

# Pediatric Emergency and Critical Care in Low Middle Income Countries: An International Collaborative Approach to Capacity Building in Kenya

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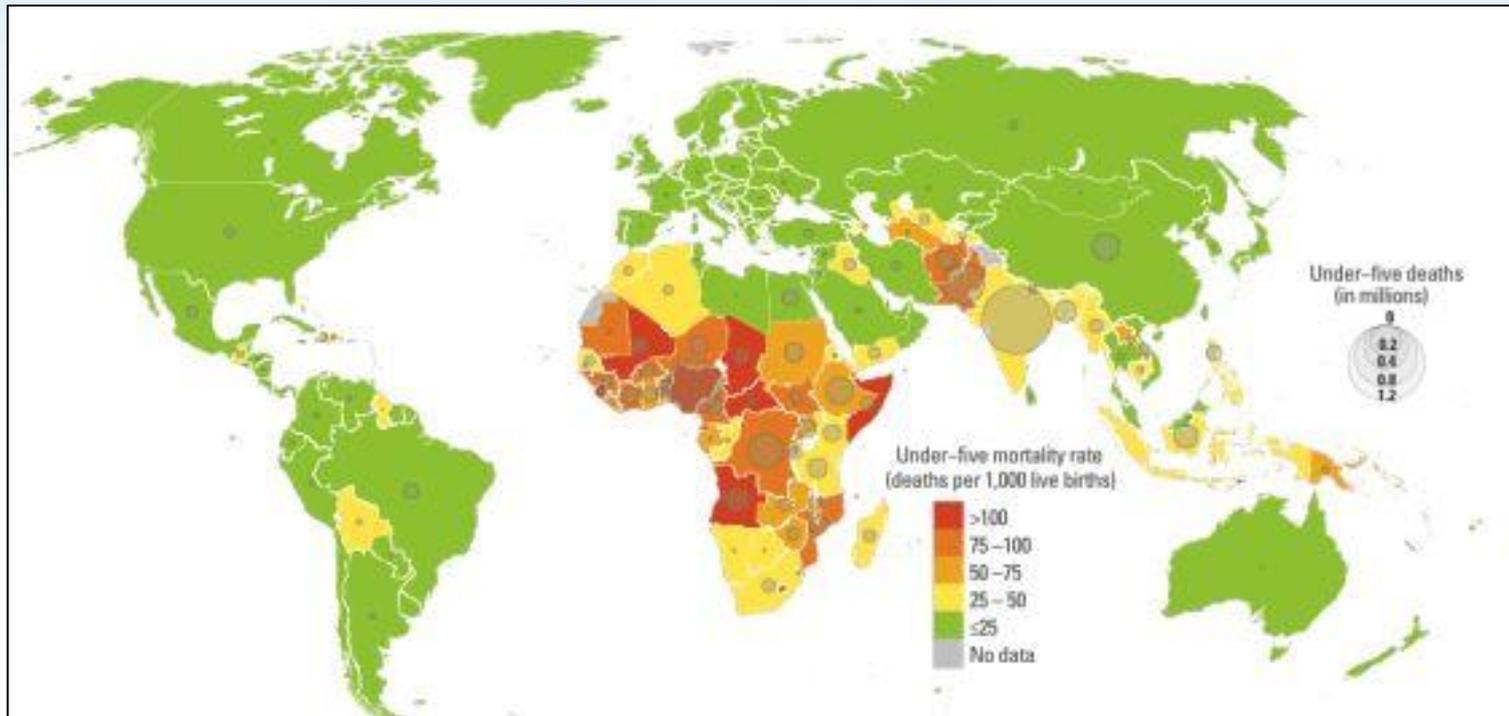


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# The Need

- 90% of global pediatric mortality and critical illness occurs in resource-poor settings, with a daily under-five mortality of 17,000.
- The majority of these deaths occurs in sub-Saharan Africa and is due to preventable and treatable illnesses.



# Pediatric Emergency and Critical Care in LMICs

- 87% of inpatient deaths occur within the first 24 hours of admission
- Advances in early recognition and effective management of critical illness are crucial.
- Specialised Pediatric Emergency and Critical Care are crucial gaps in training & care

Special Article

## Critical care in resource-poor settings: Lessons learned and directions\*

Elisabeth D. Riviello, MD; Stephen Letchford, MD, FACP, FAAP; Loice Achieng, MD; Mark W. N.

*Context:* Critical care faces the same challenges as other aspects of healthcare in the developing world. However, critical care faces an additional challenge in that it has often been

search. Strategies for training and retaining skill tying education to service commitment and deve for even complex processes. Equipment and s

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HEALTH NEWS | Fri Feb 6, 2015 | 10:55am EST

### High rates of child deaths from Ebola, special care needed: WHO



United Nations Children's Fund (UN) drive in Toulepleu, at the border of Guineagon

frontiers  
in Pediatrics

published: 18 February 2016  
doi: 10.3389/fped.2016.00005

CrossMark

## A Review of Pediatric Critical Care in Resource-Limited Settings: A Look at Past, Present, and Future Directions

Erin L. Turner<sup>1\*</sup>, Katie R. Nielsen<sup>2</sup>, Shelina M. Jama<sup>1</sup>, Amelie von Saint André-von Arnim<sup>2</sup> and Ndidiama L. Musa<sup>2\*</sup>

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Five years ago, United Nations world leaders defined millennium development goal 4 (MDG 4): to reduce under-5-year mortality rates by two-thirds by the year 2015. Unfortunately, only 27 of 138 developing countries are expected to achieve MDG 4. The majority of childhood deaths in these settings result from reversible causes, and developing effective pediatric emergency and critical care services could substantially reduce this mortality. The Ebola outbreak highlighted the fragility of health care systems in resource-limited settings and emphasized the urgent need for a paradigm shift in the global approach to healthcare delivery related to critical illness. This review provides an overview of pediatric critical care in resource-limited settings and outlines strategies

# The current situation

- Kenya has three trained Pediatric intensivists serving a population of 17 million children.
- There are no Kenyan-born Pediatric Emergency Medicine sub-specialists in the country.
- The African continent has only two training centers in Pediatric Critical Care; none in Pediatric Emergency Medicine.



# Final journey for Kenya's youngest and second-longest serving ICU child patient

By Joy Wanja Muraya  
Updated Sat, August 22nd 2015 at 00:00 GMT +3

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Milan in his hospital bed at KNH, and his mother. The family visited their son for the three weeks he was admitted to the hospital. (PHOTO: JENIPHER WACHIE/STANDARD DIGITAL)

It was a burial of a kind. At his tender age, he brought together hundreds of people from the little-known Mutomo village in Gatundu to celebrate Kenya's youngest and second-longest serving ICU child patient, four-year-old Milan Mburu.



Medics at the Kenyatta National Hospital in Nairobi say his resilience kept him alive for years and two months on bed number 20 at the Critical Care Unit.

Milan was first admitted to KNH when he was only six months old on June 4, 2012, with a lung infection but when it cleared up, the doctors could not discharge him because he could not breathe independently.

That he breathed assisted by machines made the ICU ward his second home where

### NEWS

POSTED 24/8/2013

# When life depends on machines: The grim story of ICU patients



PHOTO | EMMA NZIOKA Baby Millan Mburu, who is now one year and eight months old.

By **JOY WANJA MURAYA**  
More by this Author

### IN SUMMARY

- There are only 50 properly equipped ICU beds in public hospitals in a population of 40 million Kenyans
- The ratio at KNH's ICU is one nurse for every two patients. At most other hospitals, they allocate two nurses for every three patients



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## Hospital Officers in Trouble Over Baby Dominic's Death

By MARY KULUNDU on Sat, 13 February 2016 - 10:47 am @MaryKulundu mary@kenyans.co.ke

JUSTICE



Mama Lucy Kibaki Hospital. GOOGLE IMAGES



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Nairobi Governor Evans Kidero has ordered probe into the death of a 3-month-old baby that is linked to negligence at the Mama Lucy Hospital.

Kidero stated that the county had launched investigations to establish circumstances that led to baby Dominic Otieno's demise, who was reportedly denied access to ambulance services while at the hospital.



University of Nairobi



# Pediatric Emergency and Critical Care-Kenya (PECC-Kenya)

- Recognizing the urgent need for a Pediatric Emergency and Critical Care training program to serve the region, we built a global partnership to fill the educational gap.
- Built on prior relationships, the University of Nairobi (UoN) and Gertrude's Children's Hospital (GCH) in Kenya approached the University of Washington/Seattle Children's to help develop a fellowship training program in Pediatric Emergency and Critical Care in Kenya.



# PECC-Kenya

## Mission and Vision

- A core group of Kenya- and Seattle-based pediatric emergency and critical care specialists formed in 2012-13 and determined the PECC-Kenya partnership's mission:
  - **To improve the management and outcomes of critically-ill children in sub-Saharan Africa through education, research, advocacy, service, and effective global partnerships.**

# PECC-Kenya Fellowship Development

- Many collaborative meetings over the years structured the fellowship
- A detailed fellowship curriculum based on local needs and resources was developed with key experts during a 2-day workshop in Nairobi
- Representatives from the Kenyan Paediatric Association and Ministry of Health solidified fellowship content, structure and goals.



# PECC-Kenya Fellowship

- UoN, Kenyatta National Hospital, AIC Kijabe Hospital and GCH will offer a
  - Joint 2-year fellowship program in Pediatric Emergency and Critical Care providing a UoN certificate in PECC.
  - Experience/training in public and private, urban and rural healthcare settings,
  - Leadership, project management and implementation science training



# Goals of PECC-Kenya

- Healthy partnerships, respect for local human resource and culture, and an in-depth understanding of resource-poor settings.
- Program commencement Sept 2017
- Monthly visiting specialists in the 3 initial years of program operation to supplement local trainers, helping long-term program sustainability.



# Goals of PECC-Kenya

- 3 fellows per year
  - 6 graduates by 2020, core faculty for future trainees
  - 36 graduates by 2030 working throughout Kenya and other East African countries
- Ultimately the program to become self-sustainable and run by local faculty.
- PECC-graduates transforming their local healthcare systems for better outcomes in critical illness.

# Challenges of PECC-Kenya

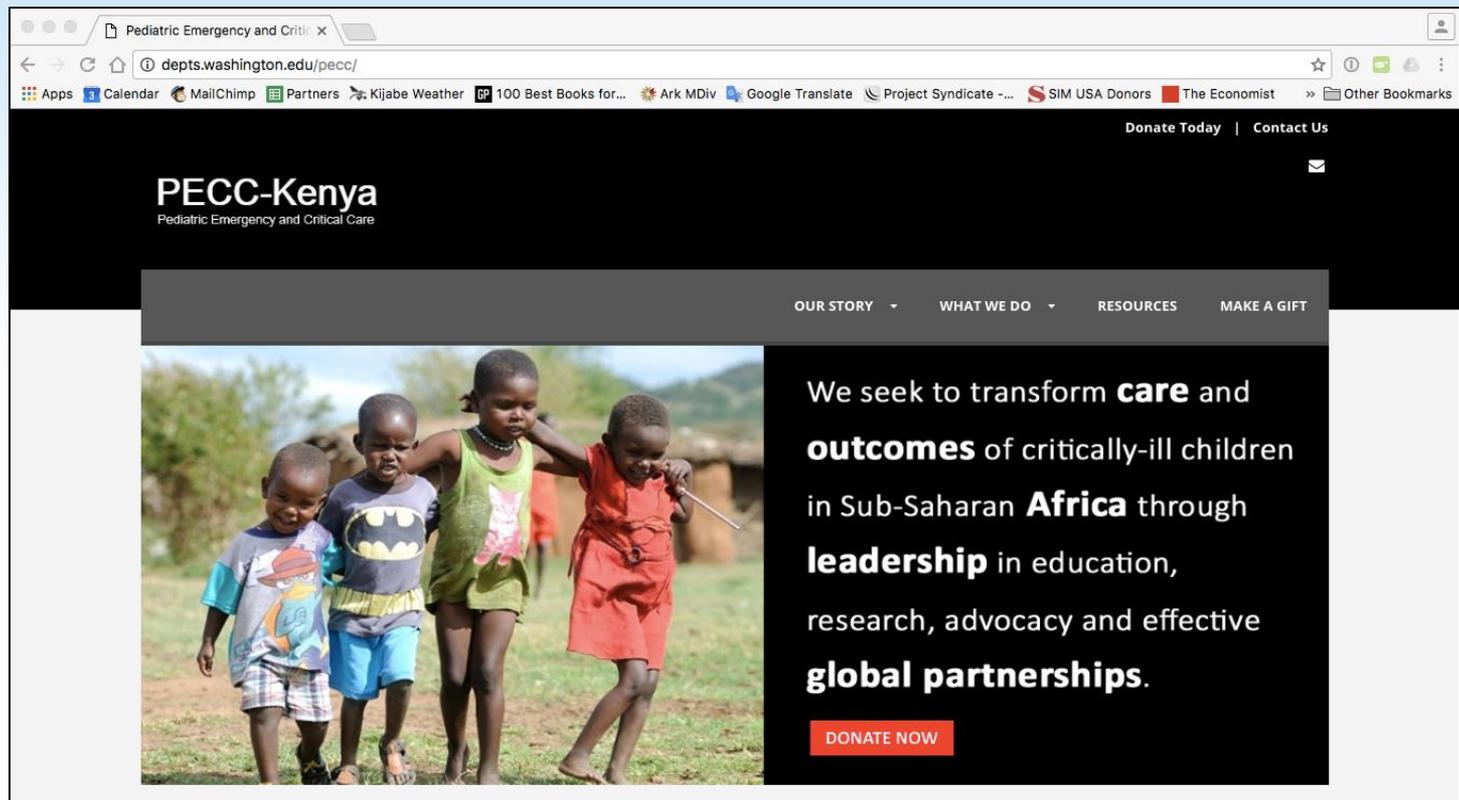
- Academic recognition of “fellowship” training
  - very few pediatric fellowships currently recognized in Kenya (pediatric endocrine, anesthesia, surgery)
- Sustainable funding for capacity building programs
  - Outcome data of pediatric critical care and emergency interventions in limited resource settings needed to proof the point
- Small core faculty constantly overwhelmed by clinical duties – protected time impossible!
- Local faculty attraction / retention to maintain consistent standards
  - Focused recruitment

# Summary

- The burden of critically-ill children in Low Middle Income Countries is disproportionately high.
- Sustainable capacity building in critical care and emergency medicine is a slow, time-consuming, resource-intensive process.
- To achieve beneficial results we need to combine local and global expertise, commitment, and support.

# Thank you

- For more information see [www.pecc-kenya.org](http://www.pecc-kenya.org)
- Contact drash..or [pecc@uw.edu](mailto:pecc@uw.edu)



The screenshot shows a web browser window displaying the PECC-Kenya website. The browser's address bar shows the URL [depts.washington.edu/pecc/](http://depts.washington.edu/pecc/). The website header includes the text "PECC-Kenya Pediatric Emergency and Critical Care" and navigation links for "OUR STORY", "WHAT WE DO", "RESOURCES", and "MAKE A GIFT". A large photograph of four children in a rural setting is featured on the left. To the right of the photo, a text block reads: "We seek to transform **care** and **outcomes** of critically-ill children in Sub-Saharan **Africa** through **leadership** in education, research, advocacy and effective **global partnerships**." Below this text is a red button labeled "DONATE NOW".