



Kanti Children's Hospital, Nepal

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Ashwita Thakuri, 4 years old, at Kanti Children's Hospital

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Background

Kanti Children's Hospital is the only government referral level children's hospital in Nepal and provides medical care to children up to age 14. The targeted number of children to be served directly and indirectly by the hospital is approximately 10,068,900 each year (34.9% of total population, Nepal Population Report, 2016).

The administration of the hospital is overseen by the Kanti Children's Hospital Development Board, which is an autonomous body under the Ministry of Health. The hospital is heavily dependent on the government for financial support and human resources. Thus, although Kanti Children's Hospital provides free health services to financially challenged patients, there are always constraints with regard to the availability of funds, which makes it challenging to provide medical support to every child that is referred to the hospital.

RMF's Presence

Shortly after the April 2015 earthquake, Real Medicine Foundation (RMF) started its support of Kanti Children's Hospital by donating more than \$400,000 worth of medicines, medical supplies, and laboratory supplies. RMF continues to support a blood bank, lodging, food, transportation, medicines, laboratory services, and other necessities for needy patients and their families. In March 2017, RMF also began supporting human resources at Kanti Children's Hospital and is now providing the hospital with medical officers who serve in the Surgical ICU and Neonatal ICU, as well as registered nurses who serve in the triage area and Medical ward.

Summary of Activities April–June 2019

- 102 patients were treated in the Surgical ICU.
- A total of 639 patients were admitted and treated in the Medical ward. Among them, 239 (37.4%) were female and 400 (62.6%) were male.
- RMF nurses classified a total of 633 patients at the triage area, among whom 67 (10.6%) were classified in the red zone and 566 (89.4%) were classified in the yellow zone.
- The ICU beds provided by RMF are fully functioning and being utilized in the ICU.

Surgical ICU

RMF medical officers have served a total of **102 patients** in the Surgical ICU of Kanti Children's Hospital from April to June 2019. The most common disease treated in the SICU was anorectal malformation (ARM), followed by Hirschsprung's disease, both of which are congenital disorders that affect the digestive system. The monthly number of patients and their diagnoses are shown in **Table 1**.

Table 1: Number of patients treated at the Surgical ICU (April–June 2019)

SN	Diagnosis/Classification	April	May	June	Total
1	Anorectal Malformation	9	6	5	20
2	Hirschsprung's Disease	6	4	4	14
3	Gastroschisis	3	1	2	6
4	Omphalocele	0	1	0	1
5	Tracheoesophageal Fistula	1	2	1	4
6	Infantile Hypertrophic Pyloric Stenosis	2	2	4	8
7	Duodenal Atresia	1	2	0	3
8	Jejunal Atresia	1	0	0	1
9	Ileal Atresia	1	2	1	4
10	Intestinal Obstruction	2	2	1	5
11	Intussusception	2	1	2	5
12	Volvulus	1	0	0	1

13	Meckel's Diverticulum	1	0	1	2
14	Diaphragmatic Hernia	0	1	1	2
15	Acute Appendicitis	1	2	1	4
16	Teratoma	1	0	2	3
17	Infected Mesenteric Cyst	1	0	1	2
18	Choledochal Cyst	1	0	1	2
19	Lymphangioma	0	1	1	2
20	Pneumoperitoneum	1	1	0	2
21	Urogenital Sinus	1	1	0	2
22	Burn	2	1	3	6
23	Bladder Exstrophy	1	0	0	1
24	Blunt Abdominal Trauma	1	1	0	2
	Total	40	31	31	102

Emergency Unit Triage

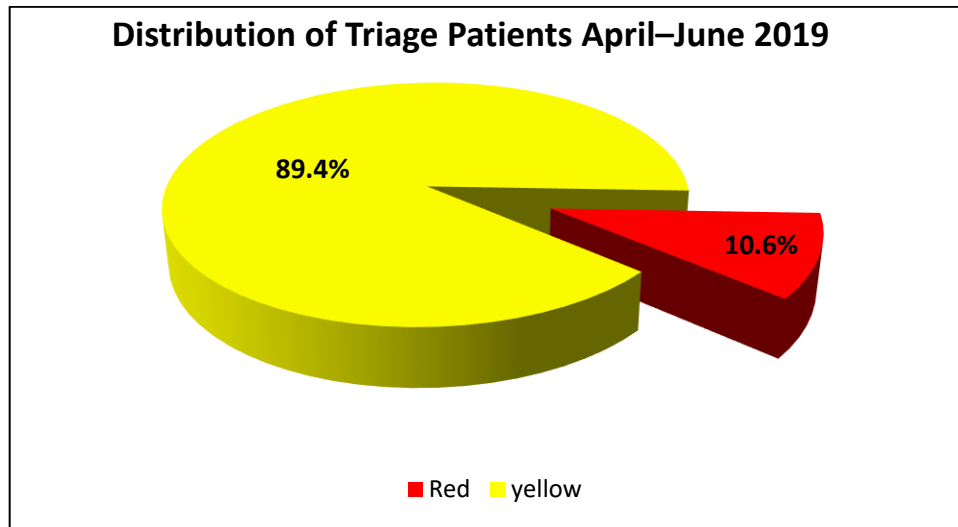
RMF nurses use a triage system while serving in the Emergency Unit of Kanti Children's Hospital. Through this system, they classify and provide tags to the patients: code red requires immediate medical action for survival, code yellow indicates a serious but not life-threatening condition, code green indicates a less severe condition that can wait, and code black means dead on arrival. In the triage section of the Emergency Unit, patients are sent to the respective color zone for treatment, generally either the red or the yellow zone.

From April to June 2019, RMF nurses triaged a total of **633 patients**, with 67 (10.6%) code reds and 566 (89.4%) code yellows. **Table 2** shows the age groups and classifications of patients managed during the reporting period. **Chart 1** shows the distribution of classifications in the triage area during this period.

Table 2: Number of patients triaged (April–June 2019)

Age	April			May			June			Total		
	Red	Yellow	Total	Red	Yellow	Total	Red	Yellow	Total	Red	Yellow	Total
0–28 Days	4	41	45	6	75	81	2	17	19	12	133	145
29 days–1 year	6	70	76	9	67	76	3	65	68	18	202	220
2–5 years	8	45	53	12	54	66	4	39	43	24	138	162
5–10 years	3	18	21	3	24	27	1	15	16	7	57	64
10+ years	2	11	13	4	15	19	0	10	10	6	36	42
Total	23	185	208	34	235	269	10	146	156	67	566	633

Chart 1



Medical Ward

From April to June 2019, a total of **639 patients** were admitted to and treated in the Medical ward. Among them, 239 (37.4%) were female and 400 (62.6%) were male. Children under 1 year of age had the highest admission rates, followed by children 1–3 years of age. The most common conditions treated in the Medical ward were respiratory, followed by cardiovascular diseases. The number of patients by age is shown in **Table 3**, while patients’ disorders and diagnoses are shown in **Table 4** according to systems of the body, and the number of patients by sex is shown in **Table 5** and illustrated in **Chart 2**.

Table 3: Medical ward patient numbers by age (April–June 2019)

Age	April	May	June	Total
< 1 year	56	66	71	193
1–3 years	42	50	55	147
3–6 years	21	30	36	87
6–12 years	36	43	48	127
>12 years	21	29	35	85
Total	176	218	245	639

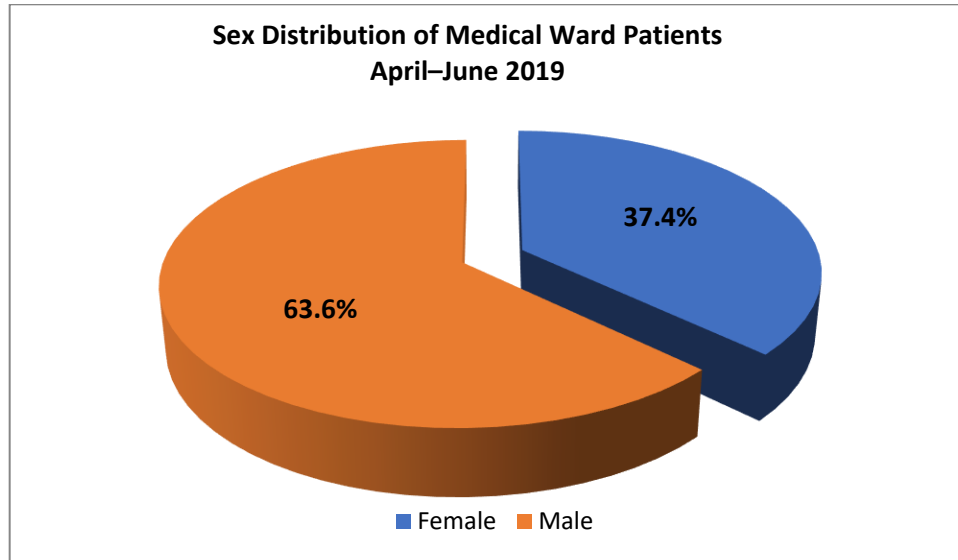
Table 4: Diagnoses per system of the body for patients admitted to the Medical ward (April–June 2019)

SN	System of the Body	April	May	June	Total
1	Respiratory	54	69	76	199
2	Cardiovascular	50	57	61	168
3	Gastrointestinal	21	27	32	80
4	Urinary	23	29	34	86
5	Nervous	11	14	17	42
6	Endocrine	3	4	5	12
7	Musculoskeletal	2	2	3	7
8	Chromosomal	1	2	1	4
9	PEM	5	8	8	21
10	Others	6	6	8	20
Total		176	218	245	639

Table 5: Male and female patients treated in the Medical ward (April–June 2018)

Sex	April	May	June	Total
Male	113	139	148	400
Female	63	79	97	239
Total	176	218	245	639

Chart 2



Success Stories

1. Baby of Srijana Lama’s Case of Bladder Exstrophy



Baby of Srijana Lama

Srijana Lama’s 2-day-old baby daughter was brought to Kanti Children’s Hospital’s Emergency department on April 10, 2019, with a reddish mass protruding from her abdomen below the umbilical region. After an examination, the baby was diagnosed with bladder exstrophy. She was in stable condition, and all baseline investigations, including a pelvic x-ray and an ultrasonography, were done, after which she was admitted to the Surgical ICU.

All of the investigation results were within the normal ranges. The USG confirmed that the baby was a female, as the genitalia of the baby was not differentiated initially. The surgery was planned, but surgeries for bladder exstrophy require an orthopedic surgeon, as the pelvic bones must be separated. Since the orthopedic department was not available in our hospital, an orthopedic surgeon from another center was called, and the surgery was scheduled for April 24, 2019.

All the preoperative preparations were done, and blood was arranged in case it was required intraoperatively. The surgery started around 10:00 AM and ended at around 4:00 PM. The surgical repair of bladder exstrophy with osteotomy was a success, and the baby was transferred back to the Surgical ICU. Her postoperative days were uneventful; the baby was stable with a hip spica cast on. On the 6th postoperative day, April 30, 2019, the baby was transferred from the ICU to the Surgical ward, as her

condition was stable, and she had started breastfeeding. After 2 weeks, the hip spica was removed, and after 3 weeks, the catheters were removed.

As the baby was healthy, she was discharged on May 16, 2019, after 38 days at the hospital. The parents were happy about the successful surgery their baby underwent, and thankful to all the teams.

2. Nirjala KC's Surgery for Diaphragmatic Hernia

2-year-old girl Nirjala KC was referred to the Surgical department from the Medical department on May 31, 2019, after the incidental finding of a right diaphragmatic hernia on a USG. She was admitted to the Medical department with diagnosis of pneumonia, and once the pneumonia was resolved, she was referred to the Surgical department for the management of the right diaphragmatic hernia. The CT scan of chest was done, and the report confirmed a right posterolateral diaphragmatic hernia.

Nirjala was scheduled for surgery. All the baseline preoperative investigations, including an echocardiogram, were sent. After all the investigations results came back, normal and the patient was deemed fit for operation, the surgery was performed on June 2, 2019. The surgery was successful, and Nirjala was transferred to the Surgical ICU, where she remained for 3 days. As the postoperative days were uneventful, and the patient was improving and was stable, she was transferred to the Surgical ward. There, she was kept for 2 more days under observation. On the 6th postoperative day, June 8, 2019, Nirjala was discharged with oral medications.



Nirjala KC

The patient's parents were very happy about the successful surgery their daughter underwent in our hospital and were thankful to entire surgical team.

3. Rinika Baral Treated for Appendicular Lump



Rinika

Rinika Baral is an 8-year-old girl who was brought in to the Emergency department with abdominal pain for 5-6 days, 2 episodes of vomiting, and an on-and-off fever. Her bladder and bowel movements were normal. On examination, the clinicians found tenderness over the right iliac fossa and umbilical region. Rinika's stomach was soft and not distended, and on deep palpation, a mass was felt measuring approximately 2x2 cm.

All blood investigations were within normal limits, except white blood cell count, which was raised above normal levels. An abdominal USG was done, showing an appendicular lump. Conservative management was done, with antibiotic therapy for 5 days, and later she was discharged and advised for an elective appendectomy after 6-8 weeks.

4. Baby Agraj Triaged and Managed for Fever and Vomiting

Agraj, a 59-day-old baby boy, was triaged in the Emergency ward in the yellow zone on May 2, 2019, with a known case of tetralogy of a fallot, a combination of congenital anomalies, repaired with esophaged stenosis with dilatation of ASD. The child was brought to Kanti Children's Hospital after multiple episodes of vomiting after each feeding for 1 day, decreased urine output, and a fever lasting 2 days. According to his father, Agraj was healthy 2 days prior to admission, when he developed sudden onset vomiting, which was gradually progressive, increasing in frequency until 20-25 episodes had occurred. His temperature was recorded at 101.2°F, not associated with rigor or chills. A PICU consultation was done, and Agraj was transferred to the PICU for further management.

Vitals:

- Temperature: 101.2° F
- Respiratory rate: 56 breaths/minute
- Heart rate: 160 beats/minute
- SPO₂ without O₂: 91%
- Urea: 88 mg %
- Creatinine: 4.5 mg %
- Sodium: 38 mmol/L
- Potassium: 4.5 mmol/L

Prescribed medications:

- Injected 30 ml normal saline intravenously over 10 minutes
- Injected N/2 and 5% dextrose 90 ml intravenously over 1 hour followed by N/2 and 5% dextrose 210 ml intravenously over 5 hours
- Injected Taxim 150 mg intravenously three times a day



Agraj

5. Sanjay Tamang Triaged in Red Zone and Treated

Sanjay Tamang, an 8-month-old boy, was admitted to the Emergency ward on May 19, 2019, and was triaged in the red zone due to tremors for 1 day, starting from the right hand then progressing to the left hand and then the lips, as well as abdominal distention. After this, he also developed up-rolling of the eyes. According to the patient party, the child was apparently well until 2 days prior to admission when he suddenly developed abnormal body movements. PICU consultations were done and Sanjay was transferred to PICU ward the further management.

Vitals:

- Heart rate: 110 beats/minute
- Respiratory rate: 32 breaths/minute
- Temperature: 98°F
- SPO₂: 85% in room air, so he was kept in oxygen at 4 L via face mask



Sanjay Tamang

Prescribed medications:

- Injected Taxim 425 mg intravenously three times a day

- Injected phenytoin 25 mg intravenously twice a day mixed with 30 ml of normal saline, given over 45 minutes via IV infusion set
- Nebulizer therapy with normal saline three times 20 minutes apart, then every 4 hours
- Injected N/2 with 5% dextrose and 5 cc KCl in 1st pint at 280 ml intravenously over 24 hours, as the child was kept at NPO (no foods nor fluids by mouth); 1/3 of this maintenance has been started