Composition of the NICU team: who is caring for our tiny patients now and in the future
What every NICU RN/APRN needs to know!
Michelle M. Kelly, PhD, CRNP, CNE
Roxanne R. Stahl APRN, MS, NNP

Speaker Introductions

• Dr. Michelle Kelly is an assistant professor at Villanova University’s M. Louise Fitzpatrick College of Nursing, coordinating the pediatric primary care nurse practitioner program. Dr. Kelly is a passionate advocate for promoting the health and educational success of children born prematurely. She has published numerous manuscripts aimed at understanding the impact of preterm birth on a child’s neurodevelopmental and educational outcomes. She speaks nationally and strives to increase healthcare provider understanding of these issues. Dr. Kelly is a nationally certified pediatric and neonatal nurse practitioner. She currently provides pediatric primary care to uninsured children as a volunteer at The Clinic in Phoenixville, Penn.

• Roxanne Stahl is an NNP with 35 years of experience as an RN, 25 of those as an NNP. She graduated from the University of Nebraska with her undergraduate degrees and masters/NNP from the University of Colorado in 1994. She has worked in Level I, II and II/IV NICUs but prefers a busy Level II with delivery room service. She served two elected terms on NANNP’s Council, the governing body for all NNPs in the country with multiple publications. She is a chapter author for the book Neonatal Advanced Practice Nursing: A Case-Based Learning Approach, 2017.

Disclosures

We have no financial conflicts of interest to disclose.

This presentation was made possible through a Speaker Exchange with NANN and NAPNAP.
The authors presented a similar presentation in 2019 at the 35th Annual NANN Conference in Savannah, GA.

Learning Objectives

1. Describe the evolution of neonatal care.
2. Discuss workload issues that contribute to the shortage of NICU providers in the US.
3. Address facilitators and barriers to providing appropriate care in the NICU.

Nursery and Special Care Nursery in 1956

• Move to deliveries in hospitals after WWII, 1950s
• “Newborn Nursery” included all newborns
• Average LOS 7 days for vaginal delivery, 10 days for c-section
• RN patient load was 25 babies, with 1 or 2 Orderly/Aides
• “Special Care” meant gavage feeds, incubators with 100% oxygen
• Nurses autoclaved all equipment at night & cleaned the nursery.
• Baby formula new & preferred by society. Glass bottles and vials.
• General Practice “Doctor” made Rounds in mornings
• Paper charting on clipboard, x-rays rare, jaundice treated w/ sunlight, oral route only way for nourishment/meds

Nursery/NICU Historical timeline (Johnson, 2002)

• 1960s first NICUs, terms “neonatology” & “neonatologist”
• 1965: Loretta Ford, PhD, RN & Henry Silver, MD began the first nurse practitioner program at the University of Colorado to prepare advanced practice nurses to provide health care to children
• 1970s Pediatricians, Residents, Interns. Resident hours cut = shortage
• 1973: National Association of Pediatric Nurse Practitioners was founded by 400 PNPs
• 1980s Neonatology established “fellowship” board, “CNS” were NICU nurses that were “experts” – usually home grown, hospital based, no regulation….some called themselves “NNPs”
• 1990s Neonatal RN/CNS/NNP certification (started 1985 w/ NANN affiliation) but not mandatory; seen as “expert” level bonus to add to your title, NANN develops Standards of Education & Practice, Guidelines for NNP program educational preparation
• 2000 Graduate education deemed entry into practice, 2007 NANNP
Most remarkable...

- JFK’s son Patrick died in 1963 of RDS. It is believed that he was between 34 and 36 weeks of gestation.
- Dr Maria Delivoria-Papadopoulos was researching mechanical ventilation in Toronto at the time.
- A 1 kg baby born in 1960 had a mortality risk of 95% but had a 95% probability of survival by 2000.

Roxanne’s Story, NICU in 1986

- Dedicated NICU: RNs, Secretary, R.T., Pediatricians, Residents, Neonatologist.
- RN had acuity-based patient load. Paper charting on Tri-fold sheet, 8-hour shifts...12-hour shifts trialed.
- UAC’s/UVCs very common, saved 25 weeker if weighed >500grams
- Heroin drug of choice in cities, rare to have multiples, common for preemie to be in NICU 4 months & die, because of ventilator dependency.
- Level I, II and III nurseries described; BSN preferred.
- No antenatal ultrasounds, so surprise twins, anomalies frequent.
- Roxanne: 1994 MSN + NNP However, only needed RN to practice.
- No NCC Credentialing. No APRN license, No DEA #, No NPI number.

Michelle’s story, NICU in 2002

- 1994 BSN, PICU nurse at Children’s Hospital of Pennsylvania.
- 1997 MSN, Acute / Chronic PNP from University of Pennsylvania with the intent to work with medically fragile kids (NICU grads, PICU survivors).
- 1998: CICU as a nurse practitioner at Al duPont Hospital for Children.
- 2002: NICU as a nurse practitioner, Pennsylvania still did not require a national certification.
- 2005: Post-master’s NNP certification, continued working in NICU.
- 2012: PhD, full-time faculty, PNP program.

What changed between 1960's and now?

- Regionalized NICU care.
- Ventilation techniques.
- Apgar Scores.
- Hygiene.
- Premie-size equipment.
- TECHNOLOGY.
- Regionalized NICU care.

What does the NICU workforce look like now?

- Who is working in the NICU today...
- Neonatologists.
- NNP.
- Other APRNs: Role vs Experience vs. Education.
- Physician Assistants.
- Hospitalists.
- Increase in female doctors/fellows специалистов.
- How does US differ from other countries?
- All countries reporting shortage.
Change in Composition of the NICU provider/nursing team in the past 5 years

- Some non-neonatal NPs/PAs are taking patients in NICU as NNP shortage grows. Their Scope of Practice does not include sick neonates.
- Foreign nurses/travelers: up to 90% of these convert to that facility (Wofford, 2019)
- Hospitalists/pediatricians taking Lead positions in NICUs
- Who goes to deliveries????? NANN making statement soon...
- Computers taking time away from bedside and families

US NNP:
- Average age 49, average 14.3 years of experience
- Education: 80% Master’s degree, 10% DNP
- 50% work 24-hour shifts
- 43% work rotating shifts
- 82% are expected to work > 35 hours per week

234,000 nurse practitioners in US
- 5,433 = NNP
- 18,357 = CPNP-PC (combined ANCC / PNCB)
- 3,000+ = CPNP-AC (PNCB)
- ~950 = dual certified CPNP PC/AC (PNCB)

NNP supply does not meet demand.

21% report MANDATORY OVERTIME

<table>
<thead>
<tr>
<th>Table 2.4</th>
<th>Distribution of NPs by Certification Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>FNP</td>
<td>66.9%</td>
</tr>
<tr>
<td>PNP-PC</td>
<td>4.0%</td>
</tr>
<tr>
<td>NNP</td>
<td>1.2%</td>
</tr>
<tr>
<td>PNP-AC</td>
<td>0.6%</td>
</tr>
</tbody>
</table>

2018 AANP National Survey of NP Data

NNPs vs other NPs

- NNP Base Salary $130k
- Annual Salary $139k
- Hourly $64.78/hr
- Higher than other NPs (excludes CRNAs)

NICU Reality Disconnect

What really happens in the NICU for staffing and staffing needs not always understood by:

- Administrators – Division Chiefs, CNOs, DON, NICU managers, etc.
- Academia – Deans of Schools of Med/Nursing, sometimes even Program Directors.
- People in these roles are usually NOT Neonatologists or NNP’s, or even NICU RNs.
- It is up to us to educate them
- People do not know what they do not know!
AAP: NICU Provider Workforce Technical Report (Dec 2019)

- Recognizes the preparation and value of NNPs to the workforce
- Recognizes the increasing role of pediatric hospitalists
- Recognizes the limits to PA preparation but provides an avenue for development of specialized training through post-graduate hospital-based training.
- Describes preparation of Primary Care PNP
- Describes preparation of Acute Care PNPs

NICU Workforce Recruitment Strategies

- Recruitment AND RETENTION of RNs, NNPs, Neonatologists
- Academic centers trying new (& old) approaches:
  - For example:
    - Emory (BS in unrelated field)
    - University of Colorado (NNP Fellowship)
    - Vanderbilt 1990's Bridge program
- Military is a great recruiter of nurses...why? They offer incentives!
Our best Advice to recruit...
• Talk to middle, high & college students about your role/job, nursing and advanced practice nursing
• Speak in terms younger generations understand and value
• If NICUs were designed to be the best work environment for your job, you would work there & never leave. Remember the heart of the workforce issue is really our patients! We must ensure the best person is taking care of each baby
• Partner with military to recruit to NEONATAL nurses

NICU Workforce Retention
• NANNP videos to promote the NNP role - designed to showcase what we do to other NP roles, nursing, administration, etc.
• NANNP (Dec 2018) White Paper on senior staffing strategies called “Should I stay or should I go now?”
• Make staying at the bedside a viable option for older MDs/NNPs/RNs and allow those who want or need to move into another role possible
• Incentives, hours, ergonomics, fatigue all very real after 55!

NICU GOALS:
• A collaborative team made up of physicians, NNPs, PNP's, nutritionists, speech, physical and occupational therapists, provides the best care by the best qualified providers for the infant and family.
• PNP's, both primary care and acute care can have a reasonable role in the NICU team: well-baby coverage, attendance at uncomplicated deliveries, sepsis work-ups, transitional nursery etc.
• Need more NPs of all child health specialties!

References
• Hallowell, S.G. & Medoff-Cooper, B. Strengthening Israel's neonatal intensive care nursing workforce. Israel Journal of Health Policy Research 2015. 4:24
• Jorgensen, A.M. Born in the USA – the history of neonatology in the United States: a century of caring. NICU Currents, June 2010
• Payne, E. A brief history of advances in neonatal care. [Blog post], retrieved from www.nicuawareness.org/blog/a-brief-history-of-advances-in-neonatal-care
• Staubler, S., & Bisninger, R. 2016 Neonatal nurse practitioner workforce survey – report of findings. Advances in Neonatal Care, Vo. 17, No. 5, 331-336