وزارة الصحة
Ministry of Health

FETP
برنامج الوبائيات الحقلي
Field Epidemiology Program

النشرة الوبائية السعودية
Saudi Epidemiology Bulletin

ISSN : 1319-3965 | www.fetp.edu.sa | Volume 28 - Number 1-2, Jan-Jun 2021 | المجلد 28 - العدد 1-2 يناير- يونيو 2021 م

نشرة فصلية متخصصة في مجال الوبائيات تصدر عن: وزارة الصحة - وكالة الصحة العامة - الوكالة المساعدة للصحة الوقائية - برنامج الوبائيات الحقلي

Saudi Epidemiology Bulletin (SEB) is published quarterly by
The Deputy Ministry for Public Health Assistant Agency for Preventive Health and Field Epidemiology Program (FETP) of the Ministry of Health

Index

Impact of school reopening on COVID-19 transmission patterns.

Dr. Shady A. Kamel, FETP staff member

Disclaimer: *This review was prepared on February 2021 and since then, new data and variables have evolved that may or may not have effect on the decision to reopen schools. Further updates may follow in the next volume of this bulletin.*

The situation in schools at the beginning of the pandemic

Several studies in The Lancet Child & Adolescent Health highlight the COVID-19 transmission within schools. Kristine Macartney and colleagues researched the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) transmission. They studied an Australian as the epidemic' began.[1] Educational facilities were yet formally open, but attendance rates dropped towards late March 2020, following the implementation of distance learning. The study focused on the infected adult and young individuals attending pediatric, school, or early childhood education (defined as 24 h before symptom onset). The researchers identified 27 (56% staff) primary cases and 1448 close contacts, of whom only half had biological or serological tests. Yet, only 18 tested positive, a low rate attributable to restrictions and hygiene measures. A study in Ireland also had similar results. Six confirmed cases (three adults and three children) attended schools, yet no secondary cases were documented or linked to the pediatric cases. [2]

A northern France high-school had different results.[3] Students aged 14–18 years, and 38% and 49% of the staff had high infections rates, while parents and siblings had low rates of 11% and 10%. The infection was high in the school environment. A follow-up study had lower infection rates (6–12%) among staff, students, and family members, with no evidence of secondary transmission within schools.[4] A South Korean contact tracing trend observed low COVID-19 transmission in households' children (10years) (three [5%] of 57) and highest older people (10–19) (43 [19%] of 231).[5] Notably, children are less infectious, and transmission probability increases with aging (from adolescence)[6]

Effect of Closure of schools on COVID-19 transmission

US states established School closure as SARS-CoV-2 (causing COVID-19) spread. All 50 states closed kindergarten-grade 12 schools and childcare centers for ten days in March 2020, followed by colleges and universities. The closures affected 21 million childcare children, 57 million kindergarten-grade 12 students, and 20 million college and university students.[7][8]

Approximately 192 countries closed schools by mid-April for 90% (nearly 1.6 billion) students. States relied on other respiratory disease data as information was scarce. Schools and the health sector perceived children as key transmitters despite mixed results. Further research on school closures influenced COVID-19 spread 2020 spring is crucial for preparations in the fall.

Auger et al. establish the association between school closures and COVID-19 incidence and mortality. They used interrupted time series analyses of data from all 50 states on the timing of school closures, non-pharmaceutical interventions, daily COVID-19 incidences, and deaths. The analyses compared the change in outcomes before and after school closure. They also estimated the absolute differences associated with school closure, comparing cases and deaths without and after schools' closure.[9]. The study observed a −62% (95% CI, −71% to −49%) relative change in COVID-19 incidence per week, responsible for 423.9 (95% CI, 375.0 to 463.7) cases per 100 000 estimated absolute difference (EAD). They also reported a −58% (95% CI, −68% to −46%) relative change in mortality per week, corresponding to an EAD in mortality of 12.6 (95% CI, 11.8 to 13.6) deaths per 100 000. The authors postulate that school closure caused 1.37 million fewer COVID-19 cases over a 26-day period and 40 600 fewer deaths over 16 days during the spring of 2020.[9]

Impact of reopening schools

Based on a published SIR (susceptible-infectious-recovered) model from Shanghai research, reopening schools for all children would maintain effective R0 < 1 up to a baseline R0 of 3.3 if daily contacts among children 10 –19 years are reduced to 33% of baseline. Therefore, Schools can reopen as precautions are observed.[10]

Jasmina Panovska-Griffiths et al. focuses on opening institutions and easing restrictions. They fitted an agent-based model to UK-specific data assessing policies numbers for easing lockdown. They conducted the test, trace, and isolate (TTI) procedures. They concluded that reopening schools (even partially) would lead to the second wave of infections unless testing is enhanced. They do not establish the reason for rising infection when schools reopen, and there are more contacts. [11]

Child-to-child transmission in schools is uncommon and not the primary cause of SARS-CoV-2 infection in children whose onset of infection coincides with the period they are attending school.[12] Publications on the impact of school closure/reopening on community transmission are conflicting. Studies note that closing schools had low

(Continued on page 4)

Impact of school reopening on COVID-19 transmission patterns. Cont..

School-related public-health measures and risks regarding COVID-19.

Table1: Comprehensive, multi-layered measures to prevent introduction and spread of SARS-COV-2 in educational settings (WHO 2020)

Community level	Recommended broader community level measures in communities where schools are reopening: [3] • Early detection of suspected cases, test suspect cases; identify and trace contacts; quarantine contacts • Investigation of clusters to implement and communicate localized measures to limit gatherings and reduce mobility • Physical distancing of at least 1 metre, hand and other personal hygiene practices and age-appropriate wearing of masks when physical distancing cannot be achieved[9] • Community-led initiatives for risk reduction (e.g. addressing incorrect and misleading information, rumours and stigma) and protection/shielding of vulnerable groups and safe public transportation, including organizing "walking buses" and safe cycling routes • Other PHSM, as appropriate.
School level	• Administrative policies: setting attendance and entry rules; cohorting (keeping students and teachers in small groups that do not mix, also referred to as bubble, capsule, circle, safe squad); staggering the start of school, breaks, bathroom, meal and end times; alternate physical presence (e.g. alternate days, alternate shifts) • Infrastructure: Reorganization of the physical space or its use, identifying entry/exists and marking direction of walking, handwashing facilities, building environmental design clues ("nudging") to facilitate appropriate use of space • Maintaining clean environment: frequent cleaning of surfaces and shared objects • Ensuring adequate and appropriate ventilation with priority for increasing fresh outdoor air by opening windows and doors, where feasible, as well as encouraging outdoor activities, as appropriate • The age-appropriate use of masks where physical distancing cannot be maintained; this includes ensuring the availability of masks • Symptom screening by parents and teachers, testing and isolation of suspected cases, as per national procedures; stay-at-home when sick policies • Reorganization of school transportation and arrival/departure times • Clear accessible sharing of information, and feedback mechanisms established with parents, students and teachers • Continuation of essential school-based services such as mental health and psychosocial support, school feeding and nutrition programmes, immunization and other services.
Classroom level	• Physical distancing where appropriate • Wearing of masks, where recommended • Frequent hand hygiene • Respiratory etiquette • Cleaning and disinfection • Adequate ventilation • Spacing of desks or grouping of children if required.
Individuals at high-risk	• Identification of students and teachers at high-risk of severe illness – those individuals with pre-existing medical conditions; develop appropriate strategies to keep these individuals safe • Adoption of a coordinated and integrated approach to ensure vulnerable children's holistic needs (protection, mental health and psychosocial support, rehabilitation, nutrition and other issues) • Maintenance of physical distancing and use of medical masks • Frequent hand hygiene and respiratory etiquette.

Impact of school reopening on COVID-19 transmission patterns. Cont..

impact or protection capability for children. consistent and holistic decisions and measures are necessary. [12]

Experiences of reopening of schools

Other studies indicate that widespread COVID-19 transmission has not occurred in schools. There is limited data on the impacts of reopening schools.[13][14][15] Also, multiple outbreak investigations suggest a low transmission risk among school children. A study on a combined 28 child and teacher index cases exposed 2,093 contacts to COVID-19 with only 2 transmissions (0.01% attack

Table 2: CDC indicators and thresholds for risk of introduction and transmission of COVID-19 in schools (2020)

INDICATORS	Lowest risk of transmission in schools	Lower risk of transmission in schools	Moderate risk of transmission in schools	Higher risk of transmission in schools	Highest risk of transmission in schools
CORE INDICATORS					
Number of new cases per 100,000 persons within the last 14 days*	<5	5 to <20	20 to <50	50 to ≤ 200	>200
Percentage of RT-PCR tests that are positive during the last 14 days**	<3%	3% to <5%	5% to <8%	8% to ≤ 10%	>10%
Ability of the school to implement 5 key mitigation strategies: • Consistent and correct use of masks • Social distancing to the largest extent possible • Hand hygiene and respiratory etiquette • Cleaning and disinfection • Contact tracing in collaboration with local health department Schools should adopt the additional mitigation measures outlined below to the extent possible, practical and feasible.	Implemented **all 5** strategies correctly and consistently	Implemented **all 5** strategies correctly but inconsistently	Implemented **3-4** strategies correctly and consistently	Implemented **1-2** strategies correctly and consistently	Implemented **no** strategies
SECONDARY INDICATORS					
Percent change in new cases per 100,000 population during the last 7 days compared with the previous 7 days (negative values indicate improving trends)	<-10%	-10% to <-5%	-5% to <0%	0% to ≤ 10%	>10%
Percentage of hospital inpatient beds in the community that are occupied***	<80%	<80%	80 to 90%	>90%	>90%

Impact of school reopening on COVID-19 transmission patterns. Cont..

Percentage of intensive care unit beds in the community that are occupied***	<80%	<80%	80 to 90%	>90%	>90%
Percentage of hospital inpatient beds in the community that are occupied by patients with COVID-19***	<5%	5% to <10%	10% to 15%	>15%	>15%
Existence of localized community/public setting COVID-19 outbreak****	No	No	Yes	Yes	Yes

*Number of new cases per 100,000 persons within the last 14 days =

$$\frac{\text{Sum of number of new cases in the county in the 14 days}}{14} * 100000$$

**Percentage of RT-PCR tests in the community (e.g., county) that are positive during the last 14 days is calculated by

$$\frac{COVID\ cases\ in\ the\ past\ 14\ days}{total\ number\ of\ test\ results\ in\ the\ last\ 14\ days}$$

***Hospital beds and ICU beds occupied: Indicators community burden and the local healthcare preparedness

**** Sudden increase in the number of COVID-19 cases in a localized community or geographic area as determined by the local and state health department.

Tables 1 & 2 show the risk levels and their indicators for the decision whether to close partially, or fully open schools following implementation of measures reducing COVID19 spread [25] [26]

rate). [16][17] Several pre-print modeling studies have predicted a resurgence of COVID-19 upon reopening schools; however, they propose mitigating impacts by implementing additional measures in schools and society (e.g., reduced class sizes and testing). [18][19]

* In Ireland, Heavey et al. found no secondary COVID19 transmissions despite having three children (all 10-15 years old) and three adults with COVID-19 exposing 1025 people in school settings without preventive measures. [16]

* In New South Wales, Australia, the National Centre for Immunization Research and Surveillance reported one transmission case despite 18 COVID-19 exposing 863 people [17]

* In Singapore, Yung et al. screened children after identifying 3 COVID-19 cases in a school. Seeding incidents in school settings (child in a secondary school, child in a pre-school, staff in a pre-school). The schools performed hygiene standards, and one closed for 14 days; they tested contacts and obtained negative results in children, but additional cases in a staff.[20]

* Brown et al. symptomatic COVID-19 teacher in the US reported the only 1 child in 5 students exposed to the teacher in a classroom setting with serological testing showed serological evidence of prior infection, and another child had an indeterminate result.[21]

* Hildenwall et al. establish low infection rate in school-going children. they reported 63 pediatric admissions (0-18 years), representing 0.7% of all hospitals.[22]

* Fontanet et al. (pre-print) found no evidence of onward transmission in follow-up tests for a primary school with 3 positive students and no positive preventive measures. Four weeks test found parents (11.9%, 76/641) and relatives (11.8%, 14/119) infected, whereas students (8.8%, 45/510), teachers (7.1%, 3/42), and staff (3.6%, 1/28) had lowest cases.[23]

Impact of school reopening on COVID-19 transmission patterns. Cont..

Which reopening scenario and what type of learning to choose?

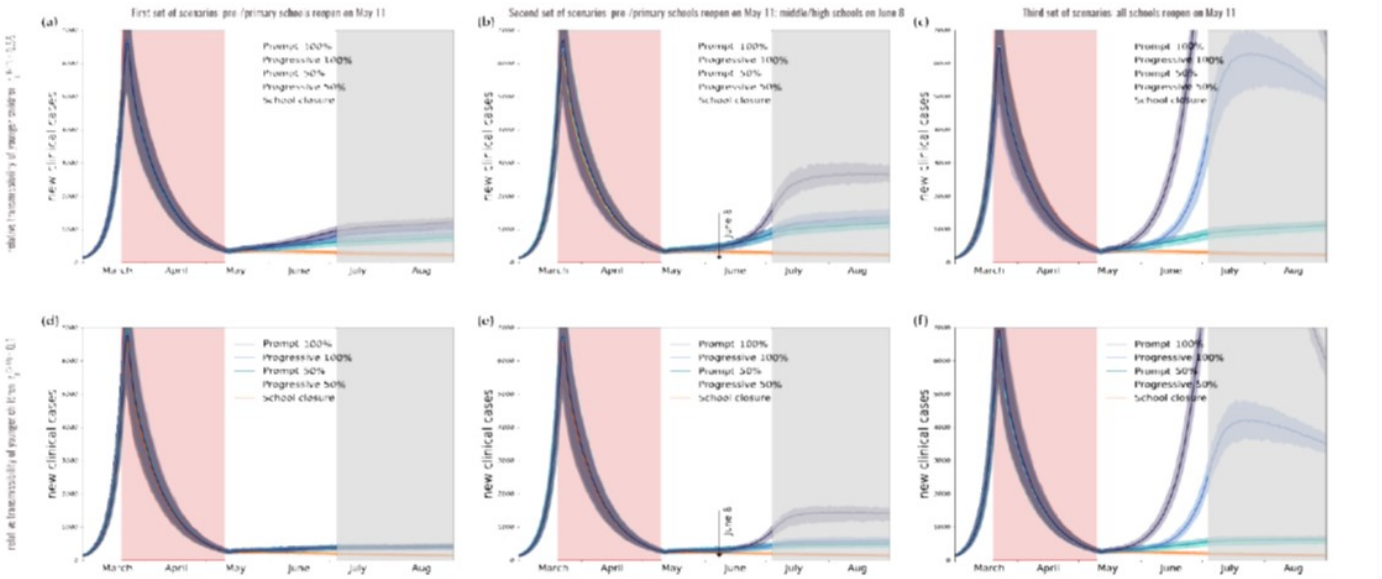

Figure 1. Simulated epidemic activity in scenarios with reopening of schools.

Figure 1. **Simulated epidemic activity in scenarios with reopening of schools.** (a-c) Simulated daily number of new clinical cases if only pre-schools and primary schools are reopened on May 11 through 4 different protocols (first set of scenarios, panel a), additionally considering the reopening of middle and high schools on June 8 (second set of scenarios, panel b), or assuming that all school levels reopen on May 11 (third set of scenarios, panel c). Four protocols (Progressive (100% ,50%), Prompt (100%, 50%)) are compared to the school closure scenario. Results are obtained for relative transmissibility of younger children $r_{\beta}^{[0\text{-}11]}$=0.55, i.e., younger children are as infectious as adolescents. (d-f) As panels(a-c) assuming $r_{\beta}^{[0\text{-}11]}$=0.1. The red area indicates the lockdown phase; the grey area indicates the summer holiday. Results are obtained considering moderate social distancing interventions coupled with 50% case isolation.[18]

According to Figure (1), either prompt or progressive (100%) opening of schools has high thresholds than partial opening estimations [18]

The Saudi Epidemiology Bulletin welcomes reports from the regions.
Send correspondence, comments, calendar listing, or articles to:

Saudi Epidemiology Bulletin
Editor-in-Chief
P.O. Box 6344
Riyadh 11442, Saudi Arabia

For Epidemiological assistance
☎ Call or Fax the FETP at 011-4939675 (Fax extension 206)
www.fetp.edu.sa
info@fetp.edu.sa

To access all published volumes of the **Saudi Epidemiology Bulletin**, visit the website:
http://fetp.edu.sa/SEB.php

Impact of school reopening on COVID-19 transmission patterns. Cont..

Table (3) Shows that many countries have partially opened schools, usually in favor of lower grades depending on a hybrid system that utilizes online learning. Most of these countries showed an increase in daily cases reflected on attack rates but not on the case fatality rates (CFR) that decreased in general. The reproduction number (R_0) was usually one or less, like countries that just opened schools 24 hours ago like India, except Iran and Japan were the (R_0) approximately two. On the other hand, Sweden and Denmark showed decreased daily cases, attack rates, and CFR during the partial reopening periods of the schools.

Table 3. Different indices for the COVID-19 for different countries with different approaches regarding education. UNESCO

Country	Opening Vs. Closing	Mech. Of opening	Daily new cases [30]		Attack rate Per 100	CFR Per 100	Indicator
South Korea	The school openings were delayed three times in March 2020. Online classes started from April 9, and offline classes started from May 20 to June 8.	• Offline school opening • Personal hygiene • Virus prevention measures • Response measures • Low-class attendance depending on COVID19 local prevalence	May 20 June 3 June 17 July 1 July 15 July 29 August 12 August 26	32 case 49 Case 43 Case 50 Case 39 Case 48 Case 54 Case 320 Case	0.00006237% 0.00009551% 0.000083% 0.00009746% 0.00007692% 0.0000935% 0.0001052% 0.0005458%	2% 2.3% 2.2% 2.19% 2.13% 2.10% 2.07% 1.7%	Reopening decisions are typically based on declining COVID-19 rates for a period. Schools are closed in areas with spikes.
Denmark	After the closure of schools that started around March 16, 2020, Denmark reopened schools for children under 11 years of age on April 15, 2020.	• Primary school children were the first opened first • Small student groups with • minimal inter-group contact • staggered timing for arrivals (lunch and other activities) • Individual desks spaced 6 feet apart • Handwashing and sanitization, wear face masks.	April 15 April 29 May 13 May 27 June 10 June 24 July 8 July 22 August 5 August 19	170 Cases 157 Cases 76 Cases 52 Cases 15 Cases 54 Cases 12 Cases 46 Cases 112 Cases 85 Cases	0.002931% 0.002586% 0.001224% 0.0008965% 0.0002586% 0.000931% 0.000206% 0.000724% 0.001931% 0.001465%	4.6% 4.9% 4.9% 4.92% 4.93% 4.7% 4.7% 4.5% 4.3% 3.8%	The infection rate has risen since reopening kindergartens. The reproduction rate has increased from 0.6 to 0.9 (figure of 1)- each infected person on average infects on average one person. Teachers and student unions decide [31]

Impact of school reopening on COVID-19 transmission patterns. Cont..

Table 3. Different indices for the COVID-19 for different countries with different approaches regarding education. UNESCO Cont...

Country	Opening Vs. Closing	Mech. Of opening	Daily new cases [30]	Daily new cases [30]	Attack rate Per 100	CFR Per 100	Indicator
Norway	In response to the COVID-19 pandemic, schools in Norway were closed on March 11, 2020.9 Reopening of schools started on April 20	• Gradual reopening of the society, starting with children's day-cares April 20, primary school grades 1 to 4 on April 27, and higher grades (5 to 13) on May 11. • Classes are limited to ≤15 students. • children wash their desks daily, divided playgrounds	May 11 May 25 June 8 June 22 July 6 July 20 August 3 August 17	27 cases 12 cases 14 cases 6 cases 6 cases 6 cases 66 cases 55 cases	0.000497% 0.00022% 0.000258% 0.000110% 0.000110% 0.000110% 0.00121% 0.00101%	2.75% 2.81% 2.79% 2.79% 2.81% 2.82% 2.74% 2.59%	Schools reopened following a 0.70 RO report by the NIPH (95% confidence interval (95%CI) of 0.45-1.[28]
Germany	Schools in Germany were closed starting around March 3, 2020, and began reopening around May 4 for older students.	• Personalized desks spaced ≥6 feet apart • Shorter schooldays • Online lessons • ≤10 students per class • SARS-CoV tests every 4 days •	May 4 May 18 June 1 June 15 June 29 July 13 July 27 August 10 August 24	488 cases 638 cases 271 cases 373 cases 528 cases 486 cases 638 cases 1219 case 1628 case	0.000582% 0.000761% 0.000323% 0.000445% 0.000629% 0.000579% 0.000761% 0.001454% 0.00194%	4.21% 4.58% 4.695% 4.72% 4.63% 4.56% 4.44% 4.24% 3.95%	Monitors the reproduction Number. The Rt at the time of reopening schools was around one. A number lower than 1 is safer. [32]
Iran	On May 16, Iran reopened schools in 130 cities with low infection rates after nearly three months of closure due to COVID-19.	• Colour coding for cities (high-red, low-white) • 130 cities are labeled low risk and can open schools • Health ministry guidelines • Wear masks, gloves • No returning to school. • Home-schooling	May 16 May 30 June 13 June 27 July 11 July 25 August 8 August 22	1757 case 2282 case 2410 case 2456 case 2397 case 2316 case 2125 case 2028 case	0.00208% 0.00271% 0.00286% 0.00291% 0.00285% 0.00275% 0.00252% 0.00241%	3.60% 5.19% 4.72% 4.71% 4.95% 5.36% 5.63% 5.75%	R0 of COVID-19 was 4.86 in the first week of the outbreak (critical). The reproduction number reduced to 4.5. the numbers are suspected of having been higher. additional measures reduced the number to 2.1 approving social distancing measures' effectiveness.[27] [29]

Impact of school reopening on COVID-19 transmission patterns. Cont..

Table 3. Different indices for the COVID-19 for different countries with different approaches regarding education. UNESCO Cont...

Country	Opening Vs. Closing	Mech. Of opening	Daily new cases [30]	Daily new cases [30]	Attack rate Per 100	CFR Per 100	Indicator
Sweden	Sweden did not close schools for students in kindergarten through grade 9 in response to the COVID-19 pandemic. Schools were closed for students in upper secondary grades from around March 18, 2020, through June 14, after which schools were reopened for all students.	No major adjustments to class size, lunch policies, or recess rules were instituted.	June 14 June 28 July 12 July 26 August 9 August 23	418 cases 475 cases 113 cases 42 cases 73 cases 57 cases	0.00413% 0.00470% 0.00112% 0.00042% 0.00072% 0.00056%	9.88% 8.22% 7.75% 7.57% 7.27% 6.98%	The percentage of reported cases among schoolchildren is $1/10^{th}$ of their percentage population. Very few ICU cases and no deaths reported in cases aged 1-19 years [33]
France	In response to the COVID-19 pandemic, schools in France were closed on March 3, 2020. Reopening of schools started on May 11	• Staggered school reopening, mostly in green zones • Low-class population • Face masks are mandatory in secondary schools[34]	May 11 May 25 June 8 June 22 July 6 July 20 August 3 August 17	456 cases 358 cases 211 cases 373 cases 176 cases 350 cases 556 cases 493 cases	0.000698% 0.000548% 0.000323% 0.000571% 0.000269% 0.000536% 0.000851% 0.000755%	19.08% 19.55% 18.93% 18.42% 17.76% 17.06% 15.83% 13.89%	
Belgium	Schools in Belgium were reopened starting on May 18, 2020.	• Staggered reopening • Classroom size ≤ 10 students • Split schedules/ alternate school days • Teachers - face mask, social distance • Children grouping in class and playground.	May 18 June 1 June 15 June 29 July 13 July 27 August 10 August 24	279 cases 136 cases 71 cases 66 cases 101 cases 299 cases 751 cases 468 cases	0.00240% 0.00117% 0.00061% 0.00057% 0.00087% 0.00258% 0.00648% 0.00403%	16.17% 16.03% 15.89% 15.70% 15.42% 14.70% 13.16% 12.05%	A 2-3 reproduction number at the start. The number declined to 0.6 on May 4. Summer holidays are likely to end on September 1. If current infection rates stay steady in Belgium, students 12 and older will attend school four days a week, with an additional half-day of virtual schooling.[34] [35]

Impact of school reopening on COVID-19 transmission patterns. Cont..

Table 3. Different indices for the COVID-19 for different countries with different approaches regarding education. UNESCO Cont...

Country	Opening Vs. Closing	Mech. Of opening	Daily new cases [30]	Daily new cases [30]	Attack rate Per 100	CFR Per 100	Indicator
Switzerland	Schools reopened in Switzerland on May 11, 2020	• Staggered reopening • Small class sizes • 2-days in-person classes • Social distancing • Hand sanitization [34][36]	May 11	39 cases	0.00045%	6.08%	
			May 25	10 cases	0.00011%	6.225	
			June 8	7 cases	0.00008%	6.20%	
			June 22	18 cases	0.00020%	6.25%	
			July 6	47 cases	0.00054%	6.08%	
			July 20	43 cases	0.00049%	5.85%	
			August 3	66 cases	0.00076%	5.56%	
			August 17	128 cases	0.00147%	5.20%	
Greece	In response to the COVID-19 pandemic, schools in Greece were closed on March 11, 2020. Reopening of schools started on June 1	•Staggered reopening •Class sizes ≤15 students •1.5 meters' desk spacing •14 staggered breaks [37]	June 1	1 case	0.0000096%	6.13%	
			June 15	13 cases	0.0001248%	5.87%	
			June 29	14 cases	0.0001344%	5.63%	
			July 13	23 cases	0.0002208%	5.04%	
			July 27	34 cases	0.0003264%	4.78%	
			August 10	126 cases	0.0012098%	3.70%	
			August 24	155 cases	0.0014883%	2.74%	
Japan	Schools in Japan were closed on March 2, 2020, and reopened on March 24, 2020.	• The Prime Minister • Reopening schools is up to local municipalities.10 • The Ministry of Health guidelines • Windows to ventilate classrooms • Maintaining physical distance • Daily temperatures daily, and wearing face masks.[38]	March 24	65 cases	0.0000514%	3.60%	The basic reproduction rate in Japan from March 6 to March 15 was 1.053 and from March 15 to March 31 was 1.954.
			April 7	351 cases	0.0002776%	2.18%	
			April 21	377 cases	0.0002982%	2.44%	
			May 5	175 cases	0.0001384%	3.65%	
			May 19	62 cases	0.0000490%	4.69%	
			June 2	33 cases	0.0000261%	5.28%	
			June 16	85 cases	0.0000672%	5.27%	
			June 30	117 cases	0.0000925%	5.22%	
			July 14	352 cases	0.0002784%	4.41%	
			July 28	972 cases	0.0007689%	3.22%	
			August 11	938 cases	0.0007420%	2.15%	
			August 25	614 cases	0.0004857%	1.89%	

Impact of school reopening on COVID-19 transmission patterns. Cont..

Table 3. Different indices for the COVID-19 for different countries with different approaches regarding education. UNESCO Cont...

Country	Opening Vs. Closing	Mech. Of opening	Daily new cases [30]	Daily new cases [30]	Attack rate Per 100	CFR Per 100	Indicator
Vietnam		• Only students without fever were allowed to return to class • Mandatory temperature check • Facemasks • maintain physical distancing	May 18 June 1 June 15 June 29 July 13 July 27 August 10 August 24	4 cases 0 cases 0 cases 0 cases 0 cases 11 cases 6 cases 6 cases	0.0000041% 0 0 0 0 0.0000115% 0.0000062% 0.0000062%	0 0 0 0 0 0 1.77% 2.64%	The reproduction Number of Covid-19 in Vietnam until March 23, 2020, was 1.46. There was a small secondary spike in daily cases in Vietnam after schools reopened, but the actual number of cases is low and was quickly brought under control.[39]
Taiwan	Schools extended the winter break for 2 weeks and reopened on February 25, 2020.	• Schools were never officially closed • Winter break extended by two weeks • Temperature checks a • Plastic tabletop desk partitions • Face masks • No desk-space • Expand eating areas to increase physical distancing • Student-athletes practice, but competitions have been canceled. [40]	February 25 March 10 March 24 April 7 April 21 May 5 May 19 June 2 June 16 June 30 July 14 July 28 August 11 August 25	1 case 2 cases 21 cases 3 cases 3 cases 0 cases 0 cases 0 cases 0 cases 0 cases 0 cases 5 cases 0 cases 0 cases	0.0000041% 0.0000083% 0.0000881% 0.0000125% 0.0000125% 0 0 0 0 0 0 0.0000209% 0 0	3.22% 2.12% 0.92% 1.32% 1.41% 1.37% 1.59% 1.58% 1.57% 1.56% 1.55% 1.49% 1.45% 1.44%	
India	The schools were closed on March 25, 2020, and are still closed till now.		August 25	66,873 cases			On March 25, the R0 value is around 1.37. R0 of 1.56 for the period 4-19 April 2020. From May 18 till May 30, the R0 value decreased down from 1.12 to 1.08.

Impact of school reopening on COVID-19 transmission patterns. Cont..

Conclusion:

There is little evidence on the consequences of reopening schools on COVID-19. Countries are adopting controlled partial reopening. Schools will report low grades as they recover. Integrating online and offline lessons is preferable to in-person.

The progressive opening of schools has less effect on the reproduction number than prompt one. However, schools must calculate risks and cost benefits. Measures like progress assessment and community control levels evaluations are necessary. Countries with low daily and fatal cases can start trials based on different COVID-19 infection rates in specific cities.

References:

1. Macartney K Quinn HE Pillsbury AJ et al. Transmission of SARS-CoV-2 in Australian educational settings: a prospective cohort study. Lancet Child & Adolescent Health. 2020; (published online August 3.) https://doi.org/10.1016/S2352-4642(20)30251-0

2. Heavey L Casey G Kelly C Kelly D McDarby G. There is no evidence of secondary transmission of COVID-19 from children attending school in Ireland, 2020.Euro Surveill. 2020; 252000903

3. Fontanet A Tondeur L Madec Y et al. Cluster of COVID-19 in northern France: A retrospective cohort study.medRxiv. 2020; (published online April 23.) (pre-print) https://doi.org/10.1101/2020.04.18.20071134

4. Fontanet A Grant R Tondeur L et al. SARS-CoV-2 infection in primary schools in northern France: a retrospective cohort study in an area of high transmission. medRxiv. 2020; (published online June 29.) (pre-print) https://doi.org/10.1101/2020.06.25.20140178

5. Park YJ Choe YJ Park O et al. Contact tracing during a coronavirus disease outbreak, South Korea, 2020. Emerg Infect Dis. 2020; (published online July 16.) https://doi:10.3201/eid2610.201315

6. Jhon W Edmonds. Finding a path to reopen schools during the COVID-19 pandemic. Lancet Child Adolescent Health. 2020; (published online August 3.) DOI:https://doi.org/10.1016/S2352-4642(20)30249-2

7. Cauchemez S, Ferguson NM, Wachtel C, et al. Closure of schools during an influenza pandemic. *Lancet Infect Dis*. 2009;9(8):473-481. doi:10.1016/S1473-3099(09)70176-8PubMed

8.Viner RM, Russell SJ, Croker H, et al. School closure and management practices during coronavirus outbreaks including COVID-19: a rapid systematic review. *Lancet Child Adolesc Health*. 2020;4(5):397-404. doi:10.1016/S2352-4642(20)30095-X

9.Auger KA, Shah SS, Richardson T, et al. Association between statewide school closure and COVID-19 incidence and mortality in the US. *JAMA*. Published online July 29, 2020. doi:10.1001/jama.2020.14348

10.Benjamin Lee, John P Hanle ,Sarah Nowak,Jason HT Bates and Laurent Hébert-Dufresne.
Modeling the Impact of School Reopening on SARS-CoV-2 Transmission. ResearchSquare pre-print.
DOI: https://doi.org/10.21203/rs.3.rs-38176/v1

11. Panovska-Griffiths J Kerr CC Stuart RM et al. Determining the optimal strategy for reopening schools, the impact of test and trace interventions, and the risk of occurrence of a second COVID-19 epidemic wave in the UK: a modeling study. Lancet Child Adolesc Health. 2020; (published online August 3.) DOI: https://doi.org/10.1016/S2352-4642(20)30250-9

12. COVID-19 in children and the role of school settings in COVID-19 transmission. August 6, 2020. European Centre for Disease Prevention and Control, Stockholm,2020. https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-schools-transmission-August%202020.pdf

13. National Collaborating Centre for Methods and Tools. Rapid evidence review: what is the specific

role of daycares and schools in COVID-19 transmission? [Internet]. Version 2. Hamilton, ON: National Collaborating Centre for Methods and Tools; 2020 [cited 2020 July 23]. Available from: https://www.nccmt.ca/uploads/media/ media/0001/02/5f13b54acaff367d6181f45182476c87e4d69120.

14. Choe YJ, Choi EH. Are we ready for coronavirus disease 2019 arriving at schools? J Korean Med Sci. 2020;35(11):e127. Available from: https://doi.org/10.3346/jkms.2020.35.e127

15. Johanssen TB, Astrup E, Jore S, Nilssen H, Dahlberg BB, Klingenberg C, et al. Infection prevention guidelines and considerations for pediatric risk groups when reopening primary schools COVID19 pandemic, Norway,

Impact of school reopening on COVID-19 transmission patterns. Cont..

References: Cont..

April 2020. Euro Surveill. 2020;25(22):2000921. Available from: https://doi.org/10.2807/1560-7917.ES.2020.25.22.2000921

16. Heavey L, Casey G, Kelly C, Kelly D, McDarby G. There is no evidence of secondary transmission of COVID -19 from children attending school in Ireland, 2020. Euro Surveill. 2020;25(21):05. Available from: https://doi.org/10.2807/1560-7917.ES.2020.25.21.2000903

17. National Centre for Immunisation Research and Surveillance (NCIRS). COVID-19 in schools – the experience in NSW. Sydney: New South Wales Government; 2020 [cited 2020 July 23]. Available from: http://ncirs.org.au/sites/default/files/202004/NCIRS%20NSW%20Schools%20COVID_Summary_FINAL%20public_26%20April%202020.pdf

18. Di Domenico L, Pullano G, Sabbatini CE, Boëlle P-Y, Colizza V. Expected impact of reopening schools after lockdown on COVID-19 epidemic in Île-de-France. medRxiv 20095521 [Preprint]. 2020 May 12 [cited 2020 July 23]. Available from: https://doi.org/10.1101/2020.05.08.20095521

19. Panovska-Griffiths J, Kerr C, Stuart RM, Mistry D, Klein D, Viner RM, et al. Determining the optimal strategy for reopening schools, work and society in the UK: balancing earlier opening and the impact of test and trace strategies with the risk of occurrence of a secondary COVID-19 pandemic wave. medRxiv 20100461 [Preprint]. 2020 June 1 [cited 2020 July 23]. Available from: https://doi.org/10.1101/2020.06.01.20100461

20. Yung CF, Kam KQ, Nadua KD, Chong CY, Tan NWH, Li J, et al. Novel coronavirus 2019 transmission risk in educational settings. Clin Infect Dis. 2020 June 25 [Epub ahead of print]. Available from: https://doi.org/10.1093/cid/ciaa794

21. Brown NE, Bryant-Genevier J, Bandy U, Browning CA, Berns AL, Dott M, et al. Antibody responses after classroom exposure to teacher with coronavirus disease, March 2020. Emerg Infect Dis. 2020;26(9):29. Available from: https://doi.org/10.3201/eid2609.201802

22. Hildenwall H, Luthander J, Rhedin S, Herting O, Olsson-Akefeldt S, Melen E, et al. Paediatric COVID19 admissions in a region open schools during the two first months of the pandemic. Acta Paediatr. 2020 June 21 [Epub ahead of print]. Available from: https://doi.org/10.1111/apa.15432

23. Fontanet A, Tondeur L, Madec Y, Grant R, Besombes C, Jolly N, et al. Cluster of COVID-19 in northern France: a retrospective closed cohort study. medRxiv 20071134 [Preprint]. 2020 Apr 23 [cited 2020 Jul 23]. Available from: https://doi.org/10.1101/2020.04.18.20071134

24. Torres JP, Piñera C, De La Maza V, Lagomarcino AJ, Simian D, Torres B, et al. SARS-CoV-2 antibody prevalence in blood in a large school community subject to a Covid-19 outbreak: a cross-sectional study. Clin Infect Dis. 2020 July 10 [Epub ahead of print]. Available from: https://doi.org/10.1093/cid/ciaa955

25. WHO considerations for school-related public health measures in the context of COVID-19. September 14, 2020.Available from: file:///C:/Users/sakamel/Downloads/School/WHO-2019-nCoV-Adjusting_PH_measures-Schools-2020.2-eng.pdf

26. CDC indicators and thresholds for risk of introduction and transmission of COVID-19 in schools. September 15, 2020. Available from: https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/indicators.html#thresholds

27. The Iran primer. (2020). Iran's-schools-begin-reopen @ iranprimer.usip.org. https://iranprimer.usip.org/blog/2020/may/19/iran's-schools-begin-reopen

28. Guthrie, B. L., Tordoff, D. M., Meisner Bvm&s, J., Tolentino Bs, L., Jiang Mph, W., Fuller, S., Facmi, P., Mph, D. G., Mlib, D. L., & Ross, J. M. (2020). Summary of School Re-Opening Models and Implementation Approaches During the COVID 19 Pandemic Summary of School Re-opening Models by Country Country Current Status. https://en.unesco.org/covid19/ educationresponse https://doi.org/10.2807/1560-7917.ES.2020.25.22.2000921

29. Staff, A.-M. (n.d.). Iran-open-schools-coronavirus-covid19-pandemic-mosques @ www.al-monitor.com. https://www.al-monitor.com/pulse/originals/2020/05/iran-open-schools-coronavirus-covid19-pandemic-mosques.html

30. Worldometer. (2020). COVID-19 CORONAVIRUS PANDEMIC. https://www.worldometers.info/coronavirus/

31. Stage HB, Shingleton J, Ghosh S, Scarabel F, Pellis L, Finnie T. Shut and reopen the role of schools in the spread of COVID-19 in Europe. medrxiv [Int ernet]. 2020 June 26; Available from: https://doi.org/10.1101/2020.06.24.20139634

Impact of school reopening on COVID-19 transmission patterns. Cont..

References: Cont..

32. Bennhold K. As Europe Reopens Schools, Relief Combines With Risk - The New York Times. New York Times [Internet]. 2020 May 10 [cited 2020 July 1]; Available from: https://www.nytimes.com/2020/05/10/world/europe/reopen-schools-germany.html

33. Vogel G. How Sweden wasted a 'rare opportunity to study coronavirus in schools. Science (80-) [Internet]. American Association for the Advancement of Science (AAAS); 2020 May 22 [cited 2020 July 1]; Available from: https://doi.org/10.1126/science.abc9565

34. Lyst C. Coronavirus: What is a blended model of learning? BBC [Internet]. 2020 May 22 [cited 2020 June 30]; Available from: https://www.bbc.com/news/uk-scotland-52412171

35. Moens B. All nursery and primary schools in Belgium to reopen in June. Politico [Internet]. 2020 May 27; Available from: https://www.politico.eu/article/all-nursery-and-primary-schools-inbelgium-to-reopen-in-june/

36. Farge E, Miller J. Swiss back-to-school angst illustrates worries around easing lockdowns - Reuters. Reuters [Internet]. 2020 May 10 [cited 2020 July 1]; Available from: https://www.reuters.com/article/us-health-coronavirus-swiss-education/swiss-back-to-schoolangst-illustrates-worries-around-easing-lockdowns-idUSKBN22M0EH

37. Hope K. Coronavirus: Greece to reopen more schools — as it happened. Financial Times [Internet]. May [cited 2020 July 1]; Available from: https://www.ft.com/content/dcdadf44-37ed-3e2c-bdfffe475617c6e8

38. How are schools reopening after coronavirus lockdowns? [Internet]. World Economic Forum. 2020 [cited 2020 Jul 1]. Available from: https://www.weforum.org/agenda/2020/05/coronaviruscountries-schools-education-covid19-reopen-classroom

39. Ward A. Germany, Vietnam, and New Zealand reopening schools despite coronavirus - Vox. Vox [Internet]. 2020 May 27 [cited 2020 July 1]; Available from: https://www.vox.com/21270817/coronavirus-schools-reopen-germany-vietnam-new-zealand

40. Will M. How Schools in Other Countries Have Reopened - Education Week. Educ Week [Internet]. 2020 [cited 2020 June 30]; Available from: https://www.edweek.org/ew/articles/2020/06/11/how-schools-in-other-countries-havereopened.html

Disclaimer: *This review was prepared on February 2021 and since then, new data and variables have evolved that may or may not have effect on the decision to reopen schools. Further updates may follow in the next volume of this bulletin.*

The Saudi Epidemiology Bulletin welcomes reports from the regions.
Send correspondence, comments, calendar listing, or articles to:

Saudi Epidemiology Bulletin
Editor-in-Chief
P.O. Box 6344
Riyadh 11442, Saudi Arabia

For Epidemiological assistance
☎ Call or Fax the FETP at 011-4939675 (Fax extension 206)
www.fetp.edu.sa
info@fetp.edu.sa

To access all published volumes of the **Saudi Epidemiology Bulletin**, visit the website:
http://fetp.edu.sa/SEB.php

Job satisfaction of health care workers in Mina primary healthcare centers during Hajj season (1439H-2018G)

Reported by: *Bdr Alibrahim,Shady A. Kamel, Eman M. Saleh, Sami S. Almudarra, Mohamed Najeeb, Nawaf Albali, Suhaib AS, Rayan AlMutairi,Abdulaziz AlDoshan, Saad AlHarbi, ,Sari Assiri*

Hajj is a unique gathering of all Muslims from all over the world. For a successful Hajj season, the huge numbers of pilgrims require a highly efficient healthcare system. Between 500-1000 Healthcare workers (HCWs) are deployed to work in Mina primary healthcare centers (PHCCs) each year.

These centers are visited by about 300000 pilgrims during Hajj. Many factors can affect (HCWs) to perform optimally in such a high-pressure work environment. (Elshinawy et.al,2008)

We opted to study the levels of satisfaction of the HCWs in Mina primary healthcare centers. We conducted a cross-sectional study in Mina PHCCs. The PHCCs were selected using systematic random sampling. All HCWs in the enrolled PHCCs were interviewed through a structured Likert scale questionnaire. Total number of PHCs in Mina area was 32. (*Figure 1*)

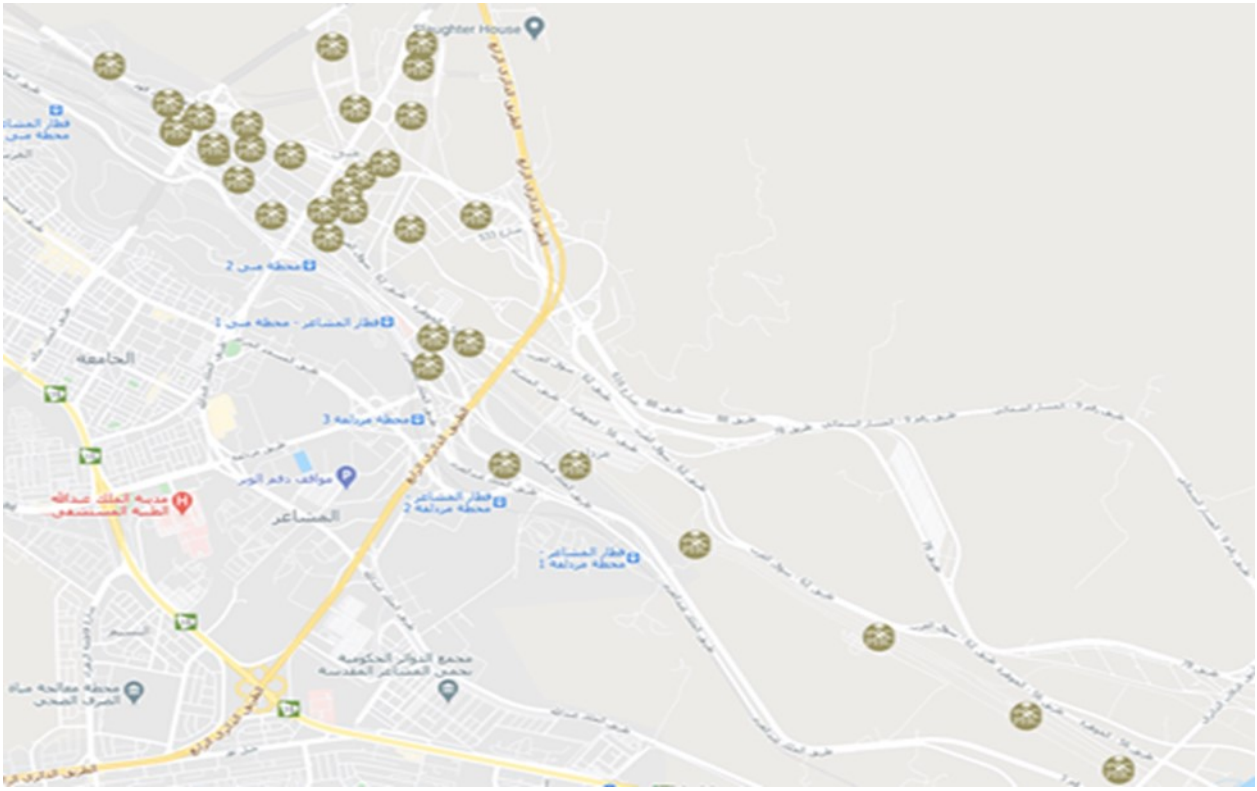

Figure 1. Map showing PHCs distribution in Mina

We randomly chose every other PHC from a list and used an anonymous self-administered questionnaire to gather the data from all the available HCWs of different categories (Doctors, nurses, pharmacies and technicians) working at different shift times. The questionnaire included two sections. The first was the demographic data such as age, gender, nationality, job title and number of hajj participations. The second was the satisfaction levels concerning the transportation, cooperation, serving cultural diversity, tasks assigned are within specialty scope, compensation, equipment, environment, accommodation, workloads and policies.

193 HCWs (from 13 PHCCs) were included out of 559 (from 26 working PHCCs). Most of the HCWs were males (65.3%), Saudis (74.6%), nurses (52.8%), first time participants (39.4%) and tricenarians (30-39 years) (59.6%). *(Table 1)*

Job satisfaction of health care workers in Mina primary healthcare centers during Hajj season (1439H-2018G) Cont..

Table 1: Demographic characteristics for different groups of HCWs.

Demography	Category	Count	Percentage
Age	20 - 29	29	15.0%
	30 - 39	115	59.6%
	40 - 49	41	21.2%
	50 - 59	8	4.1%
Sex	Male	126	65.3%
	Female	67	34.7%
Nationality	Saudi	144	74.6%
	Non-Saudi	49	25.4%
Job title	Physician	44	22.8%
	Nurse	102	52.8%
	Pharmacist	31	16.1%
	Technicians	16	8.3%
Participation	1st time	76	39.4%
	2 - 3 times	59	30.6%
	4 - 5 times	27	14.0%
	>5 times	31	16.1%

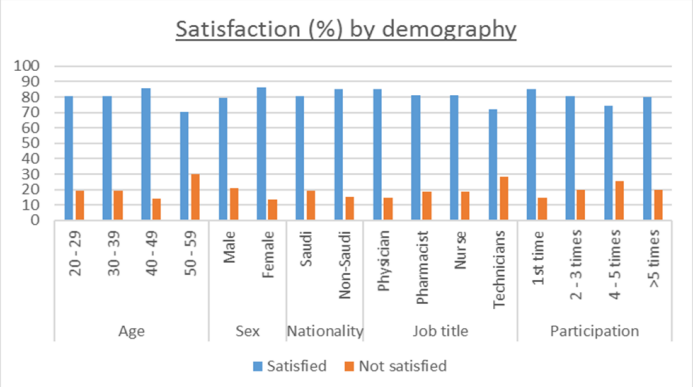

Figure 2: Satisfaction of the HCWs as percentage by demography.

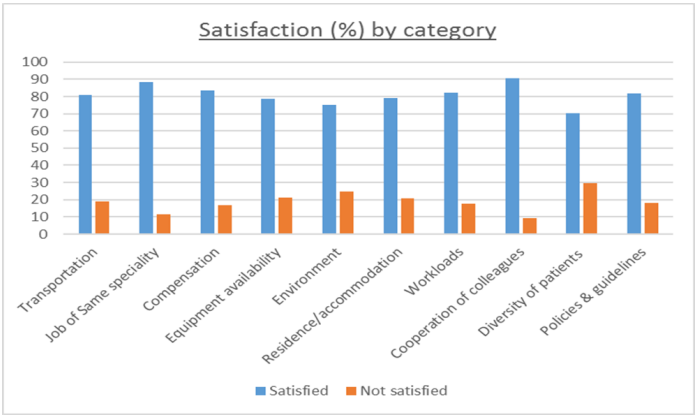

Figure 3: Satisfaction of the HCWs as percentage by category.

Overall satisfaction was 81.1 %(95%CI=5.49%); HCWs were satisfied the most with co-operation of colleagues (90.7%) and the least with serving diversity of cultures (29. 5%). In general, the most dis-satisfied groups were: old(>50years), males, Saudis, technicians and frequent Hajj participants. (Figure 2 & 3).

Tricenarians were highly satisfied with accommodation (P value=0.027). Females were significantly more satisfied with the environment (P value=0.001), accommodation (P value=0.021), compensation (P value=0.023) and workload (P value=0.018). The first time participants showed significant satisfaction with availability of equipment (P value=0.048) and work guidelines (P value=0.044). Men were dis-satisfied by the transportation (P value=0.025). Saudis were less satisfied by the environment (P value=0.026). Technicians were significantly dis-satisfied with the unavailability of equipment (P value=0.004) and high workload (P value=0.046). nurses were dis-satisfied by doing tasks that were not assigned to their specialty (P value =0.036). There were no differences between any of the groups regarding the transportation, co-operation of colleagues and serving cultural diversity. *(Table 2).*

Editorial notes:

Some recent studies assessing HCWs job satisfaction during Hajj included only one category of participants. Mirza et.al,2018 included only surgeons while Banaser et.al,2018 included only nurses. Other studies like Elshinawy et.al; 2008 and Kalantan et.al;1999 included wider range of specialties but were outdated.

Our study revealed similar rates of job satisfaction to that of Elshinawy et.al,2008, that reported 83.73%. In addition, Saudi, males were least satisfied. On the other hand, our study stated that females, younger age and first time participants were more satisfied.

According to Banaser et.al, 2018, Nurses reported the lowest level of job satisfaction when assessed against the items 'multiple policies and procedures that were perceived as complicating nursing work', 'incompetence of other people they work with' and 'too much burden at work'. The present study, as nurses reported 'being assigned tasks that were not relevant to their job description' as the only dis-satisfying factor.

In general, serving pilgrims, compensations and a highly cooperative work environment were factors of a positive effect on workers.

Reconsideration of the work environment, accommodation and workload could increase the rates of job satisfaction. Orientations, simulations and trainings of the old

Job satisfaction of health care workers in Mina primary healthcare centers during Hajj season (1439H-2018G) Cont..

Table 2: Relation between demographic factors and satisfaction by category.

	AGE	SEX	NATIONALITY	JOB TITLE	PARTICIPATIONS
TRANSPORTATION	0.443	**0.025***	0.844	0.249	0.181
COOPERATION					
SERVING CULTURAL DIVERSITY	0.432	0.055	0.400	0.315	0.134
TASKS ASSIGNED ARE WITHIN SPECIALTY SCOPE	0.687	0.436	0.397	**0.036***	0.769
COMPENSATION	0.765	**0.023***	0.367	0.477	0.949
EQUIPMENT				**0.004***	**0.048***
ENVIRONMENT	0.773	**0.001***	**0.028***	0.900	0.620
ACCOMMODATION	**0.027***	**0.021***	0.145	0.573	0.534
WORKLOADS	0.177	**0.018***	0.494	0.873	0.297
POLICIES	0.153	0.739	0.240	0.355	**0.044***

HCWs, males and technicians before Hajj can help render those groups mentally prepared for the special work conditions during Hajj. Including more females to the hajj task force females to the hajj task force would be an advantage.

References:

1. Banaser Manal, Ghulman Fatimah, Almakhalas Hadi, Alghamdi Mohammad: Nurses' job satisfaction during the mass gathering of the Hajj 2018 in Saudi Arabia. International nursing review 67(3):372-379. https://doi.org/10.1111/inr.12590
2. Elshinnawey A.; Othman A. Job Satisfaction of Health Care Workers in The Sacred Places During Hajj Season 1429H (2008G). Egyptian Journal of occupational medicine, Volume 33, Issue 2, July 2009, Page 175186.DOI: 10.21608/EJOM.2009.677. https://ejom.journals.ekb.eg/article_677.html
3. Kalantan KA, AL-Taweel AA, Abdul Ghani H (1999): Factors influencing job satisfaction among primary health care (PHC) physicians in Riyadh, Saudi Arabia. Ann. Saud. Med. 19 (5): 424 -6.
4. Mirza A, Amoudi A, Mian Farooq , Hussam Senan, Rakan Aun, Abdulrahim Mirza , Mohammed Binsaad , Mohamed Haireche , Ziad Al-Ahmadi , Mohammed Halawani :Job satisfaction amongst surgical healthcare professionals during Hajj and Non-Hajj periods: An analytical multi-center cross-sectional study in the holy city of Makkah, Saudi Arabia. journal of the Pakistan Medical Association. 2020 Aug;70 (8):1371-1375. doi:10.5455/JPMA.2880

Disability Prevalence Among Pilgrims and Common Barriers Affecting Their Performance, Hajj 2019.

Reported by: *Nawaf Albali, Kamel SA, AlMudarra SS, Suhaib AS, AlMutairi RM, AlDoshan AM, AlHarbi SM, AlRashidi BA, Gaines J,Sari Assiri*

The World Health Organization estimates that 15% of the world's population experiences some type of disability; in Saudi Arabia, the rate is 7.1%. Approximately 2 million pilgrims attend Hajj each year; about 25% are locals. (1)

Pilgrims with disabilities require special types of assistance and accommodation. An accurate understanding of disability prevalence among pilgrims and the difficulties they experience is imperative to address these needs. (2)

Moreover, the Disabled Persons Care Act mandates all government services to be inclusive of disabled persons across all disability type.

We conducted a cross-sectional study during the period from 18th to 23rd of August seeking to describe the prevalence of disability, types of disability among pilgrims and common barriers experienced by Saudi pilgrims while performing Hajj.

The survey was carried in camps designated for pilgrims residing in Saudi Arabia. A convenient sample in four zones [A, B, C and D] and was chosen based on a digital map. We interviewed the identified pilgrims with disabilities using a standardized questionnaire. Figure 1

Information was collected regarding the pilgrim's demographics, disability type, and common barriers they experienced affecting their Hajj performance.

Data was collected manually using data collectors in the field at the third day of Hajj. Data collectors were pre-trained on the survey technical terms to validate the survey's effectiveness. Management of data was initiated by Excel 2013, and then converted to SPSS format for further analysis.

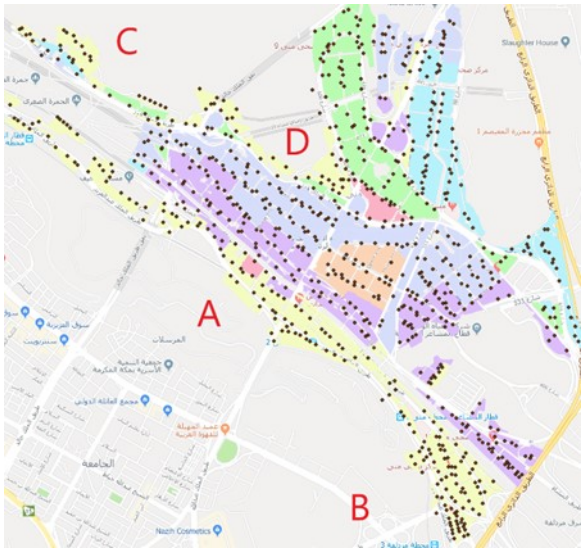

Figure 1: Map showing camps assigned for domestic pilgrims in the Holy Sites.

The sample included 64 out of 193 camps. We identified 33 pilgrims with disabilities out of 66,416 in our sample (prevalence rate = 0.05%) a significantly lower rate than national (p<0.01) and global estimates (p<0.01).

Disabled were significantly located (p<0.01) in zones A & C near the stoning site and the train station "Mina 1" compared to zones B & D. *Figure 1*

Nearly all identified pilgrims with disabilities were Saudis (91%) and male (82%). *Table 1*

Table 1: Frequency of reported disability by age, gender, and nationality.

Age	18—65	30(88%)
	>65	4(12%)
Gender	Male	27 (82%)
	Female	7 (18%)
Nationality	Saudi	30 (91%)
	Non-Saudi	4 (9%)

Blindness was the most commonly reported disability (73%), and wheelchair use was reported by 15% of pilgrims with disabilities. (54.5%) of the blind were in two camps: A3 & C3. Figure 2

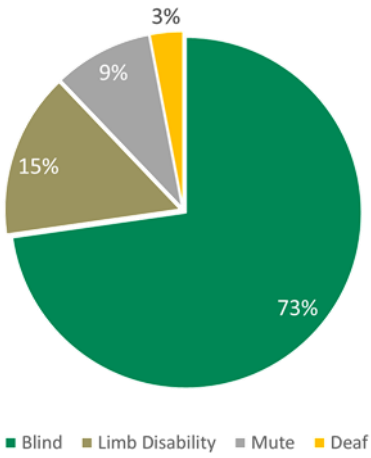

Figure 2: Distribution of Disability Types Among Pilgrims

Pilgrims reported significantly higher physical and transportation barriers (45%) than communication or attitudinal barriers (1%) (p<0.01). The scarcity of disability-transport services (73%) and inappropriate toilets (88%) represented most discomforts. *Figure 3*

Disability Prevalence Among Pilgrims and Common Barriers Affecting Their Performance, Hajj 2019. Cont..

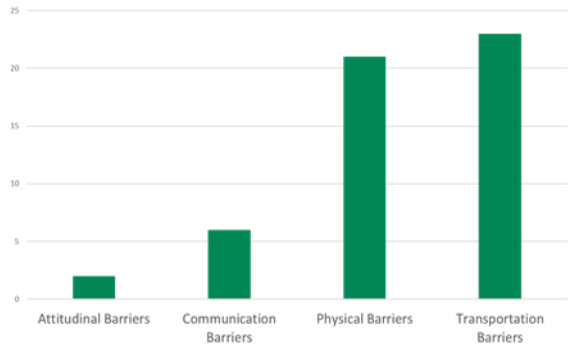

Figure 2: Distribution of Types of Barriers Faced by Domestic Pilgrims

Editorial notes:

The prevalence of disability among pilgrims was significantly lower than expected. Religiously, disabled are excused from performing Hajj.

Physical and transportation barriers were the most commonly reported challenges for disabled pilgrims. Ease of accessibility to more disabled-friendly facilities is required.

We recommend structuring more wheelchair ramps in transport areas, as well as in between camps and toilets.

We recommend camps offering charity Hajj to report the number of disabled to health directorates before Hajj.

Future studies could explore the prevalence rate among all pilgrims, as well as evaluate physical access points to Holy Sites.

References:

1. General Authority of Statistics. (2017). Disability Survey 2017 [Ebook] (1st ed., pp. 16-18). Saudi Arabia. Retrieved from https://www.stats.gov.sa/sites/default/files/disability_survey_2017_en.pdf
2. World Health Organization. (2011). World Report on Disability [Ebook]. Geneva, Switzerland. Retrieved from https://www.who.int/disabilities/world_report/2011/report.pdfto hospitals during muslim pilgrimage (Hajj). Saudi Med J. 2003;24 (10):1073–6.

The Saudi Epidemiology Bulletin welcomes reports from the regions.
Send correspondence, comments, calendar listing, or articles to:

Saudi Epidemiology Bulletin
Editor-in-Chief
P.O. Box 6344
Riyadh 11442, Saudi Arabia

For Epidemiological assistance
☎ Call or Fax the FETP at 011-4939675 (Fax extension 206)
www.fetp.edu.sa
info@fetp.edu.sa

To access all published volumes of the **Saudi Epidemiology Bulletin**, visit the website:
http://fetp.edu.sa/SEB.php

تأثير رجوع الطلاب للدراسة الحضورية على معدلات انتشار الكوفيد-19

د.شادي كامل

وضع المدارس قبل الجائحة :

أجريت دراسات عديدة عن وضع الوباء في بداية الجائحة. كشفت احداها، والتي حللت الوضع فى استراليا، عن اصابة27 (56) % من العاملين ولكن عند اختبار 1448 من المخالطين تبين اصابة 18 شخص فقط وذلك يعزى الى الإجراءات الإحترازية المشددة فى بداية الوباء. وفى دراسة أخرى فى إيرلندا لم تكن هناك اى حالات ثانوية ل 6 اصابات مؤكدة (3 كبار و3 اطفال) في مدرسة واحدة. أما فى فرنسا ففي احدى المدارس الثانوية كانت الاصابات بين الطلاب والمدرسين عالية بين 38% و48% ومع ذلك كان عدد الإصابات في عائلات الطلاب وأطفال المدرسين قليلة بين 10% و11%. كان من الملحوظ أنه نسبة الإصابات قليلة بين صغار السن مقارنة بالكبار .

تأثير غلق المدارس على معدلات انتشار الوباء :

أغلقت الولايات المتحدة تقريبا جميع المدارس والحضانات ثم الجامعات بنهاية مارس 2020. ثم تبعتها 192 دولة تحسبا لكون المدارس والطلاب الصغار عامل هام في إنتشار الوباء. إحدى الدراسات التى استخدمت التحليل الزمنى التسلسلي ل 50 ولاية قبل وبعد اغلاق المدارس وجدت أن هناك انخفاض بنسبة 62% للحالات وكذلك 58% للوفيات .

تأثير فتح المدارس على معدلات انتشار الوباء :

قامت بعض الدراسات بالتنبؤ بما قد يحدث عند فتح المدارس ومنها دراسة بشنغهاى والتى أوضحت أن معامل الإنتشار R0 سوف يكون بين 3-1 أى أن إعادة فتح المدارس ممكن مع الإجراءات الاحترازية. على الجانب الأخر فى انجلترا حيث أوضحت دراسة أن معدلات الاصابة سوف ترتفع الى حد ظهور موجات جديدة إذا تم فتح المدارس.

لا يزال انتشار الوباء بين الاطفال فى المدارس غير واضح التأثير على الجائحة ككل وان كان فى الغالب ضعيف .

بعض تجارب فتح المدارس :

أشارت بعض الدراسات **إلى** أن إنتشار الوباء من خلال المدارس لم يكن بصورة كبيرة مقارنة بالبيئات خارج المدارس. وهناك دراسات اخرى اكدت على قلة إنتشار الوباء بين الأطفال في المدارس. أما في إيرلندا، استراليا، سنغافورة والولايات المتحدة الأمريكية حيث فتحت بعض المدارس كان هناك حالات بين المدرسين مقارنة مع حالات ثانوية قليلة جداً بين الطلاب. كان اتجاه العدوى غالباً من الأهل والمدرسين الى الطلاب وليس العكس .

الخلاصة :

لا يزال تأثير فتح المدارس على معدلات انتشار الوباء صعب التوقع. هناك اجراءات احترازية كتقليل أعداد الطلاب والدمج بين التعليم الحضوري والتعليم عن بعد وذلك لبعض المراحل دون غيرها. كما يقترح ايضا الفتح التدريجي على مراحل ومتابعة المعدلات حيث أن الوضع العام للإصابات والوفيات فى كل بلد يعد مؤشر هام لإتخاذ قرار فتح المدارس للطلاب.

تقييم مستوى الرضا الوظيفي للعاملين الصحيين بمراكز الرعاية الصحية الأولية في منى خلال موسم الحج (1439 هـ - 2018 م)

إعداد : بدر الإبراهيم ،شادي كامل، إيمان صالح، سامي سعيد المدرع، محمد نجيب، نواف البالي، صهيب، ريان المطيري، عبد العزيز الدوشان، سعد الحربي، سري عسيري.

الحج هو تجمع للمسلمين من جميع أنحاء العالم في الأراضي المقدسة. وللحصول على موسم حج ناجح لابد من وجود نظام رعاية صحية عالي الكفاءة.

يتم نشرما بين 500-1000 موظف صحي للعمل في مراكز الرعاية الصحية الأولية في منى كل عام.

يزور هذه المراكز حوالي 300000 حاج خلال موسم الحج. يمكن أن تؤثر العديد من العوامل على كفاءة العاملين الصحيين وتمكنهم من أداء مهامهم على النحو الأمثل في بيئة مليئة بضغوط العمل. إن الهدف من هذه الدراسة المقطعية هو تقييم مستوى رضا العاملين الصحيين في مراكز الرعاية الصحية الأولية في منى.

تم اختيار مراكز الرعاية الصحية الأولية باستخدام عينات منظمه عشوائية من قائمة المراكز الصحية في منى. ومن ثم تمت مقابلة جميع العاملين الصحيين في هذه المراكز الصحية المسجلة وعمل استبيان منظم على مقياس ليكرت. كان إجمالي عدد مراكز الرعاية الصحية الأولية في منطقة منى 32.

تم استخدام استبيان ذاتي التقييم لأفراد عينة الدراسة لجمع بيانات العاملين في مجال الرعاية الصحية من مختلف الفئات (أطباء وممرضات وصيادلة وفنيون) يعملون في أوقات مختلفة. يتكون الاستبيان من قسمين. الأول هو البيانات الديموغرافية مثل العمر والجنس والجنسية والمسمى الوظيفي وعدد مرات المشاركة في الحج. والثاني هو مستوى الرضا فيما يتعلق بوسائل النقل والتعاون وخدمة التنوع الثقافي والمهام الأدائية ضمن نطاق التخصص ونظام التعويضات والمعدات المتوفرة وفيما يتعلق في بيئة العمل والإقامة والأنظمة.

شملت الدراسة 193 عاملاً في الرعاية الصحية (من 13 مركزًا للرعاية الصحية الأولية) من أصل 559 (من 26 مركز رعاية صحية أولية في الخدمة). كان معظم العاملين في مجال الرعاية الصحية من الذكور بنسبة (65.3٪)، السعوديين بنسبة (74.6٪)، الممرضين بنسبة (52.8٪)، المشاركين لأول مرة بنسبة (39.4٪) والذين كانت اعمارهم ما بين (30-39 عامًا) بنسبة (59.6٪).

نسبة الرضا العام 81.1٪ (95CI% = 5.49%)؛ كانت اكبر نسبة لرضا العاملين في مجال الرعاية الصحية هي تعاون الزملاء بنسبة (90.7٪)، والأقل نسبة هي خدمة تنوع الثقافات بنسبة (29.5٪)، بشكل عام كانت أكثر المجموعات استياءًا هم الأكبر سنا (أكبر من 50 عامًا)، ذكور من سعوديين وفنيين والمشاركين في الحج بصورة متكررة .

أما الذين اعمارهم ما بين (30-39 عامًا) راضين بدرجة كبيرة عن الإقامة (P value = 0.027) وكانت فئة الإناث أكثر رضاً عن البيئة (P value = 0.001) ، والإقامة(P value =0.021)، ونظام التعويضات(P value =0.023)، وعبء العمل (P value =0.018). كما أظهر المشاركون لأول مرة رضا كبير عن توافر المعدات (P value = 0.048)، وإرشادات العمل (P value =0.044)، أما فئة الذكور فكانوا غير راضين عن النقل (P-value= 0.025).

كان السعوديون أقل رضا عن بيئة العمل (P value = 0.026). الفنيون غير راضين بشكل كبير عن مدى توافر المعدات (P value = 0.004) وعبء العمل العالي (P value = 0.046). كانت الممرضات غير راضيات عن القيام بالمهام التي يتم تعيينها لهم لأنها ليست من تخصصهم (P value = 0.036). لم تكن هناك فروق بين أي من المجموعات فيما يتعلق بالنقل والتعاون بين الزملاء وخدمة التنوع الثقافي.

نسبة تواجد الحجاج من ذوي الاحتياجات الخاصة أثناء الحج وتحديد أكثرالمعوقات التي تؤثر على أدائهم للشعائر، عام 2019.

إعداد : د. نواف البالي ، شادي كامل، سامي المدرع، صهيب السليمانى، المطيري ريان، عبدالعزيز الدوشان، سعدالحربي، الرشيدي ابراهيم، جوانا جينز، سري عسيري

تقدر منظمة الصحة العالمية أن 15٪ من سكان العالم يعانون أحد أشكال الإعاقة. وفي السعودية تبلغ النسبة 7.1٪. يبلغ عدد الحجاج كل عام ما يقارب 2 مليون حاج؛ حوالي 25٪ منهم من السكان المحليين.

يحتاج الحجاج من ذوي الإحتياجات الخاصة إلى أنواع خاصة من المساعدات والإقامة كما أن الفهم الدقيق لإحتياجات الحجاج من ذوي الإحتياجات الخاصه والصعوبات التي يواجهونها أمرًا ضروريًا لتلبية هذه الاحتياجات.

علاوة على ذلك، فإن أنظمة رعاية الأشخاص من ذوي الاحتياجات الخاصة يفرض على جميع الخدمات الحكومية أن تشمل وتأخذ بعين الاعتبار هذه الفئة.

أجريت هذه الدراسة المقطعية خلال الفترة من 18 إلى 23 أغسطس لمعرفة نسبة انتشار الإعاقة وأنواعها بين الحجاج والعقبات التي يواجهها الحجاج السعوديون أثناء أداء مناسك الحج.

تم إجراء المسح في المخيمات المخصصة للحجاج المقيمين في المملكة العربية السعودية واختيار عينة مناسبة من أربع مناطق [أ، ب، ج، د] بناءً على خريطة رقمية. أجريت مقابلات مع الحجاج من ذوي الاحتياجات الخاصة باستخدام استبيان موحد.

تم جمع المعلومات الديموغرافية للحجاج، ونوع الإعاقة، والعقبات التي يواجهونها والتي قد تؤثر على أداء فريضة الحج.

حيث قام جامعي البيانات بجمع البيانات ميدانيا في اليوم الثالث من الحج. تم تدريب جامعي البيانات مسبقًا على المصطلحات الفنية للمسح للتحقق من فعالية المسح. ثم أدخال البيانات بواسطة برنامج Excel 2013، ثم إلى برنامج SPSSلمزيد من التحليل.

كان العمى هوالإعاقة الأكثر شيوعاً (73٪)، استخدام الكراسي المتحركة من قبل 15٪ من الحجاج ذوي الإحتياجات الخاصه. (54.5٪) من الحجاج المكفوفين كانوا في مخيمين أ3 و ج3

أفاد الحجاج بوجود حواجز نقل أعلى بكثير بنسبة (45٪) من حواجز المواقف (1٪ .(p <0.01) وتمثل ندرة خدمات نقل المعوقين نسبة (73٪) والمراحيض غير الملائمة نسبة (88٪) وهي تمثل اكبر نسبة لعدم الراحة.

شملت العينة 64 مخيما من أصل 193. حددنا 33 حاج معاق من أصل 66416 في العينه (معدل الإصابه = 0.05٪) وهو معدل أقل بكثير من التقديرات الوطنية (p <0.01) والعالمية.(p <0.01)

تم تحديد أماكن تواجد الحجاج من ذوي الإحتياجات الخاصه بشكل كبير (p <0.01) في المناطق أ وج بالقرب من موقع الرجم ومحطة القطار "منى 1" مقارنة بالمنطقة ب و د.

كان معظم الحجاج ذوي الإحتياجات الخاصه تقريبًا من السعوديين (91٪) والذكور (82٪)

The Saudi Epidemiology Bulletin welcomes reports from the regions.
Send correspondence, comments, calendar listing, or articles to:

Saudi Epidemiology Bulletin
Editor-in-Chief
P.O. Box 6344
Riyadh 11442, Saudi Arabia

For Epidemiological assistance
☎ Call or Fax the FETP at 011-4939675 (Fax extension 206)
www.fetp.edu.sa
info@fetp.edu.sa

To access all published volumes of the **Saudi Epidemiology Bulletin**, visit the website:
http://fetp.edu.sa/SEB.php

Top Twenty Reported Diseases by Regions, Kingdom of Saudi Arabia, Q1 (Jan-Mar) 2021

Diseases	Riyadh	Makkah	Jeddah	Taif	Madinah	Qassim	Eastern	Ahsa	Hafr Al-Batin	Asir	Bisha	Tabuk	Hail	Al-Shamal	Jizan	Najran	Baha	Al-Jouf	Goriat	Gonfuda	Total
Hepatitis B	237	103	287	76	71	29	145	38	3	45	3	55	3	10	193	24	10	1		13	1346
Malaria	45	15	36	25	17	12	78	11	1	71	10	6	4	8	354	17	14			8	732
VHF - Dengue fever		150	495		6					2					19	2					674
Pulmonary Tuberculosis	174	62	68	7	30	10	72	12	5	25	2	9	7	3	120	2	3	2	2	4	619
Hepatitis C	155	61	105	39	15	15	92	5		22	3	5	7	1	13	14	10	1		3	566
Brucellosis	85	56	34	90	33	51	33	3	13	9	30	13	29	15	2	35	2	5		2	540
Amoebiasis	34	3	108	41	1		243	22	2				1			14					469
Salmonella infection	125	18	97	3	11		120	17		6	1	2	15			5					420
Chicken pox	63	4	11	11	6	11	45	2	7	15	5	4		1	9	14	9		53		270
Extra-Pulmonary Tuberculosis	58	19	44		13	3	30	7		10	1	6	4	1	26		1	1		3	227
Animal Bite	19	1		37		114	23					11				4			1		210
Leishmaniasis Cutaneous	7		7	2	24	14	1	44		16	6	33	21			3					178
Scabies	18	2	9		11		60	8		4		6			3	1	4				126
Scorpion sting	10		34	30		7	1	1													83
Typhoid paratyphoid fever	24		6	1	2		10	1					9			1					54
Influenza (Seasonal)	20		10			1	3	1							19						54
Mumps	9	1	6	1	4		9			2		3		2	1	5		2			45
VHF - Dengue (severe) fever		5	38																		43
Hepatitis A	7	7	3	3	2		8			2						2					34
Meningitis - Other	8		4	1		1	3	1		1		1				1	1				22

Top Twenty Reported Diseases by Gender, Age and Nationality, Kingdom of Saudi Arabia, Q1 (Jan-Mar) 2021

Diseases	Gender		Age Groups (Years)					Nationality	
	Male	Female	0-4	5-14	15-29	30-59	60 & above	Saudi	Non-Saudi
Hepatitis B	839	506	2	5	108	953	275	1091	245
Malaria	612	120	17	50	323	306	36	306	418
VHF - Dengue fever	555	119	14	18	166	439	37	230	436
Pulmonary Tuberculosis	449	170	7	12	205	332	63	200	414
Hepatitis C	321	245	3	3	61	311	188	412	143
Brucellosis	400	140	23	66	138	248	64	373	158
Amoebiasis	304	165	80	52	120	188	29	227	234
Salmonella infection	218	201	206	52	41	84	37	304	110
Chicken pox	174	96	109	16	80	62	3	196	70
Extra-Pulmonary Tuberculosis	151	76	4	8	85	104	26	91	135
Animal Bite	168	42	6	38	58	95	13	124	83
Leishmaniasis Cutaneous	136	42	19	24	47	81	7	97	75
Scabies	84	42	9	24	32	54	7	65	57
Scorpion sting	67	15	5	13	35	26	4	60	22
Influenza (Seasonal)	26	28	18	9	8	11	8	37	17
Typhoid AND/OR paratyphoid fever	35	19	4	2	14	32	2	17	36
Mumps	25	20	39	1	2	3		37	8
VHF - Dengue (severe) fever	38	5	4	4	10	23	2	18	24
Hepatitis A	25	9	2	7	12	11	2	20	13
Meningitis - Other	14	8	8	3	3	7	1	15	6

Top Twenty Reported Diseases, National Surveillance data and Trend, Kingdom of Saudi Arabia, Q1 (Jan-Mar) 2021

Diseases	Current Year 2021			Previous Year 2020		
	Quarter-1 Jan-Mar 2021	Cumulative total since 1st January	Current rate*	Quarter-1 Jan-Mar 2020	Cumulative total since 1st January	Previous rate*
Hepatitis B	1346	1346	3.87	1520	1520	4.48
Malaria	732	732	2.11	845	845	2.49
VHF - Dengue fever	674	674	1.94	1172	1172	3.45
Pulmonary Tuberculosis	619	619	1.78	687	687	2.02
Hepatitis C	566	566	1.63	733	733	2.16
Brucellosis	540	540	1.55	886	886	2.61
Amoebiasis	469	469	1.35	502	502	1.48
Salmonella infection	420	420	1.21	412	412	1.21
Chicken pox	270	270	0.78	1166	1166	3.43
Extra-Pulmonary Tuberculosis	227	227	0.65	204	204	0.6
Animal Bite	210	210	0.6	220	220	0.65
Leishmaniasis Cutaneous	178	178	0.51	278	278	0.82
Scabies	126	126	0.36	425	425	1.25
Scorpion sting	83	83	0.24	25	25	0.07
Typhoid AND/OR paratyphoid fever	54	54	0.16	78	78	0.23
Influenza (Seasonal)	54	54	0.16	2285	2285	6.73
Mumps	45	45	0.13	66	66	0.19
VHF - Dengue (severe) fever	43	43	0.12	137	137	0.4
Hepatitis A	34	34	0.1	34	34	0.1
Meningitis - Other	22	22	0.06	49	49	0.14

* Rate per 100,000 Population

All above three tables are based on the HESN Data, Provided by Surveillance and Data Management unit, Ministry of Health Kingdom of Saudi Arabia

Data contained within these tables are based on available information extracted from HESN database by the time of publishing of the bulletin Issue. Please note that Covid-19 is excluded from the Top twenty diseases list.

Contributions to this publication are invited in the form of concise reports on surveillance issues or outbreak investigations. Please send contributions to: Surveillance and Data Management Unit, Assistant Agency for Preventive Health, Ministry of Health.

Top Twenty Reported Diseases by Regions, Kingdom of Saudi Arabia, Q2 (Apr-Jun) 2021

Diseases	Riyadh	Makkah	Jeddah	Taif	Madinah	Qassim	Eastern	Ahsa	Hafr Al-Batin	Asir	Bisha	Tabuk	Hail	Al-Shamal	Jizan	Najran	Baha	Al-Jouf	Goriat	Gonfuda	Total
VHF - Dengue fever	1	92	839		3										10						945
Hepatitis B	185	66	170	56	53	13	90	16	1	21		9	2	7	54	18	7			6	774
Brucellosis	133	54	35	71	31	26	29	3	8	19	23	2	24	10	1	17	1	9		2	498
Pulmonary Tuberculosis	141	41	61	8	14	7	46	6	6	18	5	6	5	2	71	2	4		2		445
Salmonella infection	139	10	103	2	5	2	141	19		3	8	1				3	4				440
Hepatitis C	93	58	53	14	14	23	48	7		9	2	6	8	3	8	8	13			4	371
Amoebiasis	38		34	27	1	5	229	12						1		7					354
Animal Bite	11			28	1	125	25					3				6	1				200
Scorpion sting	6		28	131		24	1				4										194
Chicken pox	32		12	10	6	9	22	1	6	2	6	3	1	2	3	5			21		141
Extra-Pulmonary Tuberculosis	44	7	17	2	6	3	17	3		10	1	1			25	1				1	138
Malaria	16	6	13	11	2	2	29	8		7	2		1		31	3	4				135
Scabies	10	3	14	1	1	1	35		1	3		6			1	1	1				78
VHF - Dengue (severe) fever		2	60																		62
Typhoid / paratyphoid fever	9		1				9	2			1		38				1				61
Leishmaniasis Cutaneous	1		1	2	6	5	1	14		2	1	6			4	3	1				47
Hand foot and mouth disease	3						9				1	1				1					15
Mumps	2	1			3		2	2				2				1					13
Hepatitis A	3	2	1		3		2	1													12
Food Poisoning: Other	11															1					12

Top Twenty Reported Diseases by Gender, Age and Nationality, Kingdom of Saudi Arabia, Q2 (Apr-Jun) 2021

Diseases	Gender		Age Groups (Years)					Nationality	
	Male	Female	0-4	5-14	15-29	30-59	60 & above	Saudi	Non-Saudi
VHF - Dengue fever	765	180	5	34	304	547	55	403	524
Hepatitis B	489	283	3	4	60	564	142	614	154
Brucellosis	396	102	15	74	120	215	74	393	103
Pulmonary Tuberculosis	285	160	5	6	138	239	57	167	276
Salmonella infection	235	204	228	45	44	88	35	343	92
Hepatitis C	223	148	1	2	43	196	129	263	102
Amoebiasis	231	123	75	34	84	146	14	192	154
Animal Bite	161	39	15	39	53	83	10	117	80
Scorpion sting	149	45	18	30	69	68	9	156	36
Chicken pox	91	50	63	16	33	27	2	111	30
Extra-Pulmonary Tuberculosis	90	48	2	2	47	71	16	59	78
Malaria	114	21		6	69	55	5	38	96
Scabies	57	21	6	16	20	32	4	54	24
VHF - Dengue (severe) fever	50	12		3	13	45	1	22	40
Typhoid AND/OR paratyphoid fever	25	36	3	1	28	27	2	44	16
Leishmaniasis Cutaneous	31	16	1	16	10	17	3	33	13
Hand foot and mouth disease	5	10	14			1		15	
Mumps	9	4	11	1			1	13	
Hepatitis A	7	5		1	3	6	2	8	4
Food Poisoning: Other	5	7	3	3	4	2		11	1

Top Twenty Reported Diseases, National Surveillance data and Trend, Kingdom of Saudi Arabia, Q2 (Apr-Jun) 2021

Diseases	Current Year 2021			Previous Year 2020		
	Quarter-2 Apr-Jun 2021	Cumulative total since 1st January	Current rate*	Quarter-2 Apr-Jun 2020	Cumulative total since 1st January	Previous rate*
VHF - Dengue fever	945	1619	4.63	420	1592	4.66
Hepatitis B	774	2120	6.06	504	2024	5.93
Brucellosis	498	1038	2.97	548	1434	4.2
Pulmonary Tuberculosis	445	1064	3.04	471	1158	3.39
Salmonella infection	440	860	2.46	167	579	1.7
Hepatitis C	371	937	2.68	210	943	2.76
Amoebiasis	354	823	2.35	277	779	2.28
Animal Bite	200	410	1.17	144	364	1.07
Scorpion sting	194	277	0.79	112	137	0.4
Chicken pox	141	411	1.18	175	1341	3.93
Extra-Pulmonary Tuberculosis	138	365	1.04	141	345	1.01
Malaria	135	867	2.48	170	1015	2.97
Scabies	78	204	0.58	95	520	1.52
VHF - Dengue (severe) fever	62	105	0.3	21	158	0.46
Typhoid AND/OR paratyphoid fever	61	115	0.33	79	157	0.46
Leishmaniasis Cutaneous	47	225	0.64	41	319	0.93
Hand foot and mouth disease	15	19	0.05	3	45	0.13
Mumps	13	58	0.17	21	87	0.25
Hepatitis A	12	46	0.13	10	44	0.13
Food Poisoning: Other	12	12	0.03	8	12	0.04
Shigellosis	11	22	0.06	5	16	0.05
Meningitis - Other	7	29	0.08	14	63	0.18

* Rate per 100,000 Population

All above three tables are based on the HESN Data, Provided by Surveillance and Data Management unit, Ministry of Health Kingdom of Saudi Arabia

Data contained within these tables are based on available information extracted from HESN database by the time of publishing of the bulletin Issue. Please note that Covid-19 is excluded from the Top twenty diseases list.

Contributions to this publication are invited in the form of concise reports on surveillance issues or outbreak investigations. Please send contributions to: Surveillance and Data Management Unit, Assistant Agency for Preventive Health, Ministry of Health.

النشرة الوبائية السعودية

Saudi Epidemiology Bulletin

وزارة الصحة
Ministry of Health

FETP
برنامج الوبائيات الحقلي
Field Epidemiology Program

ISSN : 1319-3965 | www.fetp.edu.sa | Volume 28 - Number 1-2, Jan-Jun 2021 | المجلد 28 - العدد 1-2 يناير- يونيو 2021 م