

# Emergently Accessing a Higher Level of Care: Referral System Strengthening Efforts to Improve Maternal and Child Health in Cambodia



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## Introduction

- Despite many advances, women and children in Cambodia continue to suffer elevated morbidity and mortality from conditions amenable to emergency care
- Many barriers limit access to quality emergency services, including geography, transport availability, cost of care, facility capacity and provider coverage
- **Enhancing effectiveness of the Cambodian referral system** was identified as an impactful means of overcoming many of these barriers and improving timely access to emergency care
- Interventions were created to improve each link in the chain of emergency survival



Defunct ambulance parked at the Memut Referral Hospital, Tbong Khmum Province

## Identification + Prioritization of Ill Patients

- Delays in care often caused by a lack of recognition of emergency conditions and failure to prioritize care of sick patients
- Patients arrive at facilities in large groups, seen based on their order of arrival
- Providers lacked experience in recognizing danger signs and ill patients
- A simple, **Cambodia specific triage system** was initiated at referral hospitals to help providers rapidly identify and prioritize sick patients

<b>Airway/Breathing</b>	Cannot talk in complete sentences or obvious respiratory distress	<input type="checkbox"/>	SpO2%	If any of these symptoms identified choose <b>Triage Red</b> color and send directly to Resuscitation area
	Central cyanosis	<input type="checkbox"/>		
	SpO2 <90%	<input type="checkbox"/>		
<b>Circulation</b>	Pulse Rate <40 or >140 [adult]    <60 or >160 [pediatric]	<input type="checkbox"/>		If any of these symptoms identified choose <b>Triage Orange</b> color and send directly to Resuscitation area
	Rapid Uncontrolled Bleeding	<input type="checkbox"/>	PR	
<b>Disability</b>	Responds only to Pain or Unresponsive	<input type="checkbox"/>		
<b>Adult Priority Signs</b>				
Headache: sudden AND severe	<input type="checkbox"/>	Femur Deformity	<input type="checkbox"/>	If any of these symptoms identified choose <b>Triage Orange</b> color and send directly to Resuscitation area
Eye Emergency: chemical splash	<input type="checkbox"/>	Trauma: not isolated to extremity	<input type="checkbox"/>	
Burns on face or large area	<input type="checkbox"/>	Urticaria with difficulty breathing	<input type="checkbox"/>	
Difficulty Talking or Localized Motor Weakness: in last 12 hours AND ongoing	<input type="checkbox"/>	Poisoning or Overdose	<input type="checkbox"/>	
Fever with neck pain OR altered mental status	<input type="checkbox"/>	Violent OR Agitated	<input type="checkbox"/>	
Chest Pain onset <12hr AND age >50	<input type="checkbox"/>	Snakebite with Swelling	<input type="checkbox"/>	
Heartrate >130	<input type="checkbox"/>			
GI Bleed, 1 of the following in last 12 hours: Vomiting Blood   Bloody Stool   Coffee Ground Emesis   Black Tarry Stool	<input type="checkbox"/>	Pregnant [visibly or delivery in past 6 weeks] AND 1 of following: Vaginal Bleeding   Fever   History of Recent Seizure   Headache   Blurred Vision   Suspected Labor   Active Labor	<input type="checkbox"/>	
Abdominal Pain: severe and worse with walking OR severe and pregnant	<input type="checkbox"/>			
Cold and Pulseless Limb	<input type="checkbox"/>			
<b>Pediatric Priority Signs</b>				
Age <3 months OR <1 year and not able to feed	<input type="checkbox"/>	Femur Deformity	<input type="checkbox"/>	If any of these symptoms identified choose <b>Triage Orange</b> color and send directly to Resuscitation area
Fever with change in behavior	<input type="checkbox"/>	Trauma	<input type="checkbox"/>	
Lethargy	<input type="checkbox"/>	Severe pallor	<input type="checkbox"/>	
Obvious distress due to pain	<input type="checkbox"/>	Cold or Pulseless Limb	<input type="checkbox"/>	
Eye emergency: chemical splash	<input type="checkbox"/>	Poisoning: History or suspect of ingestion	<input type="checkbox"/>	
Abdominal pain: unwilling to walk	<input type="checkbox"/>	Urticaria with difficulty breathing	<input type="checkbox"/>	
Severe wasting	<input type="checkbox"/>	Burns	<input type="checkbox"/>	
Both leg edema	<input type="checkbox"/>	Snakebite	<input type="checkbox"/>	

Novel, Cambodia specific triage form, which allows providers to effectively identify high risk patients based on vitals and simple screening questions

- **Emergency care and referral guidelines** were distributed to hospital providers to assist them in recognizing critical patients, administering evidence based treatments, and referring in a standardized manner



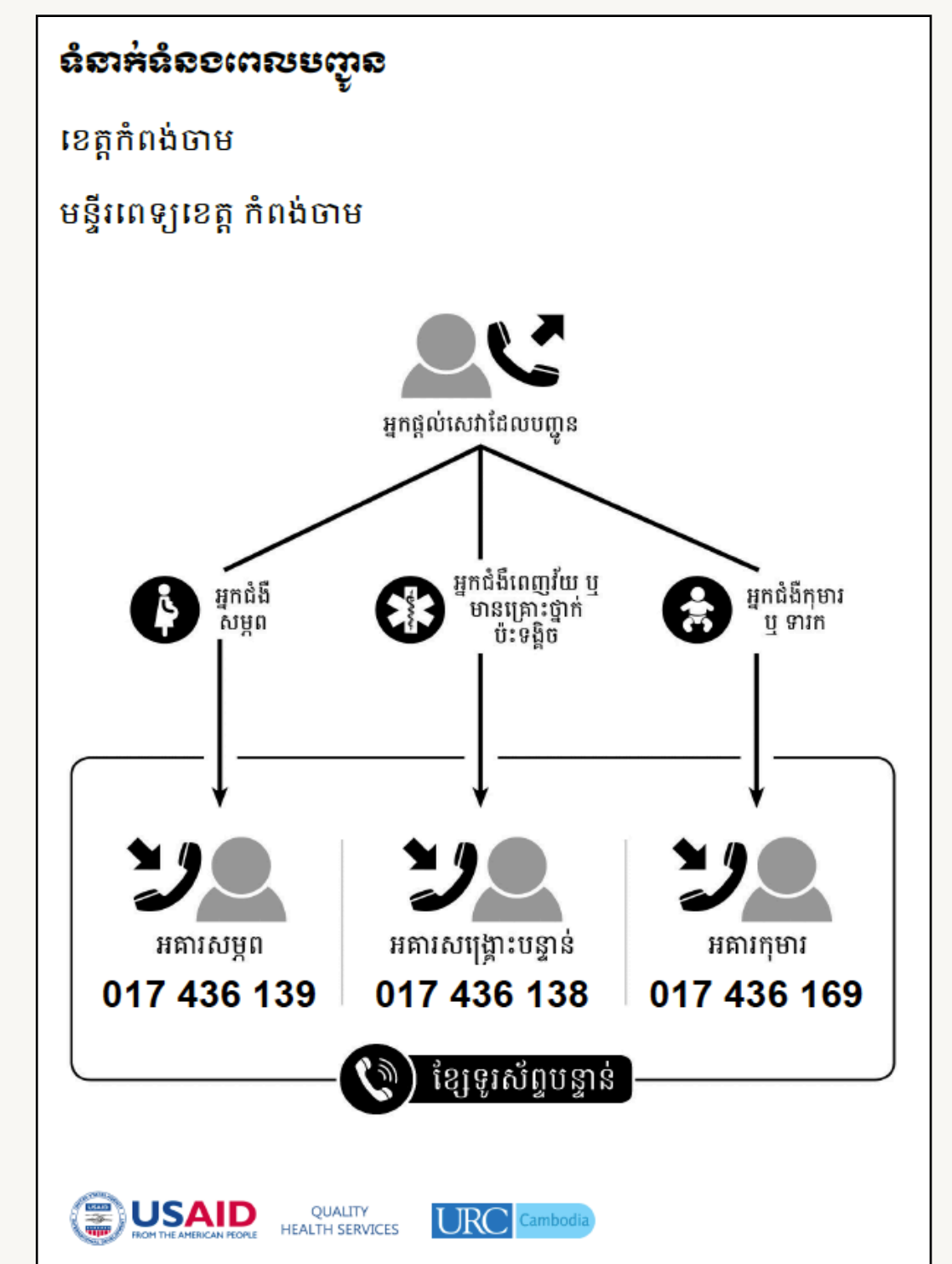
Referral strengthening team member discussing emergency care guidelines with pediatric ward staff at Angkor Chum Referral Hospital, Siem Reap Province

## Referral Communication + Coordination

- Coordination of referral logistics has challenging and labor intensive
- A communication system linking referring and receiving providers has been lacking and a result referral communication occurs infrequently
- A number of tools were created to address these gaps
- A **standardized, MOH approved, referral slip** was implemented to communicate clinical data between treating providers at each level of care
- **Provincial referral hotlines** were established, streamlining the referral process and facilitating real time communication between referring and receiving
- **Ambulance Patient Care Report forms** were created to relay ambulance care information



Left: Head maternity nurse at the Thmar Koul Referral Hospital providing clinical guidance to a referring provider at a local health center. Right: Provincial clinical hotline contact information sheet, distributed to all referring facilities in each province



## Provider Education, Quality Improvement + Feedback

- **Quarterly education and feedback forums** were established
- Providers from each level of the system gathered to analyze referral data, discuss difficult cases, provide mentoring and address systems challenges
- In-service education and skills training addressed noted gaps
- **Prehospital care training** was given to previously untrained ambulance providers to enhance their transports care skills



Referral strengthening project team leader, Dr. Tuon Sovanna, leading a quarterly feedback and education session with emergency department and maternity ward staff at the Serei Sophon Referral Hospital, Banteay Meanchey Province

## Conclusions

- Improvement efforts must be created based on in-depth knowledge of local practice patterns, resources, challenges, and input from end users
- Widespread improvement requires systems based interventions, provider education and capacity building as well as regular, collaborative coaching and feedback

## References

1. World Health Statistics 2016: Monitoring Health for the Sustainable Development Goals. Annex B: Tables of Health Statistics by Country, WHO Region and Globally. World Health Organization 2016.
2. World Bank Indicators (2017). Accessed: Mar 20, 2017. <http://data.worldbank.org/indicator>

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