UCLouvain

Institut de recherche santé et société (IRSS)

Centre for Research on the Epidemiology of Disasters CRED

EM-DAT Activity 3:

Case Studies

Joris van Loenhout, PhD

Maria Moitinho de Almeida, MD MPH

EM-DAT TAG Meeting

Brussels, Oct. 17 2019

Case Studies: Goals

1. Increased resolution of disaster impact (at a local level), in particular on gender and age of affected populations
2. Increase collaborations with local / national partners in disaster-affected countries
3. Strengthen ability of national and regional authorities to collect more accurate and complete disaster data

Case Studies: Selection

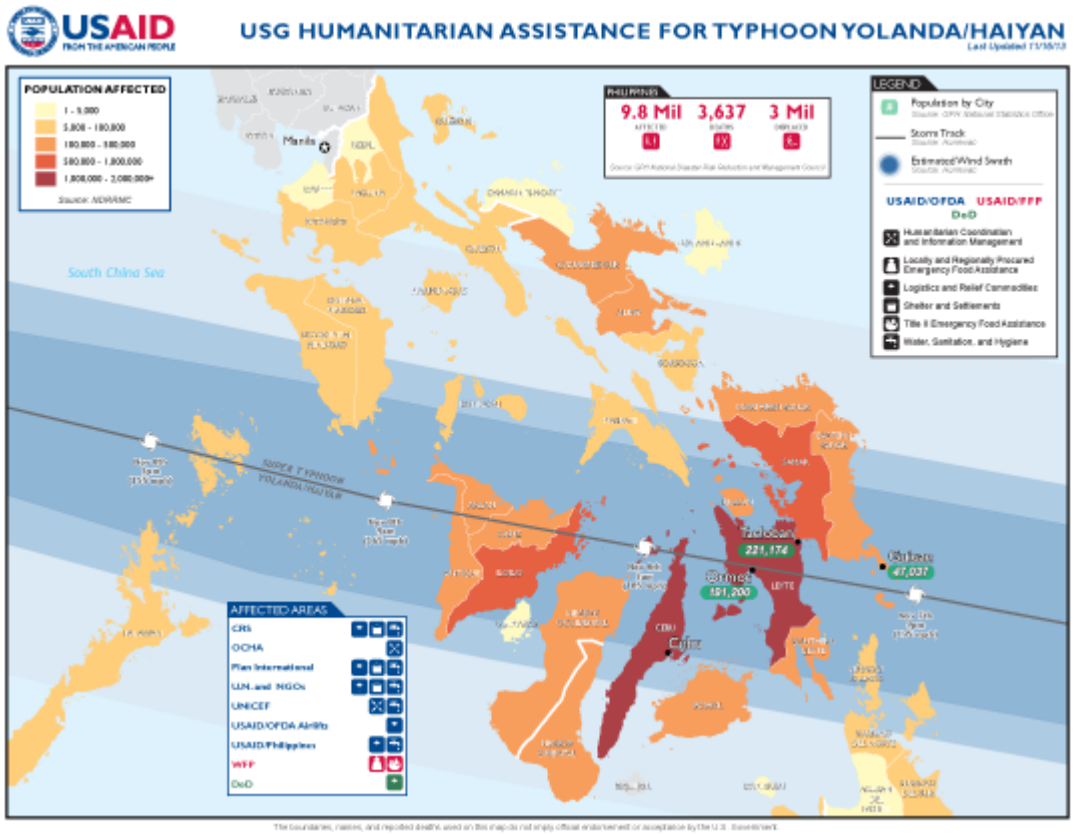
- Eligible case study countries were those with a particularly high impact on the local level
- Regional variation
- Final selection:
  - Typhoon Haiyan (Philippines)
  - Gorkha Earthquake (Nepal)
  - Severe Floods (Mozambique)

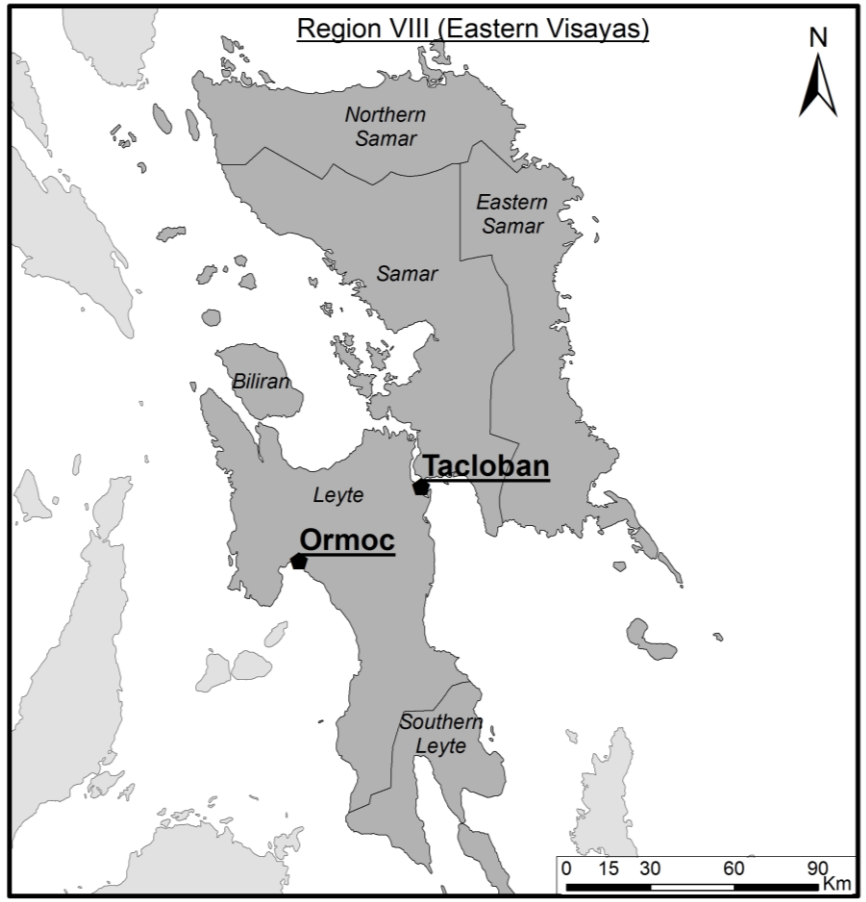
CS1 Philippines: Description

- Occurred on the 8th of November 2013
- Strongest typhoon ever to make landfall on a major island in that region
- Enormous impact
  - Storm surge of > 5 metres
  - 7,000 deaths
  - 16 million affected

City of Guiuan, source NY Times

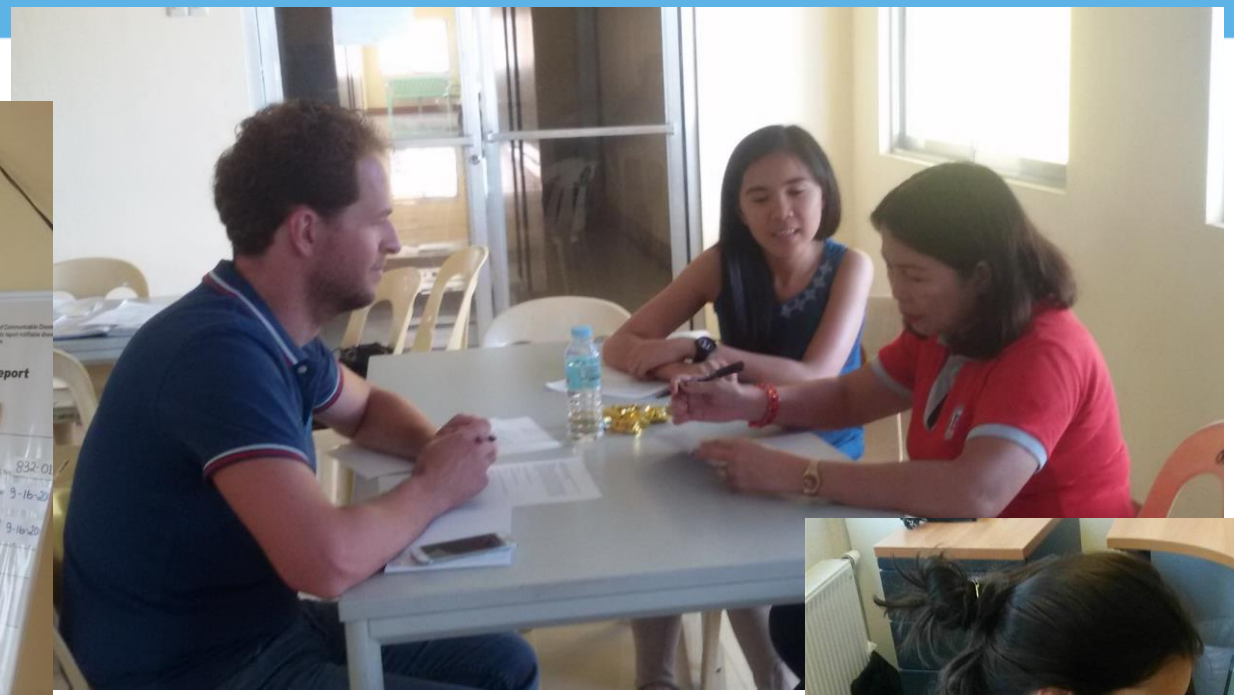
CS1 Philippines: Setting

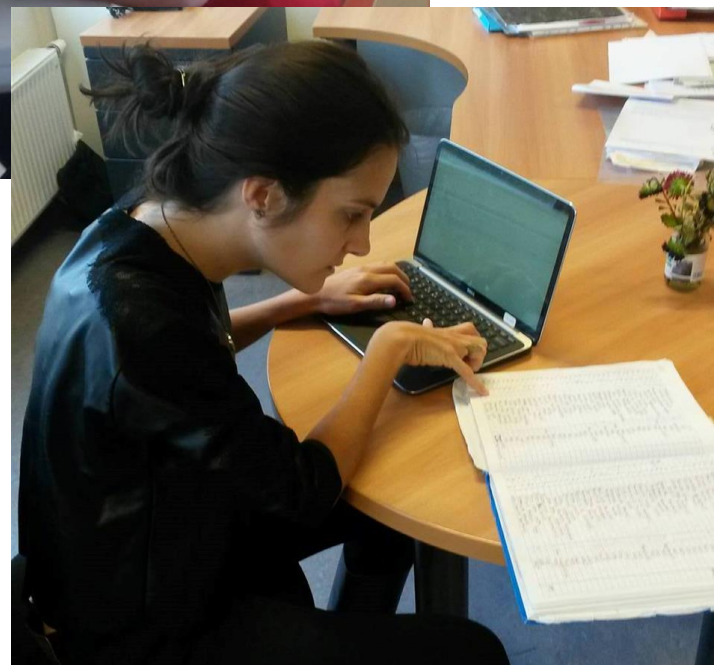




Eastern Visayas Regional Medical Centre (EVRMC)
Ormoc District Hospital (ODH)

CS1 Philippines: 2016 Mission CRED Team





CS1 Philippines: Number of Admissions

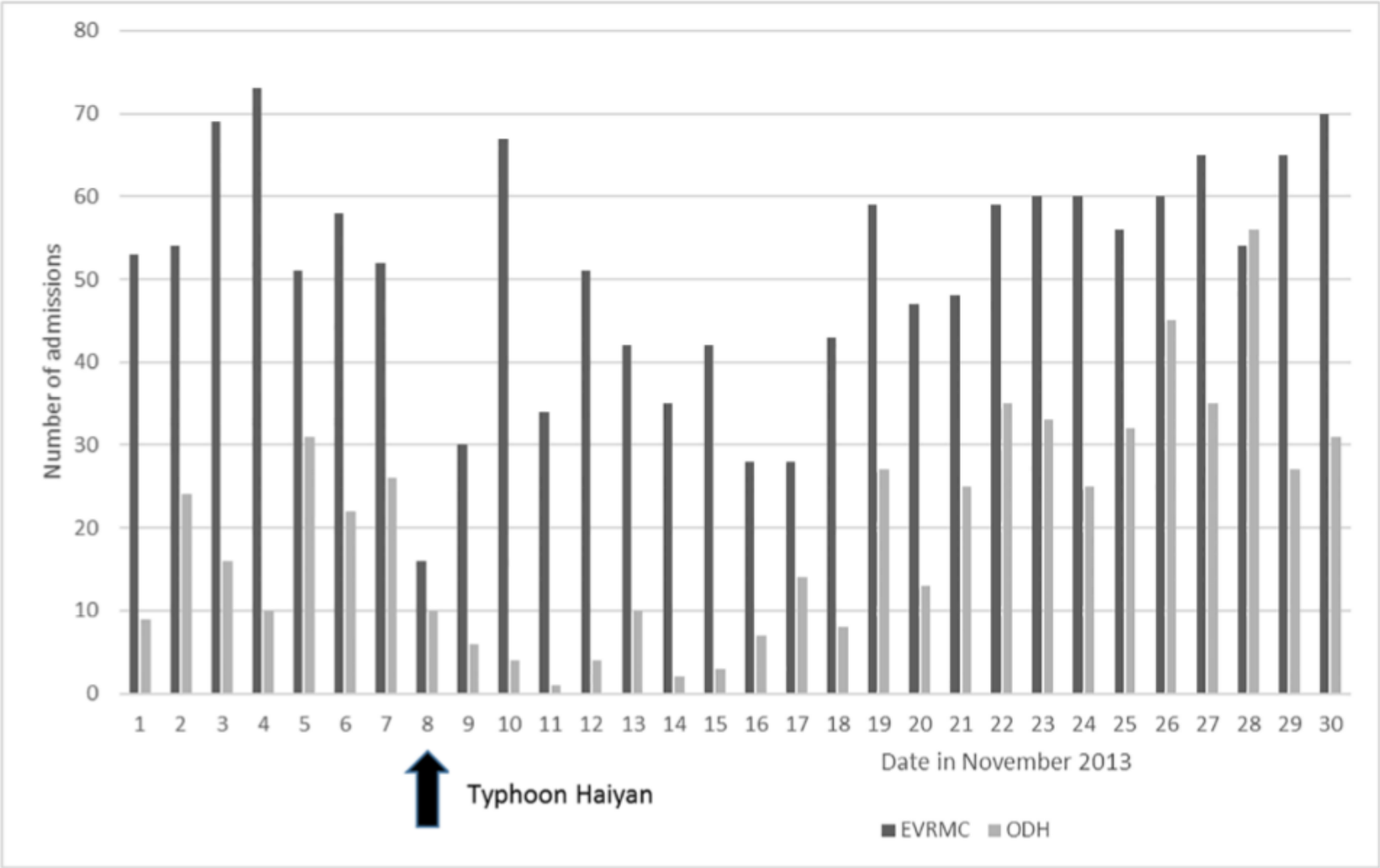


Fig 2. Number of daily hospital admissions before and after Typhoon Haiyan (November 2013) for Eastern Visayas Regional Medical Center (EVRMC) and Ormoc District Hospital (ODH).

CS1 Philippines: Admissions Data

- Increase in male admissions in one hospital (ODH)
- Increase in old (>50) and young (0-14) patients
- Decrease in women going into labour
- Increase in Pneumonia and Diarrhoeal Diseases

CS1 Philippines: Outpatients Data

- Clinic set up by Mercy Malaysia (five weeks after Haiyan)
- In total 6,785 consultations
  - High proportions of acute respiratory infections, especially among children
  - Women consult more than men, but men more for injuries

CS1 Philippines: Interviews

- Interviews carried out with 24 hospital staff members
  - Doctors, nurses, midwives, watchmen and administrative staff
- Main findings:
  - Accessibility main issue
  - Lack of information on safety of relatives
  - Faith was often used as a coping mechanism

CS2 Nepal: Setting

April 25th 2015

Earthquake M7.8

~9,000 dead

~22,000 injured

~8 million affected

CS2 Nepal: Setting

CS2 Nepal: Data

2 field missions

- Two rounds for data verification (hand search)
- Two independent researchers

Nepal I: Earthquake victims

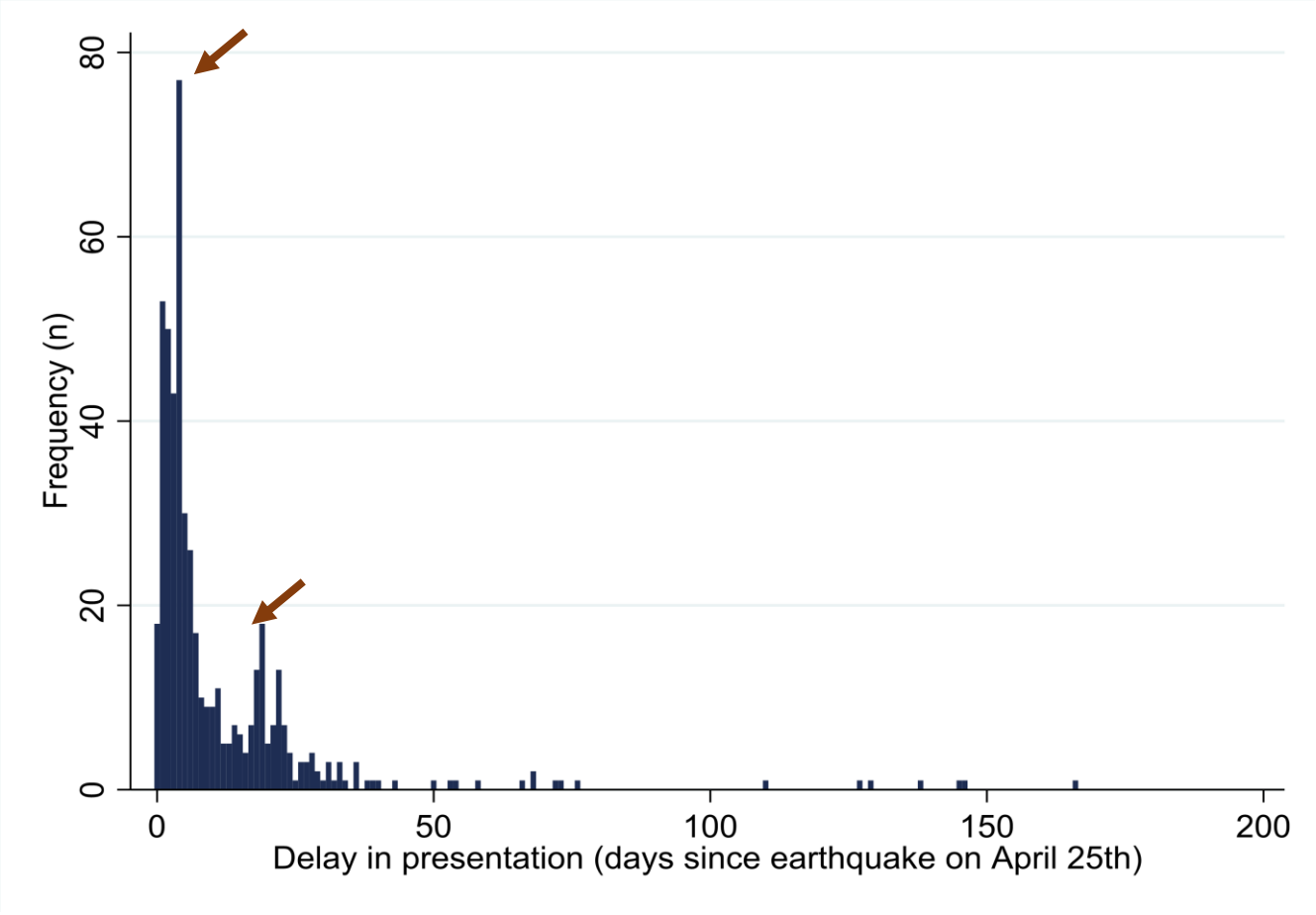
	N(%)	Male, N(%)	Female, N(%)
Total admissions	501	242	254
Age group	495	242	253
0-4	18 (3.6)	10 (4.1)	8 (3.2)
5-14	67 (13.6)	30 (12.4)	37 (14.7)
15-49	266 (53.7)	139 (57.4)	127 (50.2)
>=50	144 (29.1)	63 (26.3)	81 (32.0)
Mechanism of injury	170	85	85
Fall from height	30 (17.7)	14 (16.5)	16 (18.8)
Object fall on patient	90 (52.9)	44 (51.8)	46 (54.1)
Trapped in rubble	33 (19.4)	19 (22.4)	14 (16.5)
Slipped/tripped	15 (8.8)	7 (8.2)	8 (9.4)
Other	2 (1.2)	1 (1.2)	1 (1.2)

Nepal I: Earthquake victims

	N(%)	Male, N(%)	Female, N(%)
Location of injury	399	195	204
Head and neck	73 (18.3)	39 (20.0)	34 (16.7)
Lower limb	195 (48.9)	107 (54.9)	88 (43.1)
Trunk	80 (20.1)	29 (14.9)	51 (25.0)
Upper limb	51 (12.8)	20 (10.2)	31 (15.2)
Primary surgery	345	170	174
Orthopaedics	226 (65.7)	117 (68.8)	109 (62.6)
Neurosurgery	40 (11.6)	16 (9.4)	24 (13.8)
Plastic surgery	31 (9.0)	13 (7.6)	18 (10.3)
Wound care	19 (5.5)	10 (5.9)	9 (5.2)
Other	28 (8.1)	14 (8.2)	14 (8.0)

Nepal I: Earthquake victims

Delay in presentation

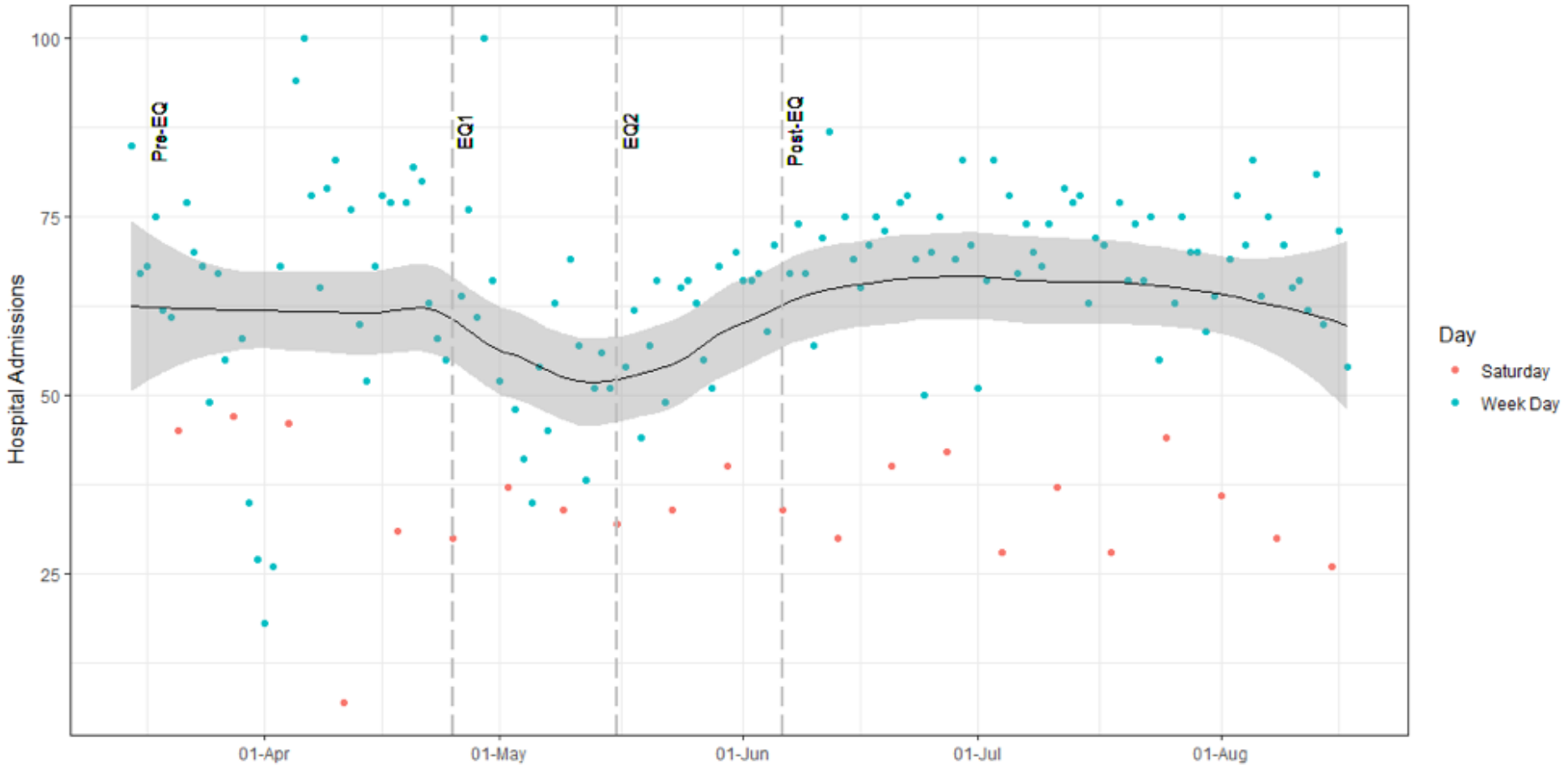


Nepal I: Earthquake victims

Gender differences

		OR (95% CI)	***p-value***
Outcome: S32 Fracture of lumbar spine and pelvis	*Female*	2.44 (1.14-5.22)	p=0.021
	Male	Ref	
Outcome: S82 Fracture of lower leg including ankle	*Female*	0.52 (0.31-0.89)	p=0.017
	Male	Ref	

Nepal II: Hospital Admissions



Nepal II: Hospital Admissions

Length of Hospital Stay

Period	Mean (SD)	Median	Range (minimum-maximum)
Pre-EQ	7.1 (8.3)	5	0-110
EQ1	9.8 (12.5)	5	0-106
EQ2	7.5 (8.9)	5	0-87
Post-EQ	7.6 (9.6)	5	0-175

Range 0 - 175 days

Mean 7.7 d (sd 9.59)

Median 5 d (IQR 3-9 d)

EQ1 19.7% [12.7-27.2] longer than pre-EQ ($p < 0.001$)

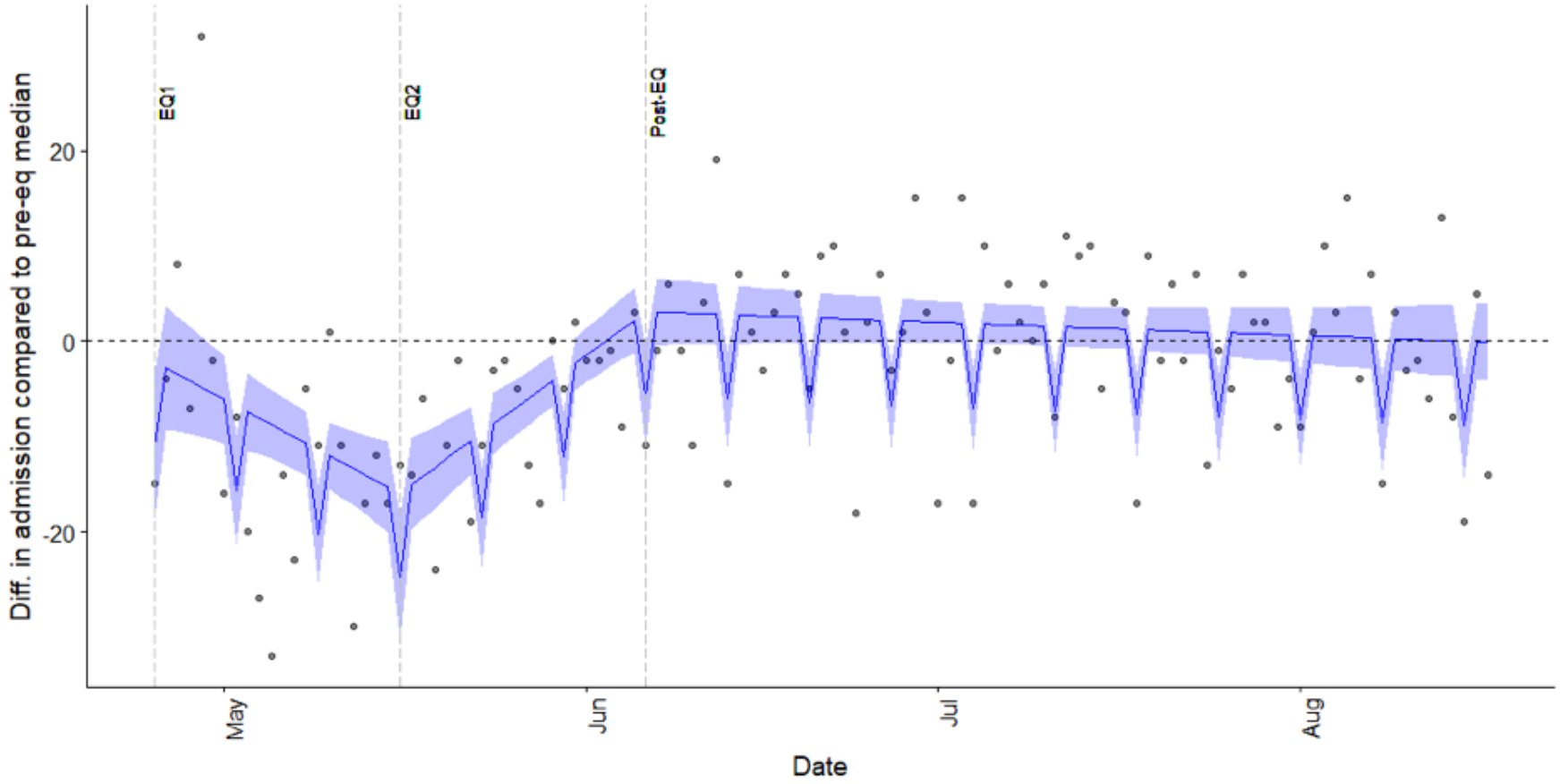
Injuries: EQ1 57.3% [37.0-80.7] longer ($p < 0.001$)

Respiratory diseases: EQ1 21.6 % [7.1-34.6] shorter ($p = 0.008$)

Nepal II: Hospital Admissions

Diagnostic category and EQ period	EQ 1	EQ 2	Post-EQ
Perinatal conditions		↓**	
Infectious and parasitical diseases	↓*		
Congenital conditions			↑**
Disease of the digestive system	↓***		
Diseases of the ear and mastoid process	↓*		
Genitourinary diseases	↓***	↓***	
Musculoskeletal and connective tissue diseases			↑***
Neurological diseases			↑**
Respiratory diseases	↓***	↓*	↓***
Skin and subcutaneous diseases	↓**		↓*
Contact with Health Services	↑**	↑*	↑*
Injuries and other external causes	↑***	↑*	
Neoplasms	↓***		
Pregnancy, childbirth and the puerperium	↓*	↓*	↓***

CS2 Nepal: Hospital Admissions



Nepal III: Staff experiences

- 18 semi-structured interviews with hospital staff
- Qualitative analyses underway

CS3 Mozambique

CS3 Mozambique

CS3 Mozambique

INSTITUTO NACIONAL DE SAÚDE
MOÇAMBIQUE

REPÚBLICA DE MOÇAMBIQUE

MINISTÉRIO DA SAÚDE

COMITÉ NACIONAL DE BIOÉTICA PARA A SAÚDE (CNBS)
IRB00002657

Difference-in-difference analysis hospital admissions for all causes and diarrhea-specific in affected district *vs* hospital in non-affected district, before and after the cyclones

- Data collection early 2020
- Full report September 2020

Thank you