was not until the 1930’s that a version of Ringer’s solution came into clinical practice when
American pediatrician Alexis Hartmann modified Ringer's solution by adding lactate in order to treat acidosis in children with diarrheal dehydration. Therefore, lactated Ringer's solution (sodium 130 mmol/l) is a hyponatremic solution in relationship to the aqueous phase of plasma and is known to contribute to hyponatremia. Plasma-Lyte has a combined sodium, potassium and magnesium concentration of 148 mmol/L, which is very similar to sodium concentration of normal saline (154 mmol/L).

Which balances solution should be used, lactated Ringer's or Plasma-Lyte?

The SALT-ED and SMART did not attempt to address which balanced solution is superior. The study design and analysis pooled the data for lactated Ringers and Plasma-Lyte together and did not evaluate the benefits and complications as separate variables. In both studies there was significantly more hyponatremia associated with balanced solutions in comparison to normal saline, which is likely due to the use of lactated Ringers. In the SALT-ED, 95% of patient received lactated Ringer's and the serum sodium fell (p <0.001). In the SMART on the other hand, only 44% received lactated Ringers with a significant variation of fluid choice in the 5 ICU's. 94% admitted to the medical ICU received lactated Ringers, whereas a minority in the other 4 ICU's (surgical 38%, cardiac 24%, trauma 18% and neurosurgical 2%) did so. The incidence of hyponatremia in SMART was higher for balanced solutions (38.1%) compared to normal saline (35.5%) (p=0.002). The hyponatremic effect of balanced solutions was seen even though the median volume of resuscitation fluids administered in both trials was relatively small at only 1L.

Trading one problem for another: Hospital acquired hyponatremia

It is encouraging that a simple change in fluid therapy from normal saline to a balanced solution could potentially translate into a clinical benefit with decreased acidosis and adverse renal events, but this might come at cost if lactated Ringers is the solution that is used. Most practitioners are probably more familiar with lactate Ringers then Plasma-Lyte and might assume that the fluids are equivalent. Lactated Ringers is a hyponatremic solution and an increase in its use could increase the incidence of hospital acquired hyponatremia. Hyponatremia is an independent predictor of hospital mortality and is associated with increased hospital costs, length of hospital stay, and rates of readmission. While there is now evidence to demonstrate that there may be a small benefit in using a balanced solution over 0.9% saline as resuscitation solution, there is no evidence to suggest that this is true when used as a maintenance fluid. In addition, Plasma-Lyte with 5% dextrose is not currently available in the US, whereas lactated Ringer's with 5% dextrose is available. Hyponatremia can be difficult to treat, so preventative measures should be taken by avoiding intravenous fluids with free water like lactated Ringers. Further studies are underway to better evaluate the potential benefit and complications associated with different balanced solutions. Until the results of those studies are available, Plasma-Lyte would appear to be the preferred balanced resuscitation solution due to its higher sodium concentration and 0.9% saline, with appropriate potassium chloride and dextrose, would be the preferred maintenance solution.

References:

Continued on Page 10

New: Section on Nephrology Collaboration Site!

As a member of the AAP Section on Nephrology (SONp) you have access to the SONp Collaboration Web site. This member’s only benefit of the SONp grants each current Section member access to the following:

- Opportunities to get involved in the SONp leadership committees.
- Information on how to recognize a colleague through nomination for the Henry L. Barnett Award.
- Information for trainees regarding a career in pediatric nephrology.
- Section publications including the newsletter, AAP News articles, PN Choosing Wisely list and parent articles on PN topics.
- Quick links to professional resources for SONp members.
- Quick access to new and/or existing AAP policies of interest to SONp members.

And much more!

The access instructions are below. For questions regarding the SONp collaboration site please contact SONp Staff, Suzanne Kirkwood or the SONp Chair, Dr Vikas Dharnidharka.

Step 1: Visit http://www.aap.org click on “My Collaboration Sites” at the top of the webpage.
Step 2: Log in with your AAP login credentials.
Step 3: Access your Section collaboration site
Step 4: Begin navigating your site. Note - You can bookmark your site for future use
Interprofessional Consultation Codes

Did you know that pediatric nephrologists can be reimbursed for telephone/internet and digital consultations with other physicians without seeing the patient?

**CPT codes 99446-99449** were created in 2014 to capture the time spent via telephone or internet by a consultant who does not have face-to-face contact with the patient at the time of discussion with another requesting/treating physician. Another **CPT code 99451** was created in 2018 for consultants to provide these services through the electronic health record (EHR) in addition to telephone and internet. The consultant must not have seen the patient within 14 days of the service and must document verbal consent from the requesting/treating physician and provide a written report to that physician to bill these codes. Here are more particulars:

- Typically used for new problem or exacerbation or new management of chronic problem
- Must document verbal request and provide written report to requesting physician
  - Date of consult, patient name, date of birth, insurance information, name of requesting physician as well as medical summary should be in the report
- Cannot be reported more than once per 7 days for the same patient
- Cannot be reported if patient was seen by the consultant in the past 14 days
- Cannot be reported if transfer of care, request for face-to-face patient visit or actual visit/procedure within the next 14 days of the consultation (to be certain, best to hold these claims for 14 days before dropping the charge)
- Codes are determined by time spent, including reviewing medical records, lab/imaging studies, medications and medical consultative discussion; more than 50% of the time should be for consultative discussion and not data review.

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<th>CPT Code</th>
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<th>2019 RVU</th>
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<tr>
<td>99448</td>
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<tr>
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</tbody>
</table>

**Example:** A pediatrician in another town asks for your advice as a pediatric nephrologist about evaluation and management of a new nephrotic patient, who cannot travel to your medical center. You determine that the patient does not need hospitalization and can be appropriately managed locally. The discussion of the patient’s care lasts for 15 min, of which less than 5 minutes is spent reviewing the patient’s history, physical exam and labs. A written report summarizing the conversation and your recommendations is sent to the requesting physician and put in the medical record. You never see the patient for a face-to-face visit. The appropriate claim would be CPT Code 99447.

**CPT code 99452**, also created in 2018, is used when you are the requesting/treating physician and request non-face-to-face consultation for medical advice or opinion. This code may only be used when the patient is not on-site with you at the time of the consultation, includes the time preparing for the discussion with the consultant, requires a minimum of 16 minutes and cannot be reported more than once per 14 days.

<table>
<thead>
<tr>
<th>CPT Code</th>
<th>Time required</th>
<th>2019 RVU</th>
</tr>
</thead>
<tbody>
<tr>
<td>99452</td>
<td>≥16 min</td>
<td>1.04</td>
</tr>
</tbody>
</table>

**Example:** A patient with recurrent urinary tract infections has a renal ultrasound and VCUG two days after your face-to-face visit. The findings are equivocal. You prepare a short summary of the case and imaging reports and consult a pediatric urologist via the EHR, who responds back to you with further questions and then advises that the patient needs watchful waiting and no further urological evaluation at this time. You spend a total of 20 min preparing the summary,
sending the initial request for advice and following up with the urologist with several emails in the EHR over two days. The appropriate claim would be CPT Code 99452. The urologist would also be able to claim CPT Code 99451, if his/her time spent was >5 min.

**Upcoming New Codes**

New codes are coming that are of important interest to pediatric nephrologists. A new code for interpretation and management of patient self-measured blood pressure (BP) monitoring data reported to the physician's office between regular outpatient visits was valued by the AMA Relative Value Update Committee (RUC) in January 2019 and will be implemented in 2020. Of course, the biggest upcoming change is revision of the office/outpatient evaluation and management (E/M) visit codes first proposed by CMS for 2019. The highlights of both code sets are summarized below.

**New Self-Measured BP Monitoring Code:** A new CPT Code (currently 99X02) was evaluated and given recommended work RVUs and practice expense at the RUC meeting in January 2019. The actual value for this code determined by CMS will be in the CMS 2020 Physician Fee Schedule due to be published in July 2019. This code is for the physician work outside of an office visit involved in interpreting data from patient self-measured BP twice daily over a 30-day period (minimum of 12 readings) and instructing the clinical staff about what plan to communicate to the patient. This code can only be billed once every 30 days and cannot be billed at the same time as an E/M visit or in the same 30 days as an ambulatory BP monitoring code (93784, 93786, 93788, 93790) or other BP monitoring code (99091, 99457).

**Office E/M Visit Code Revision:** As we all know, in 2018 CMS launched the “Patients over Paperwork” initiative with the goal to relieve physician documentation burden and burnout. In the proposed 2019 Medicare Physician Fee Schedule, CMS outlined its bold proposal to reduce mandated documentation for office/outpatient E/M services and to collapse payment to flat, fixed rates in 2019. Fortunately, in the Physician Fee Schedule final rule, the start date was postponed to 2021, after strong objections from almost all specialty societies, including AAP and the AMA. The current CMS proposal as stated in the 2019 Physician Fee Schedule final rule is to keep CPT Codes 99201-5 (new patient) and 99211-5, but collapse reimbursement into single payments for codes 2-4 with documentation based either on 1) the existing 1995 or 1997 guidelines (current framework), 2) medical decision making only (new criteria outlined in Physician Fee Schedule) or 3) physician time spent face-to-face with the patient. In the revised payment proposal, the physician could document for a level 2 code while providing level 3 or 4 service work, although the physician might want to document more for other reasons, such as malpractice risk or payment from other payer sources. The proposed CMS reimbursement is shown in the following tables:

<table>
<thead>
<tr>
<th>New Patient CPT Code</th>
<th>Current Payment</th>
<th>Revised Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>99201</td>
<td>$45</td>
<td>$45</td>
</tr>
<tr>
<td>99202</td>
<td>$76</td>
<td></td>
</tr>
<tr>
<td>99203</td>
<td>$110</td>
<td>$130</td>
</tr>
<tr>
<td>99204</td>
<td>$167</td>
<td></td>
</tr>
<tr>
<td>99205</td>
<td>$211</td>
<td>$211</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Established Patient CPT Code</th>
<th>Current Payment</th>
<th>Revised Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>99211</td>
<td>$22</td>
<td>$22</td>
</tr>
<tr>
<td>99212</td>
<td>$45</td>
<td>$90</td>
</tr>
<tr>
<td>99213</td>
<td>$74</td>
<td></td>
</tr>
<tr>
<td>99214</td>
<td>$109</td>
<td></td>
</tr>
<tr>
<td>99215</td>
<td>$148</td>
<td>$148</td>
</tr>
</tbody>
</table>
CMS did not ask for the proposed changes to be validated via the usual channels through the AMA CPT Panel and RUC but did agree to listen to proposals from CPT/RUC within a short time frame. So, in Sep 2018, the AMA CPT/RUC set up an E/M Workgroup to rewrite and rapidly vet changes in the codes to meet CMS initiative’s aims, but with the input of the physicians who do the work. The Workgroup’s stated goals were to change current coding and documentation for office E/M visits to simplify the work of healthcare providers and improve the health of patients using the guiding principles of 1) decreasing the administrative burden of documentation and coding, 2) decreasing the need for audits, 3) decreasing unnecessary documentation in the medical record not needed for patient care, and 4) ensuring that payment for E/M is resource-based with no redistribution among specialties. The Workgroup completed its task and presented a proposal to the CPT Panel at its meeting in February 2019. Revised codes 99202-5 and 99212-5 were approved by the CPT Panel and will go the RUC for valuation in April. The revised codes eliminate 99201 and 99211 as not needed. In the revised codes, the service level will be based solely on either medical decision making or total time, including non-face-to-face time, on the day of the encounter. The extent of the history and physical examination will no longer be an element in the code level selection.

The RUC will be reviewing physician surveys by specialty societies and valuing the revised codes at its April 2019 meeting. Over 20 specialty societies of the RUC, including the AAP and the Renal Physicians Association (RPA), expressed interest in doing a randomized survey of member physicians for work value and practice expense to be completed between the end of February and mid-March. You may have received a request to participate in the survey as a member of either AAP SONp or RPA. If so, your completion of the survey is very important to the valuation of these revised codes by the RUC. The RUC recommendations from the April 2019 meeting will be forwarded for review by CMS and hopefully incorporated in the CMS Physician Fee Schedule for 2021 in place of CMS current proposal.

Stay tuned for the final decisions regarding revised office visit CPT codes 99202-5 for new patients and 99212-5 for established patients.

Survey for Parent of Children with Kidney Diseases

The National Kidney Foundation wants to improve care for children with kidney disease. As a first step, we are conducting a survey of parents whose children under 18 years old have kidney disease. We want to know what information would help parents so that we can develop educational materials and resources that will meet their needs. Please take feel free to share this survey with parents by June 1, 2019 at: https://healthunlocked.com/nkf-parents/posts/140263273/survey. Please contact David Feldman with any questions at: david.feldman@kidney.org.

National Kidney Foundation’s and IgA Nephropathy Foundation’s Externally-Led Patient-Focused Drug Development (EL-PFDD) Meeting on IgA Nephropathy

The NKF and IGANF are conducting an EL-PFDD meeting on IgAN to inform the FDA on the patient perspective on living with this disease. Understanding the patient perspective will help the FDA when it decides whether to approve potential medicines for IgAN.

The meeting will be held on Monday, August 19, 2019 at the College Park Marriott Hotel & Conference Center in Hyattsville, MD and will convene patients, care-partners, individuals from the FDA and pharmaceutical companies, and doctors who specialize in IgAN. These participants will assemble to hear from patients, in person, what it's like to live with IgAN. Learn more.
CoPS Updates

Dr. Amy Wilson serves as the AAP Section on Nephrology Liaison to the Council on Pediatric Subspecialties (CoPS). You can view the minutes from the fall 2018 meeting and additional information about CoPS on their website.

Welcome to our New SONp Members

If you know of others who might be interested in joining the Academy and the Section, please have them call Customer Services at: 866-843-2271 or go to the AAP website. Current Academy members may join the Section here (member ID and login required).

The Section on Nephrology Executive Committee

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Executive Committee:
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Daniel Feig, MD, PhD, FAAP
Stephanie Jernigan, MD, FAAP
Juan Kupferman, MD, MPH, FAAP
Brian Stotter, MD, FAAP
Amy Wilson, MD, FAAP

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Douglas Silverstein, MD, FAAP

Nominations Subcommittee:
(no open positions in 2019)
David Kershaw, MD, FAAP

Barnett Award Subcommittee
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S. Paul Hmiel, MD, FAAP

Staff
Suzanne Kirkwood, MS
Manager, Section on Nephrology

Mark A. Krajecki
Journal Production Specialist

For Upcoming Newsletters . . .

We welcome your input and encourage you to submit ideas or information by email to Vikas Dharnidharka at vikasD@wustl.edu or Suzanne Kirkwood at skirkwood@aap.org for future issues of the newsletter.