

# Preparing for Paediatric Ebola

## A work in progress

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# The Beginnings

- 26.12.013 18/12 male toddler in an isolated forested village became ill
- 28.12.2013 RIP
- 05.01.2013 Sister RIP
- 06.01.2104 Pregnant Mother – miscarriage & RIP
- 11.01.2014 The index families house guest returned to Sierre Leone and died.
- 10.11.014 >13,000 cases, > 4,500 deaths

# Children & Ebola



# Children & Ebola

- Generally comprise a small percent of the cases
  - 1995 Zaire outbreak: >50% population < 18 yrs but only 9% EVD cases < 18yrs
    - *Pediatr Infect Dis J* 1996;15:189-191
  - 2014 Guinea: 18% cases in children
    - *JAMA Pediatrics* 2014, [jamapediatrics.com](http://jamapediatrics.com)
  - 2014 In 4 affected countries: 13.8% <15yrs
    - *NEJM* 2014 doi:10.1056/NEJMMoa1411100
- Why are children relatively spared
  - Cultural practices – not involved in burial practices
  - Limited direct contact with those who are ill ( prior outbreaks <20% household contacts of an EVD case acquire infection)

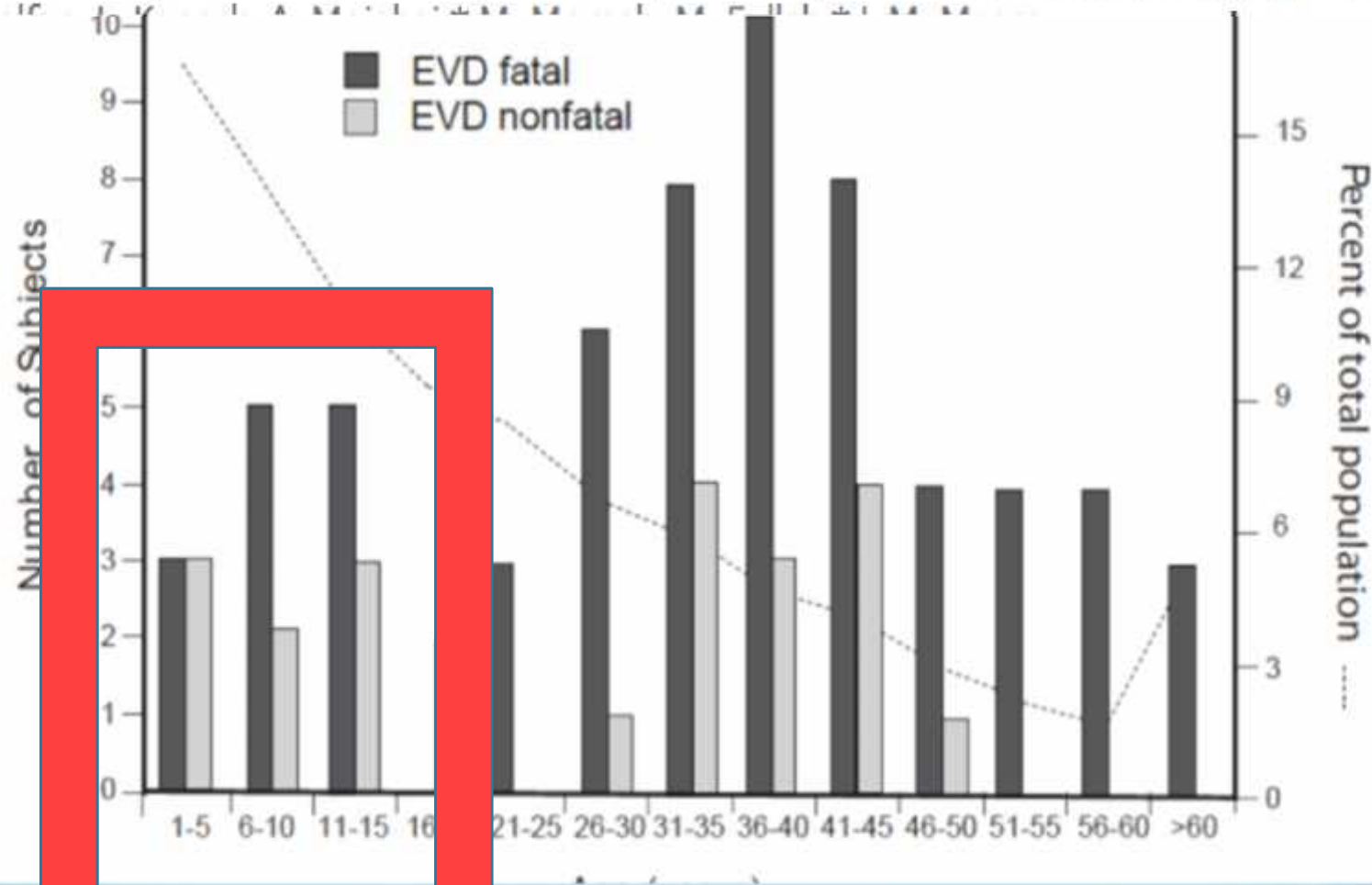
# Manifestations in children

- Fever, headache, myalgia, abdominal pain and weakness
- Progressing several days later to vomiting and diarrhoea
- Less commonly bleeding and bruising
- **Problem of differentiation from other childhood illnesses**
- Importance of **exposure history**
  - Travel history or history of direct contact
  - Within the 21 day time frame



# Clinical Illness and Outcomes in Patients with Ebola in Sierra Leone

J.S. Schieffelin, J.G. Shaffer, A. Goba, M. Gbakie, S.K. Gire, A. Colubri, DOI: 10.1056/NEJMoa1411680



About 20% cases <16yrs

# Paediatric Outcomes

Countries ( N)	Paediatric cases (%)	Overall CFR	Pediatric CFR (age cut off)
Sierra Leone 213 suspect 106 dx (50%) 87 kn outcome	25/87 (28.7)	75%	57% (<21yrs)
Guinea 80 suspect 37 dx	0	43%	n/a
WHO 5 countries			
4507 prob/dx 1737 kn outcome	190/1378 (13.8)	73.6%	74.3% (<15yrs)

# Considerations for paediatric HCW

- High index of suspicion **IF** travel and exposure history within previous 21 days (use HPSC risk assessment tool)
- Most however will have malaria, measles, typhoid or other infections
- Prompt implementation of infection control precautions – as with adult suspect EVD patients
- **BUT DO NOT FORGET** to consider and appropriately treat other potential causes



# So what happens when....

- Parents & Child from endemic country present to ED?
- All EDs to have designated area with PPE/SOPs/algorithms readily available
- **First Steps:**  
If any ? re EVD direct to designated single room, maintaining a distance of 2 m (No hand holding!)
- One parent/carer only to accompany the child. Other **well** adults/children to be sent home.
- Should an accompanying adult be unwell – activate the adult care pathway.
- The most experienced staff to engage with the family

**Phase 1**

- Initial Triage & suspect case identification and initial resuscitation (0-2 hours)

**Phase 2**

- Stabilisation while awaiting test results (2-12, possibly 24 hours)

**Phase 3**

- Transfer to NIU

**Phase 4**

- Ongoing care of pediatric EVD patient

**Phase 1**

- Initial Triage & suspect case identification and initial resuscitation (0-2 hours)

**Phase 2**

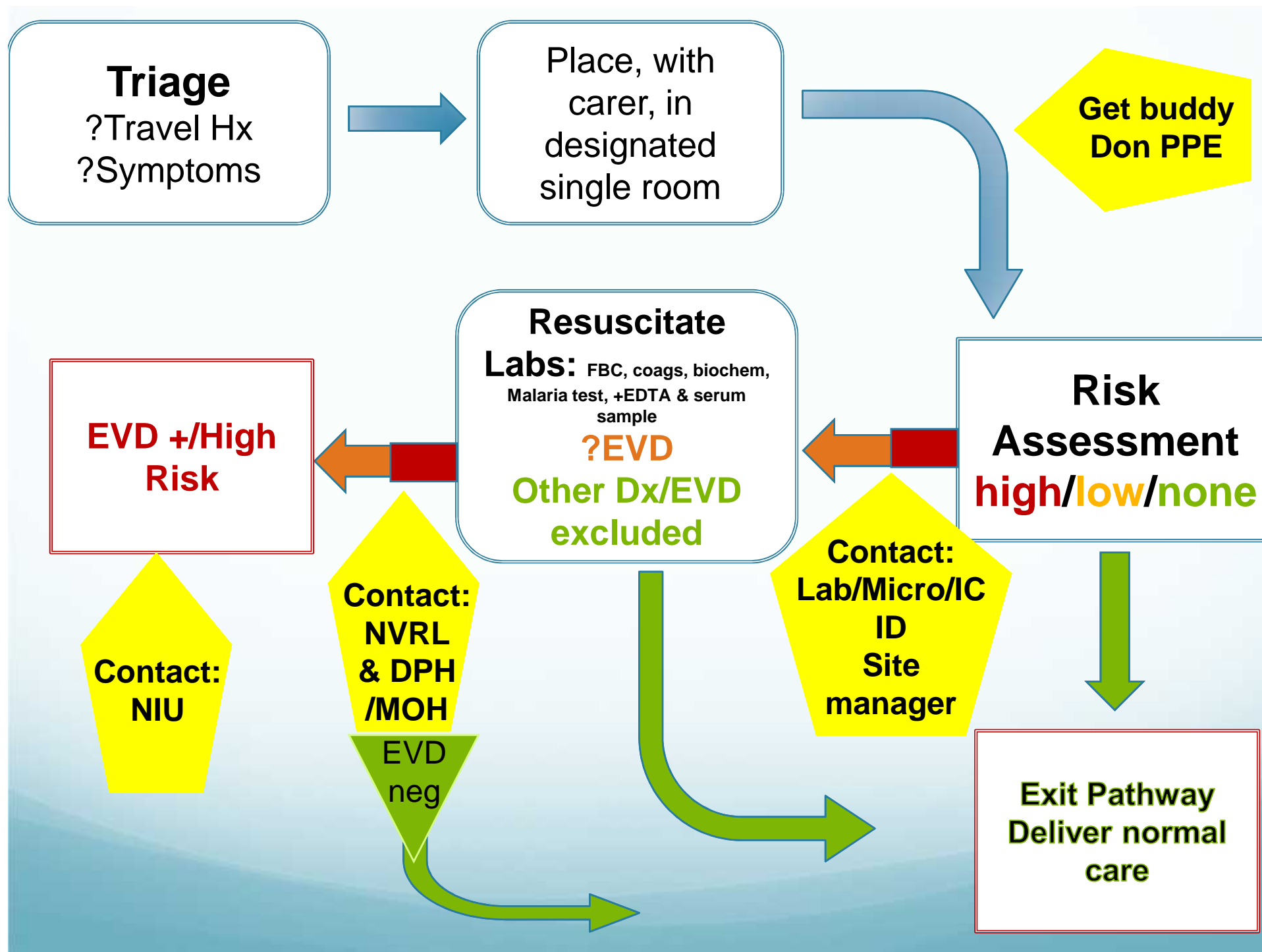
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**Phase 3**

- Transfer to NIU

**Phase 4**

- Ongoing care of pediatric EVD patient



# Paediatric Ebola Acute Care Pathway (in preparation)

## Paediatric Ebola Management Pathway

### PHASE 1: Initial triage, suspected case identification & initial resuscitation (0-2 hours)

All patients presenting to the Emergency room should be asked if they have been to an endemic area (as defined by WHO) in the last 21 days and if they have had a fever in the last 24 hrs. ONLY patients who have:-

- A) been in an EDOA endemic area with diarrhoea resolving 21 days AND fever OR had direct contact with an ebola case and are unwell
  - B) have/had fever > 38.5°C OR had direct contact with an ebola case and are unwell
- are subject to the following management pathway.

#### Triage

- Put patient together with the accompanying carer in single room with light entry.
- Direct the patient to the designated isolation room maintaining a distance of 2m (about 6 feet) from the patient.
- If it is not needed to verbally direct the patient from more than 2m away.
- The door should be closed and staff in full, the local infection control team/infectious/infectious diseases physician alerted in the clinic.
- The DNV/ADON/IC manager or medical staff also be contacted.

#### Risk assessment

- The senior member of the medical team responsible for acute care of patients (e.g. Emergency Medicine Consultant, ID consultant or admitting team Consultant) is to commence clinical risk assessment using the Ebola virus disease risk assessment for use in hospital settings algorithm and the clinical risk assessment form available at: <http://www.hpa.gov.uk/about-us/ebola-virus-disease-risk-assessment-form>.
- The small Paediatric Infectious Disease Consultants (CI PICU, South Operator CI 2045100 or CIUW switch operator 01 262 200) and the Consultant in Infectious Diseases at the Mater National Isolation Unit (CI 8031000 Mater Switch Operator ask for ID consultant on call) are available for consultation at this stage, if required.
- The medical and nurse should discuss the room wearing appropriate PPE.
  - a. Put on PPE (goggles/visor, "duck-billed" PPE mask, waterproof surgical gown, surgical gloves that go over wrist, robe and shoe covers).
  - b. If the patient is bleeding or vomiting then shoe covers and robe/uniform should also be put on.
  - c. A "body system" should be used. In this system a second staff member will wait to inform the staff member who is putting on the PPE. It is important that when one is finished.
- Ask the questions from the risk assessment tool and determine if the patient is high risk.

Checklist: LORCA: What to do when you have a high risk patient?

- The patient should be asked if they have had a fever in the last 24 hours and their temperature should be taken.
  - a. If they report having had a fever or if they have a temperature > 38.5°C then the rest of the policy should be followed (see PPE algorithm).
  - b. If they report a direct contact with a case and are unwell, precautions should be taken (see PPE algorithm).
  - c. Ask the patient if they have been vomiting or if they have bloody diarrhoea, abdominal pain or severe headache.
- The reason that this explains in the patient's history is to describe pending infections with the infectious agent (e.g. ebola virus).
- If it appears that the risk of ebola is real, then the medic will remain in the room to carry out a more detailed medical assessment and resuscitation. Should they need to leave the room they should instruct the adjacent ward room to be cleared before they step outside the room to take off their PPE.

#### Essential equipment to be brought into the patient room

- Essential equipment to be brought into the patient room
  - a. Oxygen for vital signs
  - b. PPE
  - c. Risk assessment tool, algorithm and policy for Ebola
  - d. Temperature probe
  - e. Commode/nappe depending on sex of the patient. Consider rectal collection tube if severe diarrhoea is present.
  - f. Tray for IV, urine, sputum, stool, with relevant blood bottles for tests (EDTA bottle x 2 for FBC and malaria, Lithium heparin bottle for U&Es, T<sub>4</sub>, serum glucose, urea/creatinine).
  - g. A plastic bag should also be taken in to hold the blood samples as well as the sample containers.
  - h. IV fluid bag with line to connect.
  - i. OR device should be brought in as well if patient is unwell.
- The microbiology laboratory identification call should be contacted to send the specimen boxes up to the lab.
- Check patient's vital signs including performing a dehydration assessment.
- Consideration should be given to initial resuscitation measures that are needed
  - a. Basic resuscitation (ABC) including oxygen
  - b. IV fluids (e.g. Hartmann's solution) or glucose solution
  - c. IV antibiotics
- The most skilled person available should insert IV cannula and take the blood samples (FBC, Malaria + F, U&Es, Coag, Glucose, urea/creatinine, T<sub>4</sub>, serum PT/INR sample, sputum, stool sample). The blood should be placed in the specimen containers for transport to the lab.
- With the medical assessment complete and samples obtained, the door to the room should then be opened, the staff member step into the designated clothing area, and then the door closed.

# Paediatric Issues

- ‘Facility’ of NIU available to paediatric patients
- Requirement for trained paediatric staff to work in partnership with NIU staff
  - Consultants
  - Nursing
  - NCHD
- Working to manage current critical shortfall in ability to provide paediatric critical care





# Paediatric Planning

- Long Term (very long term)
  - Incorporation of level 4 isolation unit in NCH
- Interim possibilities
  - Development of modular pediatric isolation unit with PICU adjacency on a paediatric campus to enable critical care cover
  - Evacuation of paediatric patients to a facility resourced for paediatric PICU care
  - Paediatric care for EVD patients to be delivered in the NIU, recognizing limitation of PICU level care that can be provided

# In conclusion..

- Key is early identification – ask the travel history
- Low risk transmission in the early stages
- Not all possible scenarios can be anticipated
- Remember expertise is available at the end of a phone
- “Preparation is a continuum”  
*Darina O Flanagan quoting Joe Schmidt*
- More undoubtedly to follow.....

# Acknowledgments

- The many many people in the HPSC, TCUH, OLCCHC, PICU and the NIU who are working together to come up with a workable plan, given the limitation of resources to deal with the possibility of a child suspected to have EBOLA
- Much done but lots more to do.
- Thank you.