

Second Survey of County Health Departments of Kansas and COVID-19: Time for Change in Model for Pandemic Response

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Received Sept. 29, 2020; Accepted for publication Oct. 19, 2020; Published online Nov. 24, 2020
<https://doi.org/10.17161/kjm.voll3.i4675>

ABSTRACT

Introduction. SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus-2) causing COVID-19 (Coronavirus Disease 2019) continues to be widespread in Kansas. County health departments are trying to contain this pandemic.

Methods. This second survey of Kansas county health department directors occurred from August 7 to September 7, 2020. Since the first survey in April, there have been significant increases in the number of positive cases of COVID-19 and related deaths. Thus, the aim of the study was to re-evaluate county-level containment efforts and assess shortfalls that were identified in the April 2020 survey.

Results. In total, 41 out of 105 directors responded to the survey. Generally, respondents said there were increased supplies for testing, increased testing centers, shorter time to get test results, and in some cases, increased funding. However, the number of people involved in contact tracing had not increased substantially, which was one of the recommended changes for improving containment. Moreover, of those persons who were tested, only a few (18%) counties inquired if they wear masks in public. From comments reported, there was a sense of employees being overwhelmed, especially among the smaller county health departments.

Conclusion. As the cases of and deaths from COVID-19 are increasing in the state, especially in high density areas, the respondents to our survey indicated there was continued need for additional funding with easy access, increased staffing, especially for contact tracing, and significant help for effective messaging to improve adherence to public health directives. *Kans J Med* 2020;13:290-299

INTRODUCTION

A new Coronavirus SARS-CoV-2 was identified in December 2019 in China.¹ Subsequently, it has caused infections worldwide. The World Health Organization (WHO) identified the infection caused by SARS-CoV-2 as Coronavirus Disease 2019 (COVID-19). The virus initially enters the upper respiratory cells through the ACE2 receptor, replicates in these cells, and can migrate to the lower respiratory tract. Clinical infection from the virus may lead to a spectrum of illness (mainly respiratory) and may result in death.

To prevent the ongoing spread of SARS-CoV-2, it is important to understand routes of transmission. Contact with an infected person can lead to infection via droplets, aerosols, and possibly from airborne transmission.² Individuals with infection can shed the virus, as particles of different sizes, while talking, coughing, singing, sneezing, and from aerosol-generating procedure. Respiratory droplets greater

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than five microns in diameter, an important source of transmission of infection, can settle on surfaces within a three- to six-foot radius. An individual can acquire the infections if in close contact of an infected person (symptomatic or asymptomatic) or in contact with contaminated surfaces.³ These droplets can form aerosols that can survive several hours, and with air currents, spread more than three feet. When in contact with various surface types, the virus may survive longer: for copper surfaces, up to 4 hours; cardboard, 24 hours; stainless steel, 48 hours; and for plastic surfaces, up to 72 hours.²

Droplets less than five microns in diameter (droplet nuclei) can lodge directly on the mucous membranes of the distal lower respiratory tract. However, it is unknown how much replication-competent virus is present in the droplet nuclei; further, the amount of droplet nuclei needed to infect a susceptible person is unknown.³ Transmission of the virus through droplet nuclei, beyond six feet in closed spaces with poor ventilation, is possible and needs further study. There also may be transmission of the virus via air-conditioning units.⁴

The persons transmitting the virus may have mild or no symptoms and may be undiagnosed.⁵ Simulated mathematical models show these individuals contribute to 79% of all documented cases of COVID-19. Moreover, cluster transmission may account for a significant number of total cases of COVID-19.² Persons with infections, diagnosed or undiagnosed, who come in contact with large numbers of people are termed “super spreaders”.

As yet, there is no chemoprophylaxis to prevent COVID-19. The vaccine trials are on-going. In the meantime, “non-pharmaceutical interventions” (NPI) can be lifesaving. Among the measures employed as NPI are social distancing, face mask (face covering), hand washing, isolation of those diagnosed with COVID-19, and quarantine for close contacts of infected individuals.

County health departments (CHD) have an important role in deploying non-pharmaceutical measures and sentinel surveillance in the community to contain COVID-19. To be effective in these containment measures, CHDs need enough staff, resources, guidance, and funds. Our first survey in April 2020 showed that CHDs in Kansas needed increases for the following: 1) supplies for COVID-19 testing, 2) personal protective equipment (PPE), 3) number of staff, 4) number of trained personnel for contact tracing, and 5) help with public education.⁶ Since May 1, 2020, cases of COVID-19 have increased more than 10-fold in the state of Kansas, from 4,449 to 49,899 on September 14, 2020. Thus, the aim of this study was to re-evaluate the shortfalls that were identified in our study in April 2020 and assess the current effort at containing the pandemic.

METHODS

The Institutional Review Board of the University of Kansas School of Medicine approved this study. A listing of the directors of the CHD was obtained from the Kansas Department of Health and Environment (KDHE) website. A 25-item survey instrument was developed. All CHD directors were invited to participate in the electronic survey using

REDCap®, a secure web platform for building and managing online databases and surveys. The survey was started on August 7, 2020 and closed on September 7, 2020. During this period, emails and reminders were sent to the directors of CHD inviting them to participate in the survey. All emails included a link to the survey.

Statistical Analysis Plan. Data from the REDCap® survey were downloaded and analyzed in IBM SPSS Statistics, version 26. Descriptive statistics were conducted on all survey responses. Categorical data were summarized with frequencies, percentages, and 95% confidence intervals; continuous data were summarized with medians and ranges. Select survey results were compared for change between April and the current survey. The number of positive cases by county were compared over time; average daily increase was calculated using Microsoft® Excel.

RESULTS

Survey Responses. The KDHE email listing from 2020 for health department directors included 105 email addresses. Each address was sent an invitation to participate in the survey through REDCap®. Of those contacted, 41 directors responded to the survey with a response rate of 39%. Table 1 shows survey responses by item. Most directors (61%) reported the number of testing sites had increased and that testing supplies on hand had increased (80%). Almost 93% said they were conducting nucleic acid assays (PCR), with 82% receiving a test result between one and seven days. For those who tested positive, health departments overwhelmingly (85%) reported they were conducting daily phone calls, although about 32% were sending text messages. However, less than 18% were collecting information about wearing a face mask in public from those they tested. Of those that did collect face mask information, they estimated between 1% and 50% wore the masks in public places.

The number of clusters reported per county ranged from 0 to 30, with up to 10 currently active; most were traced to social gathering (34%), private business (32%), and long-term care facilities (29%). With regards to contact tracing, over 32% of directors reported the number of staff had increased, with most (33%) reporting that two people were dedicated to the task. Eighty-five percent reported an increase in funding.

Of the 41 respondents, 12 directors sent in their comments (Table 2). Common themes were being overwhelmed with COVID-19 taking most of their time and efforts, even over weekends, leaving them with very little time or staff to deal with any of their usual work; difficulty in getting extra funding; limited staff for contact tracing; difficulty in sending out unified messages to the public due to differences of opinion; and last, wanting to do the best for their community.

Comparisons of April and August Survey Results. Select questions were compared between responses to the April and August survey; results are shown in Figure 1. There appeared to be a reduction in the time to get test results from COVID-19 testing: over 52% of results were returned within three days in August compared to 32%

for April. With regards to contact tracing, results from the current survey showed health departments were more likely to use texts and emails than previously reported. Also, health departments were more likely to report some increase in current funding, 85% versus 70% reported in April. However, little change occurred by county for the number of people involved in contact tracing, most (74% to 77%, respectively) reported one to three people were dedicated to the task (not shown in figure).

Table 3 shows a comparison of positive cases in Kansas by county from May through September 23, 2020. During this period, the average daily increase in COVID-19 cases across the state was 357.58, with an average death toll of 3.5 cases per day. Median age was reduced from 44 to 35 years over time. The counties with the highest daily increases in positive cases were Johnson (72%), Sedgwick (58%), Wyandotte (44%), Shawnee (18%), and Ford (14%).

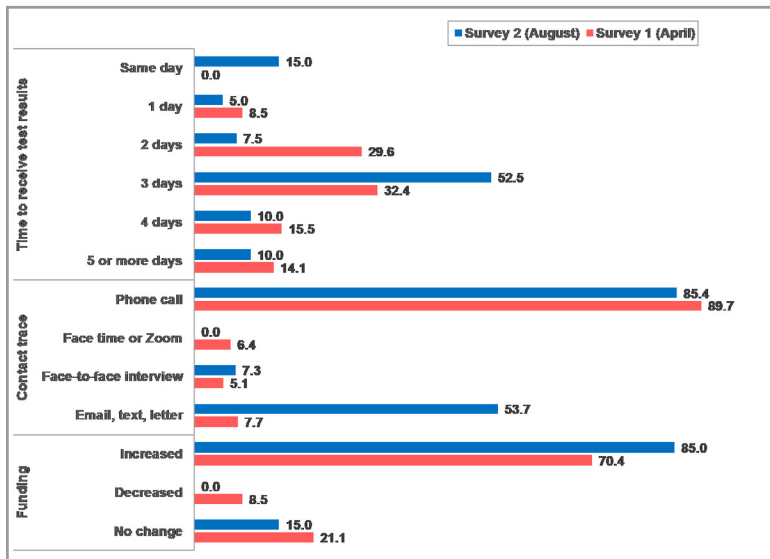


Figure 1. Comparison of select variables from August and April 2020 surveys.

DISCUSSION

Upon the close of the second health directors survey (Sept. 14, 2020), KDHE reported there were 49,899 positive cases of COVID-19 (408,482 negative cases) in the state of Kansas since the onset of the pandemic.⁷ Of interest, the median age for positive cases dropped nine years, indicating that more young people may be contracting COVID-19. The number of negative cases increased from 28,585 to 408,482; thus, the number of people being tested has increased dramatically.

As reported on the KDHE website, of the positive cases, 2,572 persons (5.15%) needed hospitalization.⁷ Of those hospitalized, 534 died (an increase of 404 deaths since the end of last survey); the mortality rate was 20.8%. With regards to clusters, 558 have been documented in the state, which led to 11,253 positive cases, 661 hospitalizations, and 312 deaths. Clusters were reported most often in long-term care facilities (160, 28.7%), leading to 2,235 cases and 254 deaths. Current active clusters are in college and university campuses across the state and at correction facilities. The total case rate per 1,000 for the state of Kansas in September was 17.3. This case rate was not spread uniformly across the state and ranged from 0.4 per 1,000 in Elk County (1 case) to 75.4 per 1,000 (2,534 cases) in Ford County. Thus, at the end of September 2020, cases of COVID-19

(58,629) and deaths (637) from COVID-19 continued to increase in the state of Kansas.

Table I. Survey responses from Kansas health department county directors.

Questionnaire	N = 41	%	95% CI
As of today, the median number of people tested positive for COVID-19 per county.	40 (range 0 to 4916)		
Yes, compared to April 2020, the number of COVID-19 testing sites has increased.	25	61.0	(45.7, 74.7)
Yes, compared to April 2020, COVID-19 testing supplies on hand have increased.	32	80.0	(65.8, 90.1)
What is the COVID-19 test that you are doing now? (choose all that apply)			
Nucleic Acid assay (PCR)	38	92.7	(81.7, 97.9)
Rapid antigen assay	9	22.0	(11.5, 36.2)
If other type of testing, please specify.			
Antibody	1	2.4	(0.3, 10.8)
None	1	2.4	(0.3, 10.8)
As of today, how fast do you get the results of COVID-19 tests?			
Almost immediately	3	7.5	(2.2, 18.7)
Less than 1 day (in a matter of hours)	3	7.5	(2.2, 18.7)
1 to 7 days	33	82.5	(68.7, 91.8)
More than 7 days	1	2.5	(0.3, 11.1)
How many hours does it take to get the results of COVID-19 tests?			
2 hours	1	33.3	(0.3, 10.8)
6 hours	1	33.3	(0.3, 10.8)
12 hours	1	33.3	(0.3, 10.8)
Yes, the county health department is offering the COVID-19 serology test (antibody test).	1	2.5	(0.3, 11.1)
What do you advise people to do who test positive for COVID-19? (choose all that apply)			
Self-isolate at home	40	97.6	(89.2, 99.7)
Self-isolate in a hotel	5	12.2	(4.8, 24.7)
How do you monitor people who are positive for COVID-19 to ensure that they are in self-isolation? (choose all that apply)			
Daily phone calls	35	85.4	(72.3, 93.7)
Physically go to address to check	3	7.3	(2.1, 18.3)
Send email	4	9.8	(3.4, 21.5)
Send text	13	31.7	(19.1, 46.8)
If you use other method to monitor, please explain.			
Call every other day	1	2.4	(0.3, 10.8)
Every other day phone calls	1	2.4	(0.3, 10.8)
Phone calls three times per week	1	2.4	(0.3, 10.8)
Telephone calls, but not daily. Usually every 2-3 days	1	2.4	(0.3, 10.8)
We issue isolation orders to positive cases. KDHE case investigators contact our cases.	1	2.4	(0.3, 10.8)
Yes, we periodically test for COVID-19 in a random sampling of people with no symptoms.	4	9.8	(3.4, 21.5)
If yes, what percent of people are positive for COVID-19 among those who are asymptomatic in your county?			
0%	1	25.0	(0.3, 10.8)
1%	1	25.0	(0.3, 10.8)
5%	1	25.0	(0.3, 10.8)
6%	1	25.0	(0.3, 10.8)
From the people tested for COVID-19, we collect information on whether they wear a face mask in public places (as advised).	7	17.5	(8.2, 31.3)

Table I. Survey responses from Kansas health department county directors. *cont.*

Questionnaire	N = 41	%	95% CI
If so, among those who were positive, what proportion said they wore masks when in public places? _____ % of positive cases.			
1%	2	28.6	(1.0, 14.7)
4%	1	14.3	(0.3, 10.8)
25%	1	14.3	(0.3, 10.8)
30%	1	14.3	(0.3, 10.8)
50%	2	28.6	(1.0, 14.7)
Yes, there have been clusters of positive cases in the county.	26	63.4	(48.2, 76.8)
If yes, overall, how many clusters have been in your county?			
1	4	16.0	(3.4, 21.5)
2	7	28.0	(8.0, 30.6)
3	5	20.0	(4.8, 24.7)
4	3	12.0	(2.1, 18.3)
7	1	4.0	(0.3, 10.8)
8	1	4.0	(0.3, 10.8)
10	2	8.0	(1.0, 14.7)
20	1	4.0	(0.3, 10.8)
30	1	4.0	(0.3, 10.8)
If yes, as of today, how many active clusters of COVID-19 are currently in your county?			
0	7	28.0	(8.0, 30.6)
1	10	40.0	(13.3, 39.0)
2	4	16.0	(3.4, 21.5)
3	1	4.0	(0.3, 10.8)
4	1	4.0	(0.3, 10.8)
5	1	4.0	(0.3, 10.8)
10	1	4.0	(0.3, 10.8)
If yes, the clusters of positive cases were traced to what type(s) of location? (choose all that apply)			
Social gathering	14	34.1	(21.1, 49.3)
Private business	13	31.7	(19.1, 46.8)
Long-term care facility	12	29.3	(17.1, 44.2)
Correctional facility	6	14.6	(6.3, 27.7)
Meat-packing plant	6	14.6	(6.3, 27.7)
Hospital	5	12.2	(4.8, 24.7)
Daycare	4	9.8	(3.4, 21.5)
Schools	4	9.8	(3.4, 21.5)
Corrections (prison)	3	7.3	(2.1, 18.3)
In situations of cluster(s) of positive cases, what action have you taken? (check all that apply)			
Advised quarantine	22	53.7	(38.6, 68.2)
Advised self-monitoring for symptoms	23	56.1	(40.9, 70.4)
Checked air ventilation	1	2.4	(0.3, 10.8)
Tested all the people in that location	16	39.0	(25.3, 54.3)
If other actions are taken, please specify.			
Helped identify other mitigation strategies they can use to protect their staff, residents, patrons, family, etc. Trained staff on proper use of PPE, how to collect COVID specimens, patient education.	1	2.4	(0.3, 10.8)
KDHE was on site and tested	1	2.4	(0.3, 10.8)
Tested those with symptoms	1	2.4	(0.3, 10.8)

Table 1. Survey responses from Kansas health department county directors. *cont.*

Questionnaire	N = 41	%	95% CI
Since April 2020, the number of staff who primarily do contact tracing has increased in the county.	13	32.5	(19.6, 47.8)
As of today, how many staff primarily do contact tracing in your county?			
0	1	2.6	(0.3, 10.8)
1	8	20.5	(9.7, 33.5)
2	13	33.3	(19.1, 46.8)
3	8	20.5	(9.7, 33.5)
4	3	7.7	(2.1, 18.3)
5	2	5.1	(1.0, 14.7)
6	1	2.6	(0.3, 10.8)
15	1	2.6	(0.3, 10.8)
20	1	2.6	(0.3, 10.8)
24	1	2.6	(0.3, 10.8)
Since April 2020, how has the funding for managing COVID-19 changed in your county?			
Funding increased	34	85.0	(71.7, 93.5)
No change in funding	6	15.0	(6.5, 28.3)
If we have any questions, may we call you? (Yes)	31	75.6	(61, 86.7)

Table 2. Comments from responders.

Comments about county COVID-19 management efforts	
1	We have not had any extra money allocated by our county, all extra money has come from grants such as BCBS. Currently we are filling out the CRF funds and ELC grant.
2	I marked that the average time to get test results is 3 days. We have one that we got back 14 days after collection and one 15 days later, and we are currently waiting on that was done 18 days ago. This is frustrating for our patients. We released the first one on day 14 from test due to still having a cough that she had had for a month prior to being tested but couldn't take the chance. We got neg test results later that day. The second one was released on day 14 due to prolonged cough. Got neg results the next day. The last one was direct contact to a positive case. She only had symptoms for a few days. We were able to release her 10 days after start of symptoms but are still waiting. Our hospital lab collects tests and sends to Quest.
3	Several pending COVID-19 grant applications as everything is due in the next two weeks.
4	We are a small rural health department with a staff of 4. I have been tracking our hours per pay period and between 47-52% of our time is going toward COVID response. This is in addition to our regular duties as we have not stopped WIC, FP, Imm, Foot Care or any of the other services we offer. With school starting (we are also the school nurses for 4 area schools) and flu season, we are trying to prepare as best we can for what lies ahead.
5	We are very limited staff wise to conduct contact tracing. We have requested case investigating through our emergency manager, and we have opted into KDHE contact tracing via the Salesforce application. When there are other services that require some attention-immunizations, family planning, WIC, we just don't have the manpower to devote 100 % to COVID. We are in the process of bringing on another RN who will start as a case investigator, and we will continue to refer our contacts out to contact tracers.
6	Pawnee County Health Department is not at this time testing, we have 2 full time nurses and 1 full time office staff, our Hospital and FQHCC are testing, this may change in the future. We have received funding to support wages, COVID response through KDHE, also some funding through SPARKS.
7	Just managing a day at a time. Anxious to get school going. Do not feel that the State plan is a one-size-fits all. Want to do what is best for OUR community.
8	We are frantically trying to get a handle on the testing and case investigation aspect of all of this. I personally don't feel like we have a good way for everyone in our community to report testing and results to KDHE. House Bill 2016 has created a public health nightmare; which I wish I was no longer a part of.
9	We have very little mask wearing in our county. Our commissioners opted out of the gov. order. Our school is implementing masks due to the school mask gov. order.
10	Our local hospital is using Cephiad to test most patients. We are still sending some tests to Quest or the KHEL. We did request KDHE to conduct the majority of our contact tracing. Gove County rescinded the mask order on Monday; some were delighted, most were dismayed, especially with school starting August 20th in 2 school districts. I appreciate your support.
11	Without proper enforcement and divided thoughts of action, the mitigation strategies, Executive Orders are not taken seriously. Fighting an uphill battle. City and County Commissioners do not communicate and therefore do not have a united front. Our local hospital wants to run the show, but has no experience in Public Health.
12	I am struggling to keep up and we've not had many cases at all. I can't remember the last time that my weekends and evenings did not involve COVID. We've had many contacts to follow but probably the hardest part has been answering questions for the schools, nursing homes, hospitals, business, and general public. Guidance changes, people not wanting to wear masks and politics have added to the stress. Our county works very well together and that has helped so much.

Table 3. Comparison of positive cases by county.

Kansas County	First Survey 5/1/2020	Second Survey 9/14/2020	Current 9/23/2020	Increased Cases (5/1/2020 to 9/23/2020)	Average Daily Increase
Allen*	0	39	43	43	0.30
Anderson*	0	56	73	73	0.51
Atchison*	10	243	270	260	1.83
Barber*	1	5	6	5	0.04
Barton	9	305	398	389	2.74
Bourbon*	6	132	166	160	1.13
Brown	0	88	104	104	0.73
Butler	16	803	906	890	6.27
Chase*	1	78	80	79	0.56
Chautauqua*	4	15	16	12	0.08
Cherokee*	8	397	462	454	3.20
Cheyenne*	2	10	54	52	0.37
Clark*	1	50	50	49	0.35
Clay	4	40	49	45	0.32
Cloud*	4	62	64	60	0.42
Coffey	48	103	113	65	0.46
Comanche*	0	10	11	11	0.08
Cowley	2	302	359	357	2.51
Crawford	6	891	1,011	1,005	7.08
Decatur*	0	6	17	17	0.12
Dickinson	2	87	132	130	0.92
Doniphan*	3	87	96	93	0.65
Douglas	51	1,783	2,032	1,981	13.95
Edwards	4	33	44	40	0.28
Elk*	1	1	4	3	0.02
Ellis	8	725	895	887	6.25
Ellsworth*	0	27	32	32	0.23
Finney	386	1,852	1,961	1,575	11.09
Ford	702	2,534	2,756	2,054	14.46
Franklin	14	286	330	316	2.23
Geary*	14	372	407	393	2.77
Gove	1	20	28	27	0.19
Graham*	0	28	30	30	0.21
Grant*	5	155	222	217	1.53
Gray*	5	103	116	111	0.78
Greeley*	0	5	8	8	0.06
Greenwood*	3	39	47	44	0.31
Hamilton*	2	44	45	43	0.30
Harper*	1	120	120	119	0.84
Harvey	7	325	347	340	2.39
Haskell*	7	68	113	106	0.75
Hodgeman*	0	16	19	19	0.13

Table 3. Comparison of positive cases by county. *cont.*

Kansas County	First Survey 5/1/2020	Second Survey 9/14/2020	Current 9/23/2020	Increased Cases (5/1/2020 to 9/23/2020)	Average Daily Increase
Jackson*	2	226	234	232	1.63
Jefferson*	9	161	181	172	1.21
Jewell*	4	14	16	12	0.08
Johnson	471	9,687	10,697	10,226	72.01
Kearny*	19	80	84	65	0.46
Kingman*	0	63	84	84	0.59
Kiowa	1	17	23	22	0.15
Labette*	22	212	230	208	1.46
Lane*	0	11	13	13	0.09
Leavenworth*	372	1,870	2,023	1,651	11.63
Lincoln*	0	11	12	12	0.08
Linn*	5	66	74	69	0.49
Logan	0	6	12	12	0.08
Lyon	210	924	990	780	5.49
McPherson*	22	85	86	64	0.45
Marion*	5	18	20	15	0.11
Marshall	0	232	248	248	1.75
Meade*	6	93	116	110	0.77
Miami*	5	312	357	352	2.48
Mitchell	3	40	44	41	0.29
Montgomery*	17	308	374	357	2.51
Morris	3	26	31	28	0.20
Morton*	3	13	14	11	0.08
Nemaha	1	71	102	101	0.71
Neosho*	2	115	144	142	1.00
Ness*	0	51	74	74	0.52
Norton*	1	26	29	28	0.20
Osage*	5	85	99	94	0.66
Osborne*	2	6	6	4	0.03
Ottawa*	4	48	52	48	0.34
Pawnee*	0	266	368	368	2.59
Phillips*	1	77	111	110	0.77
Pottawatomie	13	187	235	222	1.56
Pratt*	1	57	71	70	0.49
Rawlins*	0	2	20	20	0.14
Reno*	36	911	1,065	1,029	7.25
Republic*	4	40	48	44	0.31
Rice*	3	61	72	69	0.49
Riley	48	1,171	1,345	1,297	9.13
Rooks	6	44	61	55	0.39
Rush*	0	41	53	53	0.37
Russell	0	54	80	80	0.56
Saline	21	551	657	636	4.48

Table 3. Comparison of positive cases by county. *cont.*

Kansas County	First Survey 5/1/2020	Second Survey 9/14/2020	Current 9/23/2020	Increased Cases (5/1/2020 to 9/23/2020)	Average Daily Increase
Scott	1	91	94	93	0.65
Sedgwick	384	8,040	8,577	8,193	57.70
Seward	514	1,371	1,485	971	6.84
Shawnee	121	2,496	2,671	2,550	17.96
Sheridan*	2	12	14	12	0.08
Sherman*	4	19	31	27	0.19
Smith*	2	6	6	4	0.03
Stafford*	1	49	53	52	0.37
Stanton	4	46	57	53	0.37
Stevens*	9	83	114	105	0.74
Sumner*	3	167	186	183	1.29
Thomas	0	76	123	123	0.87
Trego	0	29	33	33	0.23
Wabaunsee*	22	66	67	45	0.32
Wallace*	0	14	17	17	0.12
Washington*	0	14	17	17	0.12
Wichita*	0	5	5	5	0.04
Wilson	1	38	59	58	0.41
Woodson*	6	15	20	14	0.10
Wyandotte	710	6,578	6,906	6,196	43.63
Total cases	4,449	49,899	55,226	50,777	357.58
Total counties	81	105	105	24	--
Deaths	130	534	621	491	3.46
Negative cases	28,585	408,482	437,055	408,470	2876.55
Age range, years	0 to 99	0 to 106	0 to 107	--	--
Median age	44 years	35 years	35 years	--	--
Positive cases at KHEL	1,587	12,452	13,205	11,618	81.82
Positive cases at private labs	2,862	35,557	39,460	36,598	257.73
Female cases	2,045	24,306	27,118	25,073	176.57
Male cases	2,359	28,410	27,265	24,906	175.39
Unknown cases	45	783	843	798	5.62

*Medically Underserved Areas for Medicare designated Rural Health Clinics; Kansas Governor Certified Counties, February 2020

Top 5% increase in COVID-19 cases by county: Ford, Johnson, Sedgwick, Shawnee, Wyandotte

While rates of COVID-19 cases have increased dramatically, the results of the survey showed that CHDs have made positive changes toward containing the pandemic. For example, it appeared that available funding has increased, supply of PPE was improved, and the number of people being tested has increased. However, the number of people devoted to contact tracing has not changed and is well below the recommended number.⁶

It is the viewpoint of Rasmussen et al.,⁸ daily cases per 100,000 helps to classify areas (county/city/state) as low (< 1), moderate (1 to 10), high (10 to 25), and critical (> 25). The percent positive rate can be classified as low (< 3%), moderate (3% to 6%), high (6% to 10%), and critical (>10%). Rasmussen et al.⁸ suggested that these metrics could be used to decide phases of reopening communities. The daily case rate for the state of Kansas has fluctuated; it was 20.3 per 100,000 on September 15 and decreased to 9.4 on September 20. The percent positive rate was 11.2% (55,226 positives out of 492,281 tests) in Kansas.⁹

Lower median household income, higher unemployment, and household crowding conditions have been associated with increased likelihood of the spread of infection. In view of this fact, for persons with infection who cannot self-isolate, programs could provide spaces such as hotel rooms. However, it is not clear if Kansas has a program to assist low income persons or the unemployed with housing/food/income support if diagnosed with COVID-19.

When asked in the current survey, “Do you collect information from the people you test for COVID-19 whether they wear a face mask in public places?”, only seven counties, less than 18%, reported “Yes”. In consideration, Jefferson et al.¹¹ reviewed 67 studies that showed wearing a face mask reduced the risk of transmission of respiratory infections. Research conducted in Hong Kong showed that wearing a face mask effectively restricted community spread of SARS-CoV.¹² Using mathematical modeling, Ngonghala et al.¹³ demonstrated if 70% of the community used a face mask in public the number of COVID-19 cases could be reduced by 70%. Wang et al.¹⁴ showed that universal mask wearing among health care workers and patients reduced transmission of SARS-CoV-2 infections in a hospital system employing more than 75,000 people. Covering the mouth and nose with filtering materials helped in the prevention of inhalation of harmful pathogens and particulates, and also prevented exposing others to infectious materials that is expelled during normal respiration from a person with infection (source control). Brooks et al.¹⁵ gave the example of a surgical team wearing face coverings (surgical face masks) to reduce the risk of surgical site infection caused by infectious material from the surgical team, and they said that face coverings do the same toward blocking transmission of SARS-CoV-2. The U.S. Centers for Disease Control and Prevention (CDC) recommended face masks not only for those suspected to have COVID-19, but to the general public as well, as there is increasing evidence that persons without symptoms can spread the infection.¹⁶ Among these and others, there is overwhelming evidence showing that wearing a face mask significantly decreases the spread of the virus. Thus, we recommend counties ask all persons they test for COVID-19 if they are wearing a face mask.

Important, airborne transmission of COVID-19 may occur, similar to the spread of other viruses such as SARS, Middle Eastern Respiratory Syndrome (MERS), and influenza.¹⁷ However, airborne transmission of SARS-CoV-2 in closed spaces needs to be studied in more detail to understand the importance of this route in the ongoing pandemic. Meanwhile, infectious disease experts recommended these important steps to reduce transmission of SARS-CoV-2: avoid closed spaces, crowded spaces, close contact, and prevent expelling respiratory secretions by wearing a face mask.³

The main limitation of the current survey is the low response rate. Only 41 out of 105 directors participated in the August 2020 survey compared to 78 responders in the April 2020 survey. As such, every effort was aimed at encouraging a higher response rate. Given the overwhelming workload for health departments, a survey response may have been unmanageable and deemed less important than efforts toward pandemic containment.

According to Halpern et al.,¹⁸ there are a number of cognitive errors that have occurred during this pandemic. Four errors were indicated: a) identifiable victim effect: humans responding more to threats to family than to hidden “statistical” deaths reported in media, b) tendency to have optimism bias and act as if the best case scenario was most likely instead of the worst case scenario, c) people tend to prefer immediate benefits (“present bias”) over larger benefits in the future (i.e., saving a life today compared to policy option of taking steps to prevent deaths over the long term), d) omission bias, the tendency to prefer that harm occur by failure to act rather than due to action taken, (i.e., why some people may refuse to wear a mask). To counteract the above cognitive errors, it is important to communicate effectively to the public the reasons for difficult decisions, understand the “identifiable victim effect”, avoiding routine use of terms such as “nonpharmaceutical interventions”, heavily support funding for contact tracing by characterizing such efforts as “lifesaving”, and by passing laws that require estimating the effects of policy on lives saved.¹⁹

The COVID-19 pandemic has resulted in 7.1 million positive cases in the U.S. with 204,000 deaths (33 million in the world with 996,000 deaths), as of September 2020. It is obvious that the pandemic is having a significant impact on the economy of Kansas (and the U.S.); how big an impact is yet to be determined. In addition, the pandemic has disrupted regular life and has led to increased stress and mental health issues.²⁰

The COVID-19 pandemic presents an opportunity for strong collaboration between state health departments, county health departments, physicians, and researchers.¹⁰ Calonge et al.¹⁹ recommended research and learning in real time to control and flatten the curve of this and future pandemics. After the survey, we were left with a number of questions. To our knowledge, our studies (this survey and from April 2020) were the only ones to study the efforts of CHDs. Why are there not more studies of CHDs in the U.S.?

When a safe and effective vaccine becomes available, the question is who would be entrusted to educate and administer the vaccine effectively? The CDC, as it previously led the 2009 H1N1 influenza vaccine response, will play an important role of selecting and distributing the vaccine to be administered in medical offices, clinics, hospitals, pharmacies, and possibly CHDs.²¹

In lieu of the fact that CHDs are overstretched, there is a need to develop carefully a model and system for pandemic planning and management. Would it make sense to consider creating an independent state department of public health emergency, one that is dedicated solely to the control of current and future pandemics, and empowered with enough funding, staffing, and legal authority to do so?

CONCLUSIONS

In August compared to April 2020, Kansas has increased the number of COVID-19 cases and deaths significantly. Results from this survey showed CHDs in general have more supplies to test for COVID-19, more testing sites, and reduced time to get results of testing. Funding has improved in many locations, but not all. There was a sense of being overwhelmed, especially among the smaller CHDs; however, there was no change in the number of staff involved in contact tracing. Only a few CHDs inquired if persons being tested were wearing masks. Based on the CDC guidelines and available scientific evidence, wearing masks while in public and better messaging regarding public health directives may help to stem the tide of the ongoing pandemic. Although, there is an urgent need for additional collaboration and research in this area. Perhaps we should consider a different model for managing current and future pandemics that is economically and politically feasible.

ACKNOWLEDGEMENT

This work was supported by a CTSA grant from NCATS awarded to the University of Kansas for Frontiers: University of Kansas Clinical and Translational Science Institute (# UL1TR002366). The contents are solely the responsibility of the authors and do not necessarily represent the official views of the NIH or NCATS.

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Keywords: COVID-19, public health, health guidelines, Kansas