

Table I Remote Learning Duration Frequency in Different Grades (N=2694)

Grades	N	Duration h/d	Frequency d/wk
Pre-primary (<6y)	210	1.7 (1.6)	4.7 (1.3)
Primary (Grades I-V)	113	2.7 (2.0)	5.1 (1.1)
Upper primary (Grades VI-VIII)	590	3.6 (1.7)	5.4 (1.0)
Secondary (Grades IX-X)	498	4.1 (2.3)	5.6 (1.0)
Higher secondary (Grades XI-XII)	266	4.3 (2.0)	5.5 (1.0)

All values in mean (SD); Maximum duration as per Pragyata [3] guidelines (h/d); Pre-primary – 0.5, primary and upper primary – 1-1.5; secondary and above – 2-3.

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REFERENCES

1. United Nations Educational, Scientific and Cultural Organization. COVID-19 Educational Disruption and Response. 2020. Available from: <https://en.unesco.org/covid19/educationresponse>. Accessed 29 June 2020.
2. National Parents Union. Parent Poll: Worries Spike over Mental Health. National Parents Union - Coronavirus Impact Survey. June, 2020. Available from: <https://nationalparentsunion.org/wp-content/uploads/2020/07/NPU-Week-8-Topline.pdf>. Accessed 18 July 2020
3. Ministry of Human Resource and Development, Government of India [14 July 2020]. Pragyata Guidelines for Digital Education. Department of School Education and Literacy. Available from: https://www.mhrd.gov.in/sites/upload_files/mhrd/files/pragyata_guidelines_0.pdf. Accessed 16 July 2020.
4. LocalCircles. Majority parents don't want schools to reopen till there are no cases for 21 days in their district and its vicinity. June 6, 2020. Available from: <https://www.localcircles.com/a/press/page/school-reopening-survey#.XzGQ5igzblW>. Accessed: 27 June 2020.
5. Castagnoli R, Votto M, Licari A, Brambilla I, Bruno R, Perlini S, *et al.* Severe acute respiratory syndrome coronavirus 2 (SARS-COV-2) infection in children and adolescents: a systematic review. JAMA Pediatr. 2020. [Epub ahead of print, April 22, 2020].

Comparison of Domiciliary and Hospital-Measured Temperature Amongst Febrile Infants Presenting to an Emergency Department

Childhood fever is one of the commonest reason for medical consultation in children, being responsible for 15-25% visits in primary care, and also presentations to the emergency departments (ED) [1,2], and is known to cause significant anxiety in parents [3]. Most children undergo evaluation for at least one febrile illness before their third birthday [4]. Western studies report good parental awareness about fever [5], but studies from India [6,7] have shown conflicting results. Frequently, parents do not document temperature or record it improperly, leading to undue anxiety and over-crowding of the ED [6-8]. We studied the correlation of temperatures measured at home by parents with recordings done at presentation in the ED among infants with acute illnesses.

This cross-sectional study was conducted from April, 2018 to January, 2019 at the pediatric ED of a public hospital in northern India, after taking clearance from the Institutional Ethics Committee. Febrile children aged 3 month to 2 year, with

fever of at least 4 days were considered for enrollment. A febrile child was defined as one with history of fever $\geq 38^{\circ}\text{C}$ recorded at least once at home in previous 24 hours. Those suffering for fever for >7 days, children with any underlying heart disease, and children with any diagnosed immunodeficiency disorder or conditions predisposing to recurrent infections (like type 1 diabetes, vesico-ureteric reflux) were excluded. Consecutive children were enrolled on one pre-decided day every week.

After taking written informed consent, enrolled children were evaluated clinically and initial management provided. Subsequently, based on history, and clinical and laboratory information, they were treated as inpatient or outpatient. For all enrolled children, demographic details, contact information and details of education and income of parents were collected. History was taken regarding highest temperature recorded at home and any associated symptoms, treatment taken if any before presentation, relevant history of co-morbidities, immunization and feeding history. Anthropometric measurements were taken for all included children as per standard guidelines, and Z-scores were calculated using Anthrocalc application.

All the data were recorded in a structured pre-tested form. Rectal temperature was taken at presentation for all enrolled children. The various diagnoses were made and management carried out according to the departmental protocols guided by standard management guidelines [9,10]. Mean (SD) or median (IQR) were calculated for the baseline characteristics. Pearson

correlation coefficient was calculated for temperature documented at home and in the ED. Comparisons were done between children with fever documented in ED, and those without fever documented in ED.

Out of overall study population of 150 children with history of fever of 4-7 days in respective age group attending ED, only 108 (68.3% boys) had documented fever at home. The median (IQR) age of the study population was 12 (3-20) months. The median Z scores for all anthropometric variables (weight, length and head circumference) were greater than -3. Majority (88%) of children belonged to the lower middle (III) and upper lower (IV) socioeconomic classes, and majority of mothers (62%) had at least secondary school education (**Table I**). Along with fever, the most common presenting complaint was respiratory problems.

Of the children for whom fever was documented at home, nearly half (46.3%) did not have fever at presentation in the ED. Mean (SD) temperatures documented at home and ED were [38.8 (0.16)°C vs 39 (0.7)°C; $P=0.03$]. Among those who were febrile in ED, the correlation coefficient (r) of fever documented at home and in ED was 0.3 (95% CI, 0 to 0.6), suggesting a weak correlation of axillary fever documented by parents at home and that of rectal temperature documented in ED (**Fig. 1**).

For five children, rectal temperature could not be documented in view of their critical condition at presentation to ED, and axillary temperature was documented in them so as not to hinder required resuscitative measures. Of the illiterate mothers, 42% did not document the fever as compared to 205 of those with a secondary school education ($P=0.02$). There was

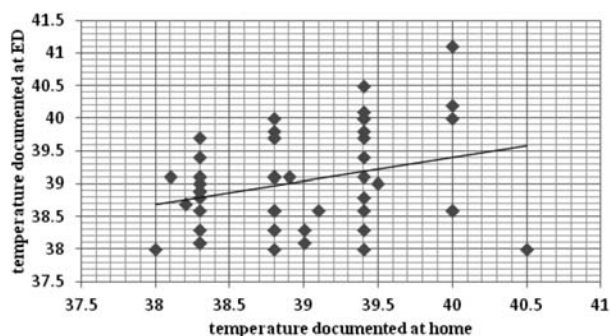


Fig. 1 Correlation between fever documented at home and in ED ($r=0.3$).

no increased risk of having a severe infection if temperature is documented at ED *versus* if fever is not documented at presentation [OR (95% CI): 0.96 (0.32-2.85); $P=0.94$].

In our study majority of parents measured temperature at home by axillary or oral thermometry. There was a weak correlation between axillary/oral temperature measured at home and rectal temperature documented at ED. Findings in our study are in agreement with the internet-based survey done by de Bont, *et al.* [5] in Netherlands, which showed 71.5% parents document fever if their child is ill, although majority documented rectal temperature. None of the parents in our study documented rectal temperature, as home measurement of rectal temperature by parents is uncommon in Indian settings. Other studies from hospitals in various regions in India report conflicting results on proportion measuring temperature of febrile children at home (14.5-71%) [6,7]. These differences may be based on regional socio-cultural factors. The finding of association of temperature documentation at home with higher educational level of mother is in agreement with previous reports [8].

The small sample size in our study may be a limiting factor for applying results of this study to general population. Most of the children had already received antipyretics before presenting to ED, and may have been exposed to varying environmental temperatures while travelling to hospital; thus explaining the poor correlation between temperature documented at home and in ED. Additional analysis could have been done for temperature correlations in different disease groups, but the numbers for individual diseases were less for valid comparisons. Further studies may need to study the relationship of domiciliary temperature measurements and fever at presentation, as triage and evaluation of pediatric patients in crowded EDs is frequently dependent on the presence/absence of fever.

Ethics clearance: Institutional ethics committee of MAM College; No. 17/IEC/MAMC/2017/Peds/07 dated 10 October, 2017.

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Table I. Baseline Characteristics of the Study Population (N=108)

Characteristics	No. (%)
Weight, Z-score [#]	-2.05 (4.62)
Height, Z-score [#]	-1.525 (2.57)
HC, Z-score [#]	-1.66 (1.64)
Immunization status^a	
Partially immunized	9 (8.3)
Fully immunized	78 (72.2)
Socioeconomic status^b	
Upper middle class	13 (12)
Lower middle class	51 (47.2)
Upper lower class	42 (38.8)
Lower class	2 (1.9)
Maternal education	
Illiterate	24 (22.2)
Primary school	17 (15.7)
Secondary school	56 (51.9)
Graduate	11 (10.1)

HC: Head circumference; ^bModified Kuppuswamy socioeconomic status scale for year 2018. ^aImmunization details not known.

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REFERENCES

1. Muth M, Statler J, Gentile DL, Hagle ME. Frequency of fever in pediatric patients presenting to the emergency department with non-illness-related conditions. *J Emerg Nurs*. 2013;39:389-92.
2. Sands R, Shanmugavadivel D, Stephenson T, Wood D. Medical problems presenting to paediatric emergency departments: 10 years on. *Emerg Med J*. 2012;29:379-82.
3. Purssell E, Collin J. Fever phobia: The impact of time and mortality - A systematic review and meta-analysis. *Int J Nurs Studies*. 2016;56:81-9.
4. Finkelstein JA, Christiansen CL, Platt R. Fever in pediatric primary care: occurrence, management, and outcomes. *Pediatrics*. 2000;105:260-6.
5. de Bont EG, Francis NA, Dinant GJ, Cals JW. Parents' knowledge, attitudes, and practice in childhood fever: an internet-based survey. *British J Gen Pract*. 2014;64:e10-6.
6. Thota S, Ladiwala N, Sharma PK, Ganguly E. Fever awareness, management practices and their correlates among parents of under five children in urban India. *Int J Contemp Pediatr*. 2018;5:1368-76.
7. Agrawal RP, Bhatia SS, Kaushik A, Sharma CM. Perception of fever and management practices by parents of pediatric patients. *Int J Res Med Sci*. 2013;1:397-400.
8. Bertille N, Fournier-Charriere E, Pons G, Chalumeau M. Managing fever in children: A national survey of parents' knowledge and practices in France. *PLoS One*. 2013; 8:e83469.
9. Sharma S, Sethi GR, eds. *Standard Treatment Guidelines: A Manual for Medical Therapeutics*. Delhi Society for Promotion of Rational Use of Drugs & Wolters Kluwer Health, 5th ed, 2018.
10. Mahajan P, Batra P, Thakur N, et al. Consensus Guidelines on Evaluation and Management of the Febrile Child Presenting to the Emergency Department in India. *Indian Pediatr*. 2017;54: 652-60.