

# Math Education for Nurses



Newsletter #2 - May 2019



Dear Colleagues,

I am pleased to share our latest newsletter, with thanks to the outstanding work of our Math Education for Nurses Task Force. Co-chairs Dan Ozimek, Assistant Professor of Mathematics at Pennsylvania College of Health Sciences, and Michelle Younker, Chair of the Department of Mathematics at Owens Community College, led our first year focused on:

1. Identifying current challenges in mathematical education for nurses; and
2. Planning for strategies to improve mathematics and quantitative education to strengthen nursing practice and safety.

As we embark upon our second year, these plans are moving into implementation.

Since our last newsletter in November, we've attended several conferences and workshops. Read about our updates, announcements, and upcoming events. Please reach out with any questions and encourage your colleagues to join the task force.

**Martha Ellis, Ph.D.**

Director, Higher Education Strategy, Policy, and Services

The Charles A. Dana Center at The University of Texas at Austin

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## *Conference Updates*

Over the last few months, Math Education for Nurses leaders presented at numerous mathematics, higher education and nursing conferences. In addition to highlighting the current work of the joint task force between the Charles A. Dana Center, the Mathematical Association of America (MAA), and Quality and Safety Education for Nurses (QSEN), these presentations engaged participants in discussions of current challenges facing the field and spread word about how individuals can support the group's work.

### **44th AMATYC Annual Conference (November 14-18, 2018)**

The American Mathematical Association of Two-Year Colleges ([AMATYC](#)) is a leading voice in mathematics education in the first two years of college. At their [annual conference in Orlando](#), project leaders Rebecca Hartzler and Daniel Ozimek presented the poster, "Improving the Mathematics Education of Nurses: A National Initiative." They also connected with educators, curriculum developers, and education specialists from the mathematics community who see improving mathematics education for nurses as an essential issue. We are excited to build on these connections

and work with the AMATYC community to ensure all students are mathematically prepared for safe practice.

### **Joint Mathematics Meetings (January 16-19, 2019)**

Co-sponsored by the American Mathematical Society and the Mathematical Association of America, the [Joint Mathematics Meetings](#) is the “largest mathematics meeting in the world” and is the conference for mathematicians and mathematics educators interested in mathematical research and connecting with the mathematics community. At this year’s meetings in Baltimore, Daniel Ozimek presented “[High Quality Mathematical Preparation and Quantitative Reasoning for Nurses: A New Partnership Between the Math and Nursing Education Communities](#),” which outlined our learnings about the issues and described the next steps for establishing this work as a national initiative.

### **Innovations Conference (February 24-27, 2019)**

Sponsored by the League for Innovation, this conference focuses on innovations that show promising results and address major issues in community college. [This international conference](#) brings together faculty and administrators from all disciplines. At this year’s conference, Martha Ellis presented a concurrent session entitled “Aligning Quantitative Reasoning and Mathematical Skills for the Future Workforce.” Her presentation outlined the work of the Math Education for Nurses initiative as well as additional work by the Dana Center in Math for Manufacturing. There was a good turnout with highly engaged participants.

### **2019 M-OADN Convention (March 28-29, 2019)**

Following last year’s presentations at the 2018 QSEN International Forum in May, project leaders of the Math Education for Nurses initiative were invited to present at the Mississippi Organization for Associate Degree Nursing ([M-OADN](#)) Annual Convention in Biloxi. Daniel Ozimek participated in sessions with two different audiences: “Connecting Mathematics to Practice: Strategies for Developing Confidence and Understanding of Essential Calculations” to over 1,000 students and “Issues and Challenges in the Mathematics Education of Nurses” to faculty. While the sessions were tailored to the individual groups in attendance, both presentations discussed current challenges in the teaching and learning of dosage calculations and other mathematics concepts encountered in nursing practice.

**For questions about conference presentations above, or if your**

**institution or association would be interested in incorporating a presentation about the Math Education for Nurses initiative at an event, please email [Dan Ozimek](#).**

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### *Update on the Multidisciplinary Research Project*

In our last newsletter, we announced the launch of a multidisciplinary research study “Math and Quantitative Reasoning Skills Needed for Safe Nursing Practice Identified Using Global Concept Mapping” led by principal investigator Dr. John Clochesy, Vice Dean and Professor at the University of Miami School of Nursing and Health Studies. The study has received approval from the Institutional Review Board and investigators are currently preparing the survey instrument for dissemination.

Using a global concept mapping computer program, the study aims to identify the mathematical and quantitative reasoning competencies needed for safe nursing practice. A survey will be sent to multiple populations of interest, including faculty teaching pre-licensure students, APRN and DNP nursing faculty, nurse managers, and nurses involved with professional development and continuous quality improvement. The study results will help to inform curricular pathways in mathematics and statistics as well as nursing education.

We plan to send the survey to task force members in the coming weeks, so watch your email for the announcement. Please consider participating in this important work!

### *Mark Your Calendars for Our First Webinar on Teaching Dosage Calculations!*

In February, members of the Dosing Special Interest Group (SIG) met virtually to discuss ideas for a webinar on teaching dosage calculations. The group identified many topics that may be of interest to faculty who teach dosage calculations, including comparing methods of calculation (dimensional analysis vs. proportions and formulas), teaching strategies for estimating and checking one’s work, and

exploring the importance of rounding in the dosage calculation process. While each of these topics could be the focus of future webinars, the topic chosen for our first webinar was dosage tasks and activities for narrowing the classroom-practice gap.

**Please mark your calendars for Tuesday, June 18 at 12:00 PM ET.**

More details, including learning outcomes and registration information are coming soon, so keep your eyes on your inbox!

## *Upcoming Conferences*

Members of the Math Education for Nurses leadership team and the Charles A. Dana Center, along with collaborating mathematics and nursing educators, will present at several conferences this year. If you're attending any of these conferences, please be sure to stop by and connect with us!

### **2019 QSEN International Forum (May 29-31, 2019)**

At this year's [QSEN International Forum](#) in Cleveland, Dr. John Clochesy and colleagues will present the poster, "Math and Quantitative Reasoning Skills Needed for Safe Nursing Practice Identified Using Global Concept Mapping." The poster will update the QSEN community on the interdisciplinary research project mentioned above.

In collaboration with their colleagues at Pennsylvania College of Health Sciences (Lindsay Good, Mathematics Instructor, and Dr. Gayle Watson, Clinical Skills Lab Coordinator), project leaders Anna Wendel (Assistant Professor of Nursing) and Daniel Ozimek (Assistant Professor of Mathematics) will present the poster, "An Interdisciplinary Approach to Supporting Students' Understanding of Dosage Calculations: A Collaboration Between Nursing and Mathematics Faculty." This poster highlights how faculty at Pennsylvania College of Health Sciences collaborated to create lab activities for a variety of clinical situations, including the preparation and administration of insulin, IV fluids, and weight-based dosage. It includes lessons learned from the project and provides information on how nursing and mathematics faculty at other institutions can collaborate in creating environments that integrate essential mathematical skills and concepts in nursing practice.

The poster reception is on Thursday, May 30, from 5:30 PM - 7:30 PM ET.

**45th AMATYC Annual Conference (November 14-17, 2019)**

At [AMATYC 2019](#) in Milwaukee, mathematics and nursing faculty from Pennsylvania College of Health Sciences (Daniel Ozimek, Lindsay Good, Anna Wendel, and Gayle Watson) will present "Building Bridges: A Collaboration Between Math and Nursing Faculty" on Saturday, November 16, at 1:05 PM CT. This 50-minute session will discuss the collaborative project aimed at supporting students' conceptual understanding of the dosage calculation process. Similar to the poster presentation at the 2019 QSEN Forum, this presentation will describe the importance of interdisciplinary collaboration for supporting nursing students' understanding of dosage calculations. It will also provide suggestions for implementing similar projects at other institutions.

During the poster session on Friday, November 15 (2:00 - 4:00 PM CT), Anna Wendel and Daniel Ozimek will present "Improving Math Education for Nurses: Updates of a National Initiative." This poster will update the AMATYC community on the work of the Math Education for Nurses initiative and describe how individuals can help support the initiative's goal of improving mathematics education for nurses.

The following Math Education for Nurses project leaders will also present on other important topics in mathematics education:

- Michelle Younker, Mathematics Department Chair at Owens Community College, "Evolving Math Pathways: Early Lessons from Forging Connections to K-12." This session is scheduled for Saturday, November 16, at 11:55 AM CT.
- Beth Kelch, Assistant Professor of Mathematics at Delta College, "I Understood in Class, But When I Got Home..." This presentation will discuss structuring lessons in light of research on learning and the brain.
- Uri Treisman, Executive Director of the Charles A. Dana Center at The University of Texas at Austin will kick off the conference's "Evolving Math Pathways" strand. He will also be on a panel discussing rigor in mathematics with mathematics education leaders Roxy Peck, David Bressoud, and Alycia Marshall.



## *What We're Reading*

["Applied Pediatric Math: Bridging the Gap Between Theory and Practice for a Diverse Group of Learners"](#) describes the use of simulation lab activities to support students' critical thinking prior to entering their pediatric clinical experiences. Rather than reviewing dosage calculations in the classroom prior to their clinical experiences, students worked through stations in a lab setting and completed a variety of dosage tasks, including weight-based dosage, safe dosage ranges, and IV fluid volumes and rates. Students also connected the calculations to practice and developed their psychomotor skills by preparing and administering the medications at the bedside.

Authors Glenn Murphy and Jackie Murphy are members of the Math Education for Nurses Task Force and the Dosing SIG. They will also co-present during our first webinar on June 18. If you are interested in learning more about their innovative activities for connecting dosage calculations to practice, be sure to read the article and sign up for the webinar!

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*Join Us*

Please join us for a meeting immediately following the close of the QSEN conference on May 31, 2019, 1:00-3:00 PM ET in the NA Building (1st Floor, Room 140) at the [Cleveland Clinic](#). This location is about 10 minutes from the QSEN conference. We plan to give updates on our presentations at the 2019 QSEN Forum and provide details on how task force members can participate in this important initiative. Please email [Dr. Linda Woodard](#) if you plan to attend. She will send you a campus map and parking information for the meeting.

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### *Coming soon...*

Be on the lookout for upcoming emails with details on how to participate in the interdisciplinary research project and on our upcoming webinar. As always, important information, links, and event details are available on our web page: [www.utdanacenter.org/math-for-nurses](http://www.utdanacenter.org/math-for-nurses).

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