

The 2018 Diarrhea Epidemic

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- Largest diarrhea hospital in the world
- Treats more than 160,000 patients every year
- Treatment is free of cost
- Lab tests are done free
- Medicines provided free
- Food for patients & attendants free



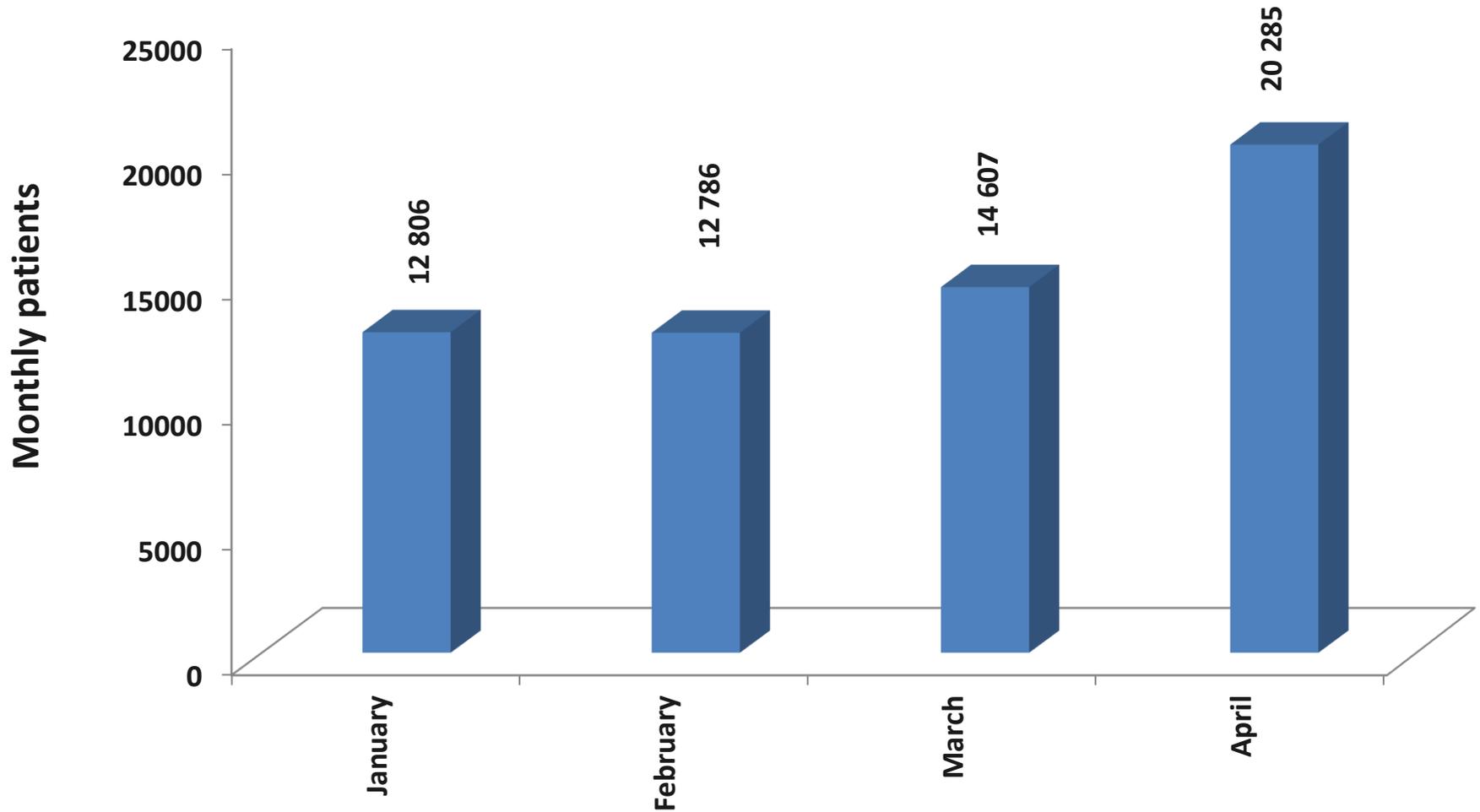
Huge case load of Cholera

Period	Total patients	Cholera, n (%)
2018	167,487	18,300 (10.9)
Jan-Sept 2019	141,868	16,200 (11.4)
Age group <5 y		3,650 (10.6)
5-14 y		3,000 (8.7)
15+ y		27,850 (80.7)

Susceptibility of *V cholerae* O1 Jan-Sept 2019

Antibiotic	Susceptibility (%) n=324
Azithromycin	99
Ciprofloxacin	99
Doxycycline	99
Tetracycline	98

Monthly patient visits to Dhaka Hospital, icddr,b January-April 2018



Patient numbers greatly exceeded capacity



At times the triage became chaotic



Management of a patient in shock is urgent and requires help from family too



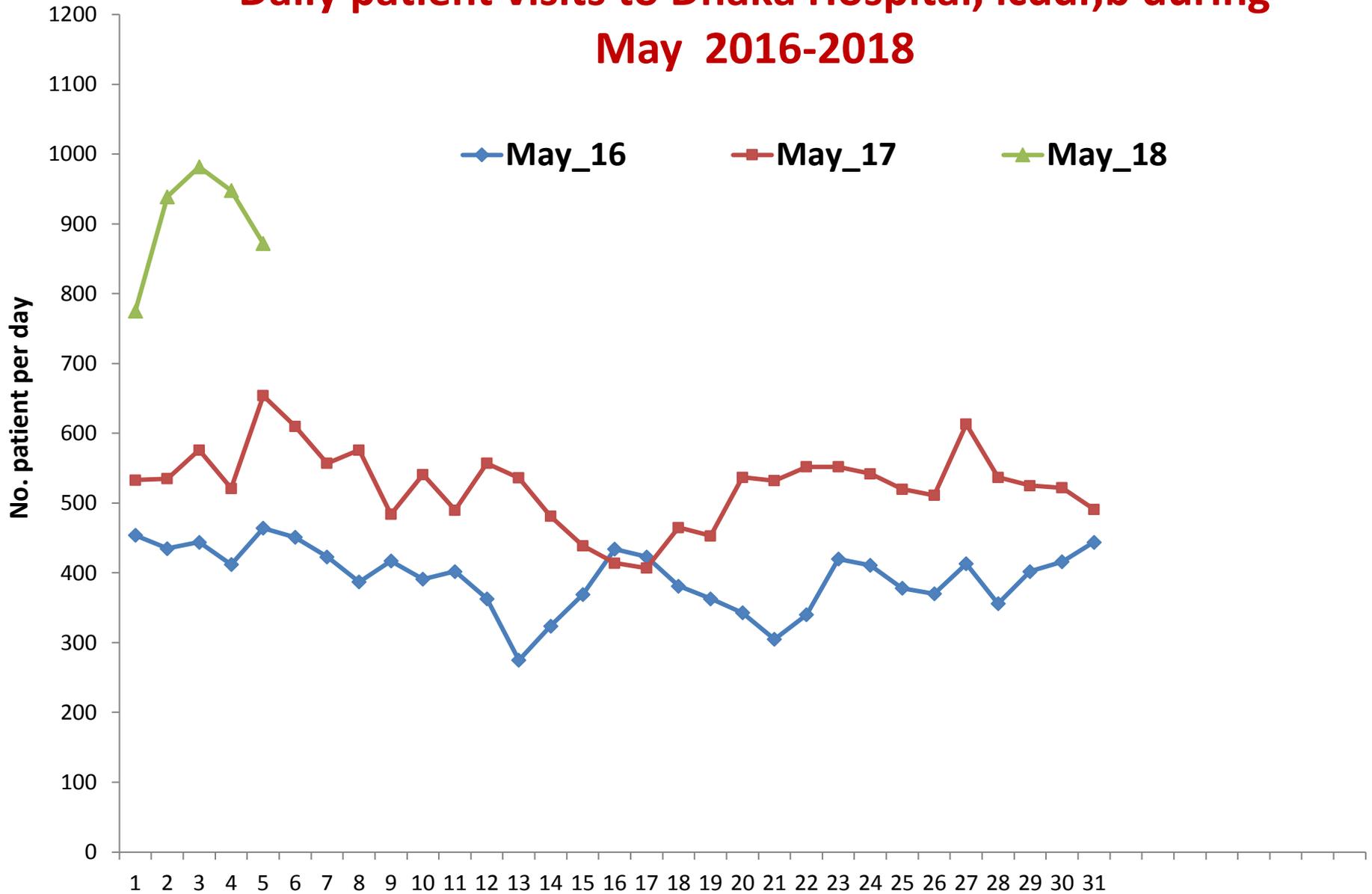
Just recovered from severe dehydration and shock



The tent erected after a pause of 3 years

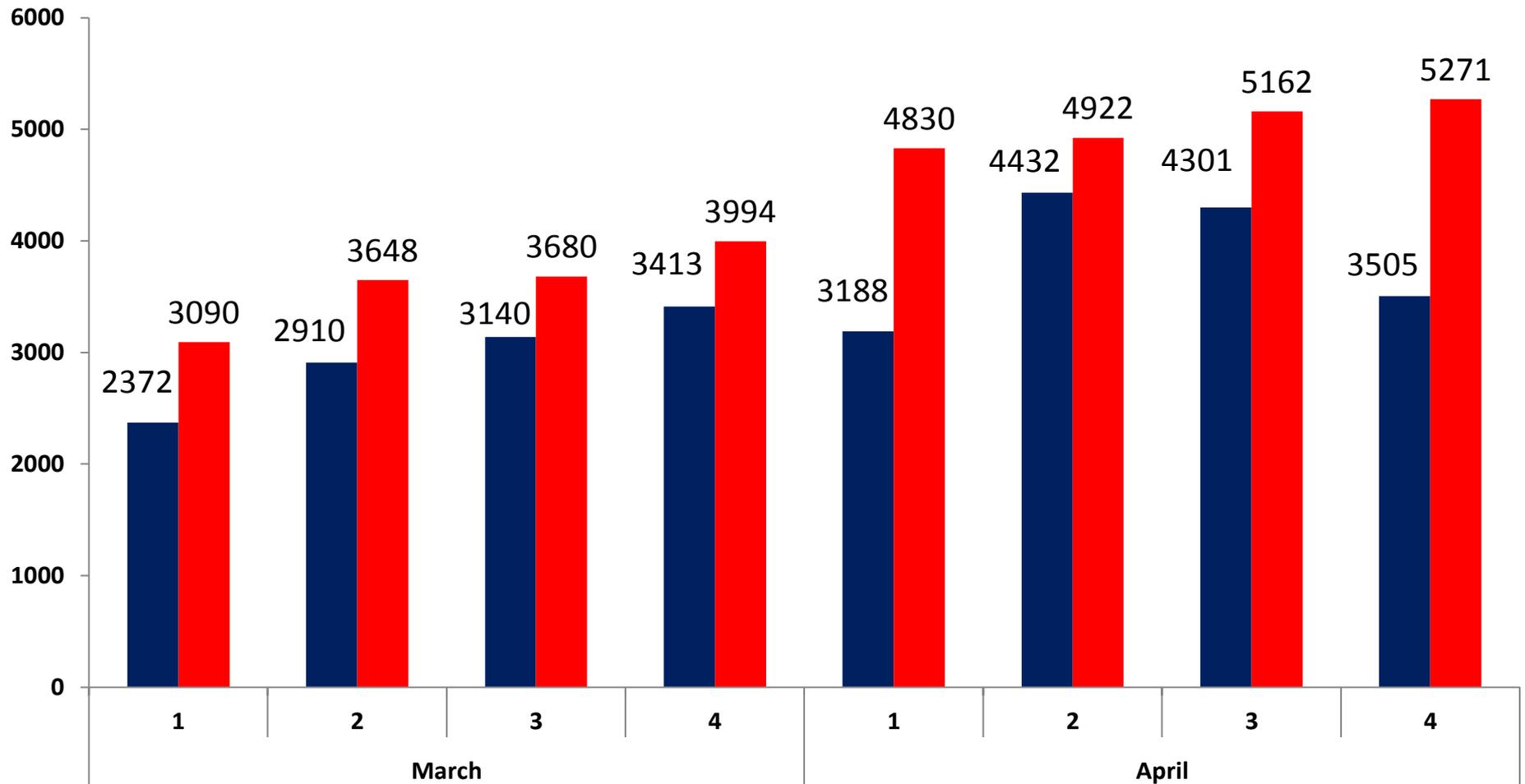


Daily patient visits to Dhaka Hospital, icddr,b during May 2016-2018



Weekly patient attendance during 2013-2017 and 2018 in Dhaka Hospital, icddr,b

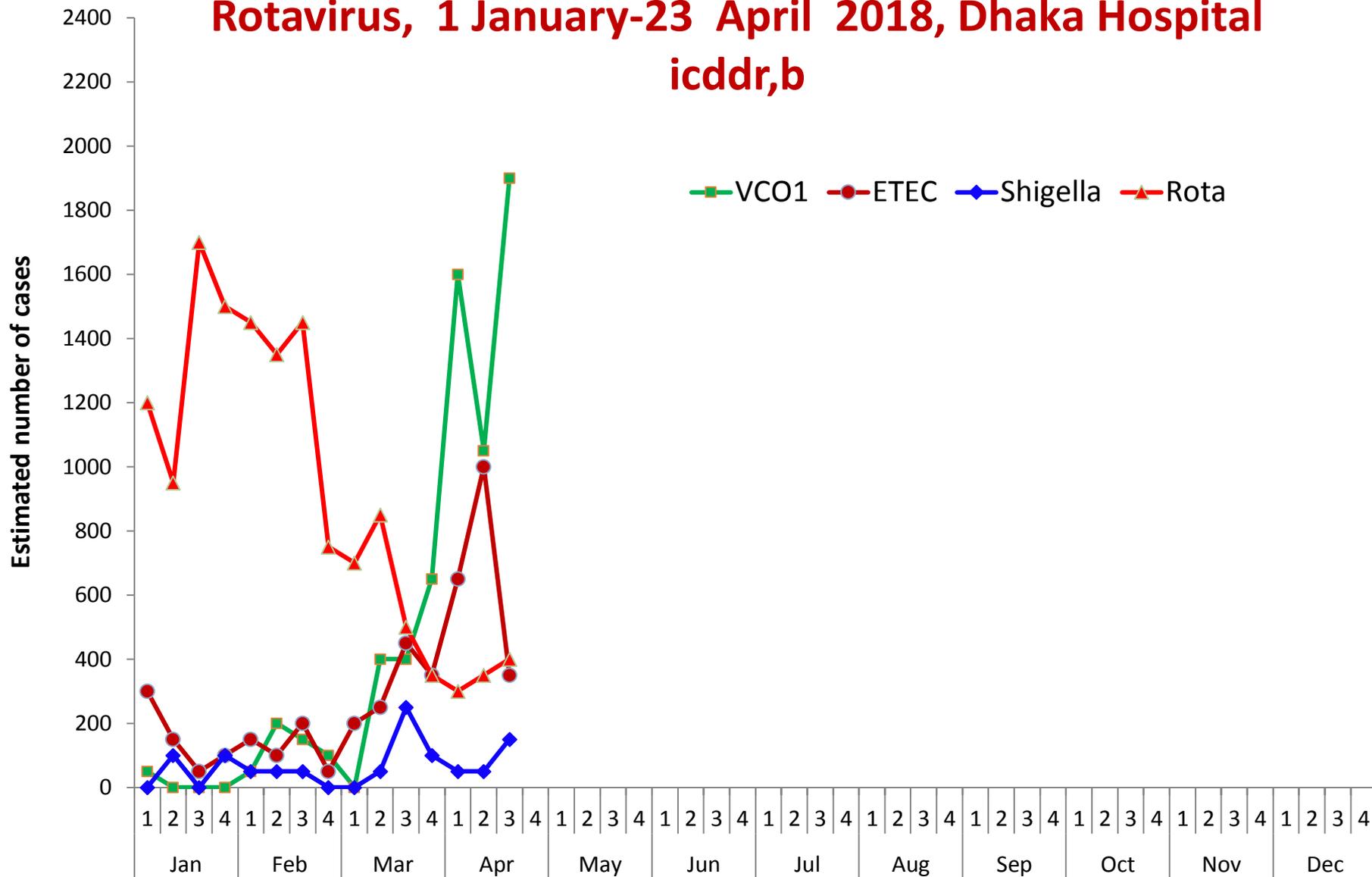
■ 2013-17 ■ 2018



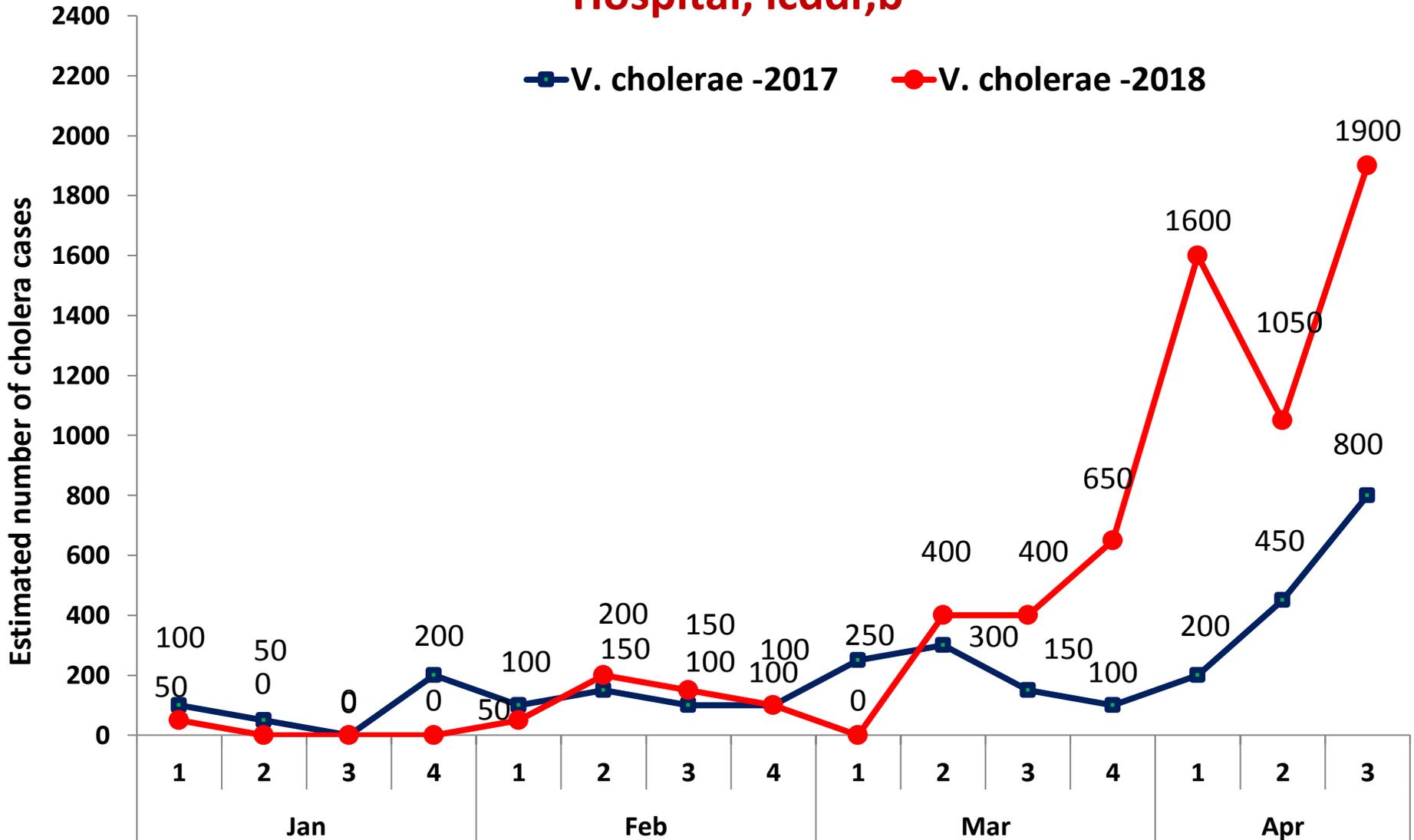
Fewer children in the Outpatient Department



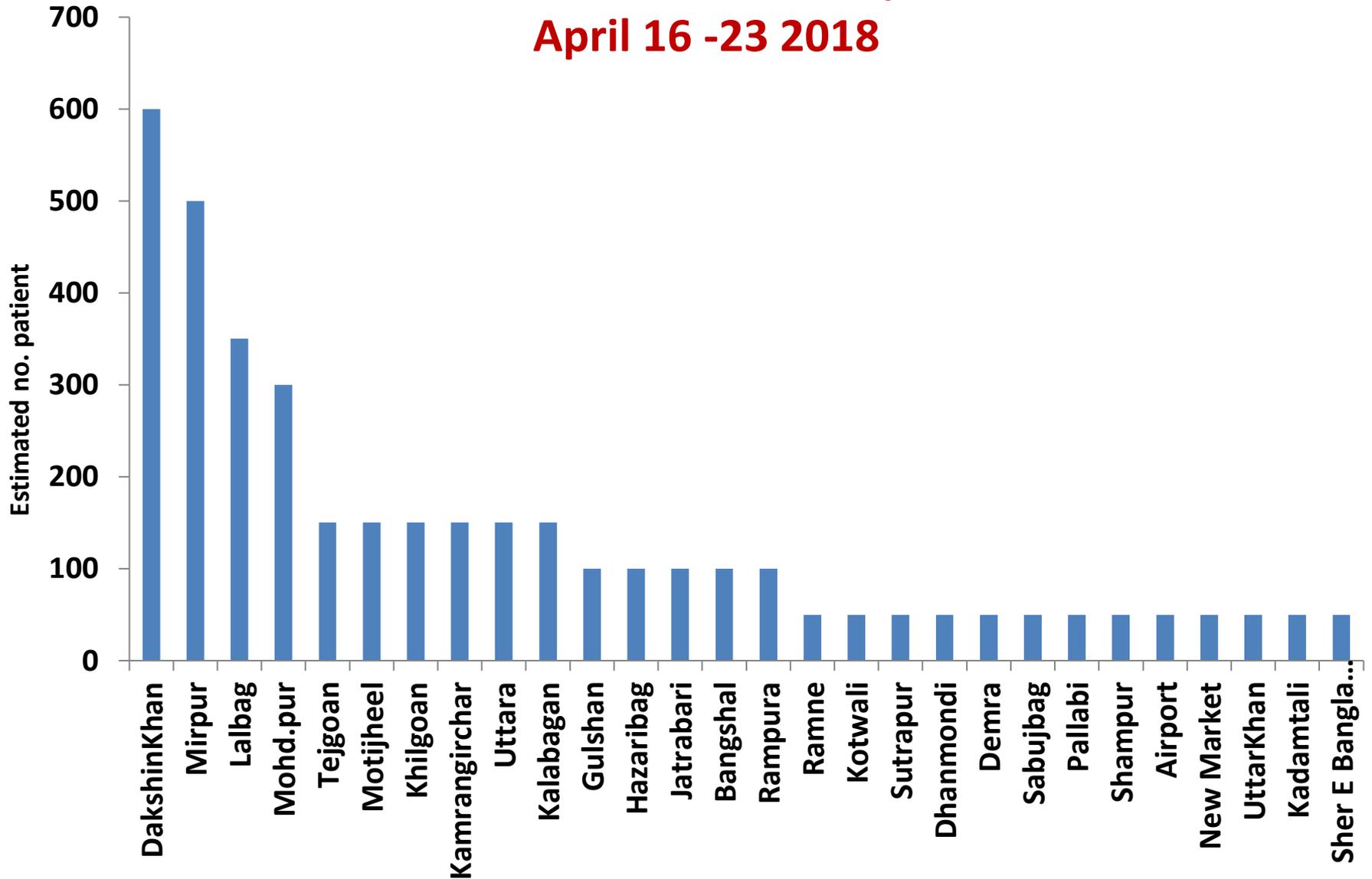
Weekly isolation of *V. cholerae* O1, ETEC, Shigella and Rotavirus, 1 January-23 April 2018, Dhaka Hospital icddr,b



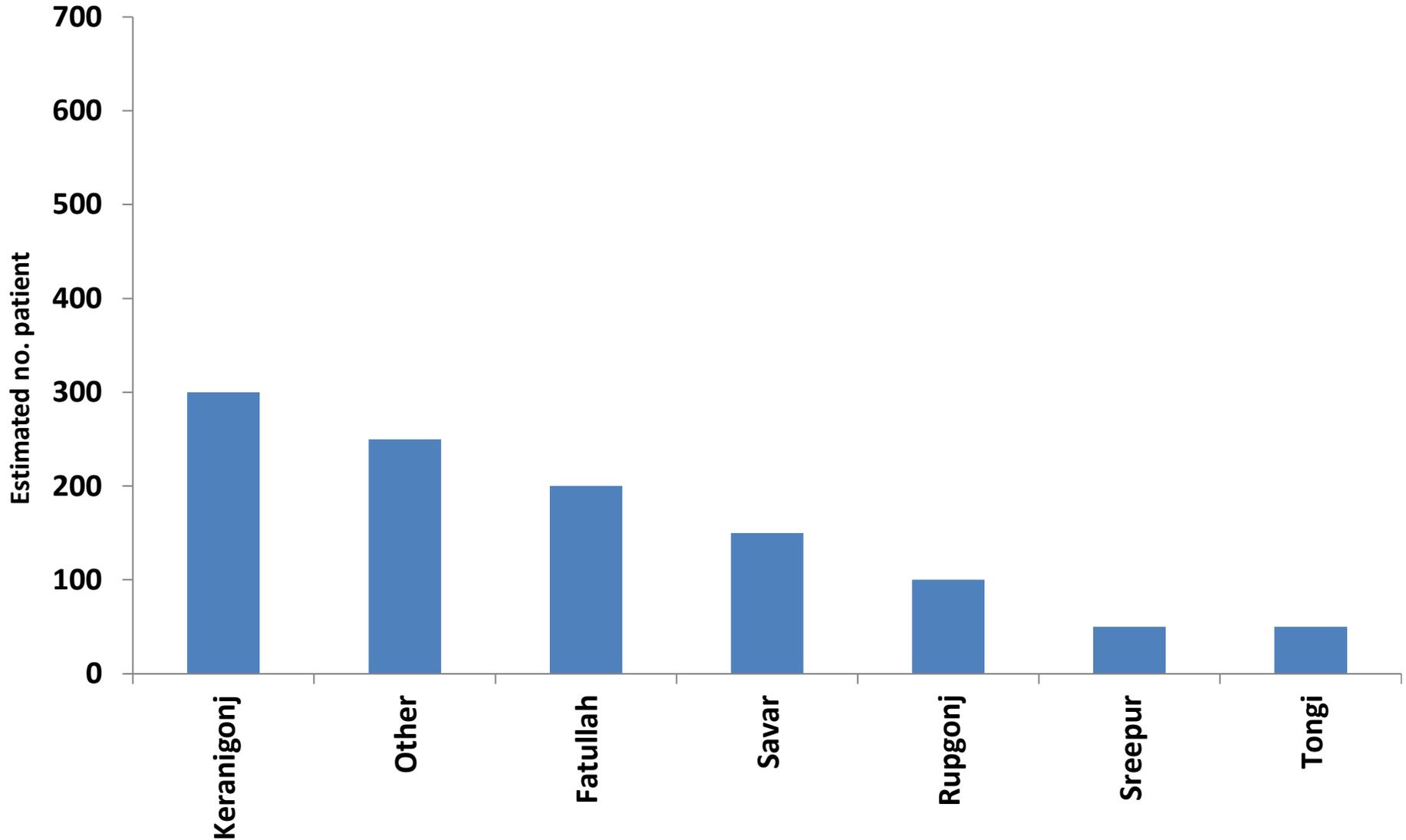
Weekly isolation of *V. cholerae* O1, 1 January-23 April 2017 and 2018, Hospital Surveillance, Dhaka Hospital, icddr,b



Patients coming to Dhaka Hospital, icddr,b from different locations of Dhaka Metropolitan area from April 16 -23 2018

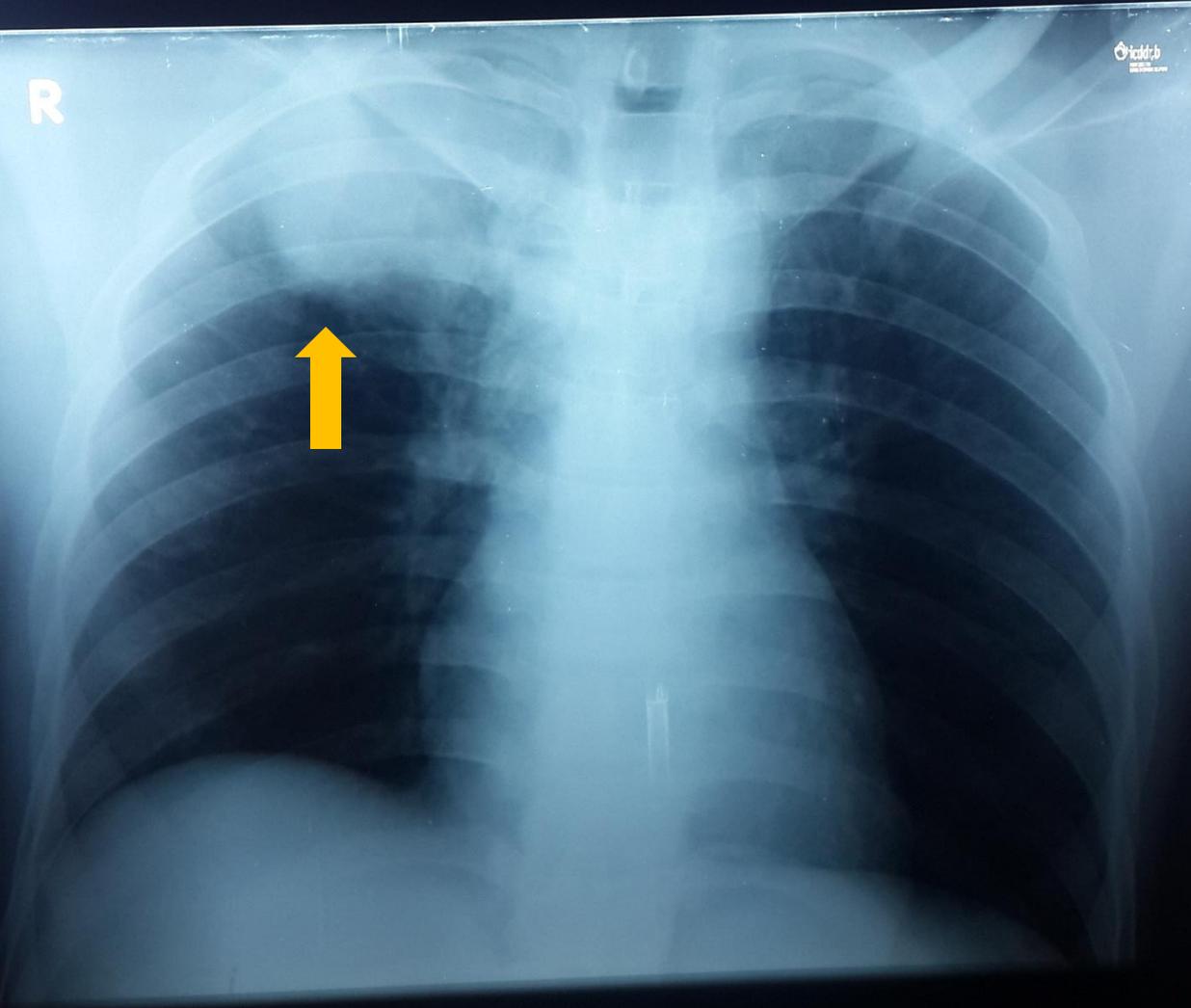


Patients coming from outside Dhaka Metropolitan area to Dhaka Hospital, icddr, April 16-23, 2018



Non-cholera death lurks behind





No pulse, no BP
Poor O₂ saturation
WBC TC 26,000
Band forms 8%

Lobar pneumonia
Septic shock

Fluids given
Oxygen
3 difft antibiotics
Inotropes for shock

Two days later



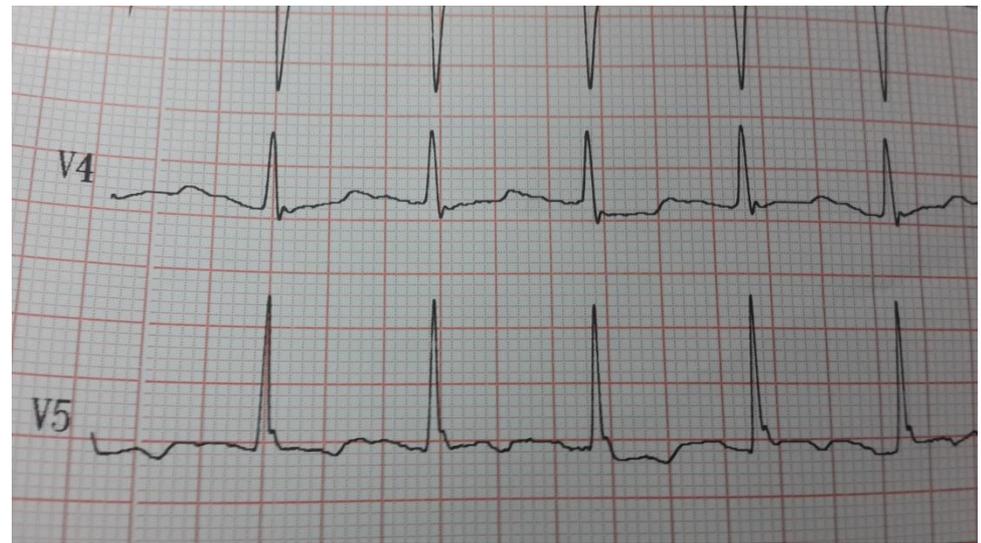
Day 3: maintains BP without inotropes and IV fluids, still needs O₂

Came on 6 May with dehydration



No pulse, no BP
Poor O₂ saturation
Treated for shock
Day 1 ECG normal

Day 2 chest pain



Chloride	104.6mmol/L	97 - 106
Potassium	3.30mmol/L	3.5 - 5.3
Sodium	137.0mmol/L	135 - 146
CREATININE	05/05/18 02:48 PM	LR352820 05/05/18
<u>Test Name</u>	<u>RESULT</u>	<u>Reference Value</u>
Creatinine	197.9umol/L	18 - 35 (Infant) 27 - 62 (Child) Adult: 53 - 106 (Men) 44 - 97 (Women)
T. CALCIUM	05/05/18 03:19 PM	LR352832 05/05/18
<u>Test Name</u>	<u>RESULT</u>	<u>Reference Value</u>
T. Calcium*	1.56mmol/L	2.12 - 2.62
T. MAGNESIUM	05/05/18 03:19 PM	LR352832 05/05/18
<u>Test Name</u>	<u>RESULT</u>	<u>Reference Value</u>
T. Magnesium*	0.29mmol/L	0.65 - 1.05
TROPONIN I	06/05/18 01:10 PM	LR352876 06/05/18
<u>Test Name</u>	<u>RESULT</u>	<u>Reference Value</u>
Troponin I*	31340.0pg/mL	Cut off: (99th percentile, upper limit of normal), Male: 34.2 pg/ml; Female: 13.4 pg/ml

Rx for shock
O₂
Basic medication
Inotropes
Referred

Managing the epidemic

- Additional duties for doctors, nurses, other staff
- Extended hours for senior doctors, nursing officers
- Projects have dedicated 5 doctors, 3 nurses to patient care
- Projects also dedicated 8 other staff for miking, ORS promotion
- Hired 2 Temporary Physicians, 8 nurses

- Hired 13 outsourced staff, 3 HWs for preparing ORS, 2 Attendants for diet, 1 Security
- Tent for ~60 patients
- LAN connected, computers, Tabs, printers
- Cots, buckets, plastics etc procured
- Additional diets for attendants prepared
- Team for facing the media

Major challenges

- Unwarranted compromise in quality of care??
- Increase in revisits??
- Staff exhaustion
- Less time for research
- Increase in cost

Diarrhoeal Disease in Bangladesh Epidemiology, Mortality Averted and Costs at a Rural Treatment Centre

MARK W OBERLE,* MICHAEL H MERSON,** M SHAFIQUL ISLAM,† A S M MIZANUR RAHMAN,†
DOUGLAS H HUBER†† and GEORGE CURLIN§

The effect of the rural hospital on mortality in the area was estimated by a simple proportion: (hospital deaths averted) divided by (total deaths observed in the villages and hospital + hospital deaths averted).

50% of patients would have died without IV fluid & electrolyte replacement - Mosley H. Int J Epidemiol 1972

Pathogen	Number of patients*	Average hospital stay (days)	Total hospital days	Cost (US \$)	Estimated deaths averted	Percentage of expected mortality averted
<i>V. cholerae</i> 01	541	1.7	941	10 351	212–354	39–65
<i>Shigellae</i>	51	2.9	146	1 606	8–22	16–43
<i>V. cholera non 01</i>	132	1.3	174	1 914	18–33	14–25
<i>Salmonellae</i>	3	1.7	5	55	0	–
Unknown	1 189	1.6	1 948	21 428	197–515	17–43
Total	1 916	1.7	3 214	35 354	435–924	23–48

25-50% of patients would have died without IV rehydration

Recommendations

- Add extra chlorine to tap water?
- Messaging/miking through Ward Commissioners in affected areas
- Establishment of a diarrhea unit in Kurmitola General Hospital
- Training of Government doctors & nurses at icddr,b hospital
- Administer oral cholera vaccine in vulnerable areas