AmSECT Perfusion Without Borders
Student Scholarship

Amy E. Evans, BS
Senior Cardiovascular Perfusion Student
Medical University of South Carolina

Overview

- About Novick Cardiac Alliance
- Kharkiv, Ukraine
  - Hospital: Institute of General and Emergency Surgery
- Kyiv, Ukraine
  - Hospital: Amosov Institute
- Conclusions

Novick Cardiac Alliance (NCA)

- Nonprofit organization
  - Founded by Dr. William Novick
  - Mission work since 1993
- Provided >400 surgeries in 2018
- Hospitals are functioning cardiac units
- Important to garner trust of local team
  - Suggested changes will be adopted

Core Principles:
- Collaborate
- Educate
- Innovate
- Sustain
Novick Cardiac Alliance (NCA)

- Goal: sustainable assistance to enable independent pediatric cardiac surgery
  - Over 46 cities in 32 countries
  - 90% of programs now independent
  - Positive outcomes for $2,000-5,000 per child

December 2018 NCA Volunteers

- Dr. William Novick
  - NCA founder
  - Pediatric cardiac surgeon
- Dr. Pavel Shauchenka (Kyiv)
  - NCA staff
  - Pediatric intensivist and anesthesiologist

December 2018 NCA Volunteers

- Frank Molloy
  - NCA staff
  - Pediatric intensive care Registered Nurse
- Anna Kuznetsova
  - Pediatric intensive care Registered Nurse
  - Employed at Seattle Children’s Hospital
  - Several prior NCA trips

December 2018 NCA Volunteers

- Mark Rosin
  - Canadian perfusionist
  - Recently retired
  - Preceptor and mentor
Ukraine
- Eastern Europe
- 1991 → independence from Soviet Union
- Languages spoken: Ukrainian and Russian (~30%)
- Continental climate
  - Temps: 20-100° F

Healthcare in Ukraine
- Universal health care system
  - Basic services free
  - Patients pay for specialists & surgery
- No organ transplants
- Begin medical school ~16 yrs of age
  - 7 years typically
  - Often train abroad
  - Very young surgical teams

Kharkiv, Ukraine
- Founded in 1654
- 1919 - 1934 capital of U.S.S.R
- Second largest city in country
  - Population: ~1.5 million
- Major cultural & industrial center
- Most of local staff displaced from Donetsk, Ukraine after 2014 Russian invasion

Time in Kharkiv
- Arrived Sunday, December 9th
- Stayed at Hotel Rosinka
  - Breakfast every morning
  - 15 minute walk to hospital
Kharkiv Hospital
- Hospital: Institute of General and Emergency Surgery
- NCA trips since 2008
  - December 2018 = last NCA trip

300 cases per year
- 1 cardiac OR
- Adult and pediatrics cases
  - Shared ICU

Time in Kharkiv
- Present and workup pts
- Observed in ICU
- Surgeries Monday through Friday
- Cases performed:
  - 2 PDA ligations
  - Vascular ring repair
  - Repair of mitral valve (regurgitation)
  - 2 TOF repair
  - 2 adult CABGs

Perfusion in Kharkiv
- 1 local perfusionist: Olga
  - Anesthesiologist → transitioned to perfusionist in 2017
  - Speaks English
- 1 perfusion assistant: Yulia
Perfusion in Kharkiv

- Observed Olga's practice
  - Suggestions for safer practice
  - Shared protocols
  - Answered questions
    - Peds practice

- Peds practice

Perfusion in Kharkiv

- CPB machine: Sorin S5
- H/C: Sarns
- Cardioplegia: del Nido & Custodial (made in house)
- Most equipment and disposables donated

Perfusion in Kharkiv

- Cannulas and some tubing re-used

Perfusion in Kharkiv

- After surgery:
  - Rinse in tub
  - Soak in solution for 30 mins
  - Air dry 2-3 days
  - On Fridays, sterilize in machine
  - Seal packaging
Challenges in Kharkiv

- Olga is only perfusionist
  - Lack of continuing education & exchange of ideas
  - Always on call
- No sales representative
  - Connected with LivaNova rep
- Variability in disposables used
  - No holder for Medtronic Pixie reservoir
- ECHO and cath lab are only imaging available

Exploring Kharkiv

- No case(s) on Saturday
- Olga showed Mark, Anna, and I around the city
  - Christmas market
  - Shopping mall
  - Lviv Handmade Chocolate Café
  - City center
  - Churches
  - Gorky Central Park of Culture and Leisure

Kyiv, Ukraine

- Capital of Ukraine
  - Largest & richest city
    - Population: ~2.8 million
    - 7th most populated European city
- Extensive infrastructure
- Heavily developed public transportation
- Many higher education institutions

Time in Kyiv

- Arrived via train Sunday, December 16th
  - 4.5 hour train ride
- Stayed at Hotel Ukraine
  - Breakfast every morning
  - 25 minute drive to hospital
    - Local surgeons drove us each day
Kyiv Hospital
- Hospital: Amosov Institute
- Some of local staff have worked w/ Dr. Novick and team since 1995
- >700 peds cases per year
- 1 large cardiac OR
  - 2 surgeries performed simultaneously
- Adults and peds cases
  - Shared ICU

Time in Kyiv
- Case conference Monday
- Observed in ICU
- Surgeries Monday through Friday
  - No pump cases on Friday

Perfusion in Kyiv
- 2 local perfusionists: Roman and Lyudmila
  - Do not speak English
- 2 perfusion assistants
- CPB machines: Sorin S5 & Terumo S1
- H/C: Sarns
- Cardioplegia: Custodial
  - Anesthesiologist administers
- Some cannulas and tubing re-used

Time in Kyiv
- Cases performed:
  - 2 Fontans
  - Rastelli
  - 2 ASD closures
  - Partial AV canal repair
  - VSD closure
Perfusion in Kyiv
- Observed local practice
  - Reviewed MUF essentials
  - Roman learned MUF on NCA trip
- Put hemoconcentrator in circuit
- Privileged to set up & pump 2 cases
  - Mark precepted

Challenges in Kyiv
- In Kyiv, the following are NOT part of perfusion practice:
  - Level alarm
  - Bubble detector
  - Line pressure monitoring
  - Arterial temperature
  - ACTs → do not have cartridges
    - Run a lab test Q1 hour, if >0% heparin is administered

Challenges in Kyiv
- MUF
  - Difficulty w/ buy-in from local perfusionist
    - Understand importance but pts must purchase hemoconcentrator (~$150)
    - Average income ~$300/month
  - Do not have ultrasound for line placement

Conclusion
- An incredible experience that I highly recommend!
- Gained a new perspective of perfusion
  - Innovative tips
  - Pediatric practice knowledge
- Observing in both Kharkiv and Kyiv ICUs
  - Insight into post-operative care
  - Empathetic ICU team
- Encouraging to see friendships & working relationships that have been established b/t local team and NCA members over the years
Conclusion

- Inspiring to hear how far programs have progressed & eagerness to continue learning
- Grateful for perfusionist resources in U.S.A
- Humbling to know what local team was taught will continue to be used to make a difference
- Privilege to have perfusion education in home country
- Future mission trips

Thank you

- AmSECT Perfusion Without Borders
  - Unique learning experience
- Novick Cardiac Alliance
  - Organizing an incredible trip
  - Allowing students the privilege to participate
- Mark Rosin and NCA volunteers
  - Teaching & making this trip unforgettable
- Local staff at Institute of General & Emergency Surgery and Amosov Institute
  - Warm welcome, gracious hosts, appreciative
- Dr. Joe Sistino, MUSC CVP Program Director
- Dave Fitzgerald, MUSC Clinical Coordinator