

Assessment of Medical Workers' Awareness in Dealing with Suspected Cases of Coronavirus in Albaha District

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Abstract

The respiratory system is exposed to many infectious viruses, among which is Coronavirus. Coronaviruses comprise a large family of viruses that can cause a variety of illnesses, such as common cold to severe acute respiratory syndrome (SARS). This new Coronavirus is now known as, Middle East Respiratory Syndrome Coronavirus (MERS-CoV). Incidences of infection along with the causative agent, a bout Coronavirus (MERS-CoV), have not been determined; however, the mortality rate among those who received clinical care is 65%. Since Coronavirus was first described in September 2012, over 90 cases have been reported worldwide, whereby 70 cases were reported in Saudi Arabia alone. This study aims to assess health care providers' awareness in dealing with suspected cases of Coronavirus in AL-BAHA district. The study aimed at assessing health care providers' awareness in dealing with suspected cases of Coronavirus in the study area. This is a descriptive cross-sectional study, it was conducted in hospitals and health centre's in Al-Baha District. Participants include the health care providers (doctors 58 and nurses 96). The sample size was calculated according to Steven Thompson equation. The calculated sample size was 154 participants. The data were collected using questionnaire. The findings reveal that insufficient awareness regarding Coronavirus including the modes of transmission 51.3%.

Keywords

Coronavirus, Health Care Providers, Emerging Disease, and HCWs'

Received: March 30, 2021 / Accepted: June 1, 2021 / Published online: July 26, 2021

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1. Introduction

The respiratory system is exposed to many infectious viruses, among which is Coronavirus. Coronaviruses comprise a large strain of viruses that can cause a diversity of diseases, such as common cold and Covid-19. This type of Coronavirus is now known as, Middle East respiratory syndrome Coronavirus (MERS-CoV). Occurrences of infection along with the connective agent, a bout Coronavirus (MERS-CoV), have not been investigated; however, the mortality is rate 65%.

Coronavirus was described first time in September 2012, over 90 cases have been reported worldwide, whereby 70 cases were reported in Saudi Arabia alone. This study aims to assess health care providers' awareness in dealing with suspected cases of Coronavirus in AL-BAHA district. Middle East respiratory syndrome (MERS) affecting human, first case reported in Saudi Arabia in September, 2012, after the identification of a novel beta Coronavirus (MERS-CoV) affecting a Saudi Arabian patient who died from a severe respiratory illness. [8] The sources of the disease infection for

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most patients remain unknown. [9] Groups of human infection show that human-to-human MERS-CoV transmission can occur. [7] However, the source of the infection in most cases remains unknown. Study of human MERS-CoV sequences by Cotton *et al.* [10] has discovered the presence of at least three circulating genotypes within the KSA alone. Phylogenetic analyses of 13 complete and 8 partial genome sequences enabled estimates of the timing and geographic origins of individual viral clades. The authors proposed that MERS-CoV emerged in humans in 2011 and noted that sequence divergence between clades is consistent with several sporadic introductions of the virus into the human population, presumably from an animal reservoir [1].

Human-to-human transmission of MERS-CoV has been recognized in England, France, Tunisia, Italy, and Saudi Arabia. [6]. Middle East Respiratory Syndrome Coronavirus infection is associated with a high case death rate, with more than 50% deaths among identified patients [5]. Currently, there is little information about the molecular evolution of MERS-CoV and how it relates to virus transmission. The first confirmed case was reported in a 60-year-old male patient suffering from acute pneumonia and acute renal failure, the patient passed away in Jeddah, Saudi Arabia on the 24th of June 2012. Egyptian virologist Dr. Ali Mohamed Zaki isolated and identified a previously unknown Coronavirus from a man's lungs, then Dr. Zaki then posted his findings on the 24th of September 2012, on Pro MED-mail, [4], whereby the isolated cells showed cytopathic effects (CPE) in the form of rounding and creature formation.

The geographical distribution and phylogenetic relation of MERS-CoV across time in Saudi Arabia was examined. The close phylogenetic grouping of the MERS-CoV isolated from Al-Hasa region is reliable with the spread through human-to-human transmission [9].

Limited transmission has occurred in household settings whereby close family contact was present, it is important to note that the virus can also spread from infected patients to healthcare personnel. (While most Corona viral infections of humans cause slight illness, zoonotic transmission of animal Coronavirus such as SARS-CoV can cause severe illness and death). Two recent publications shed light on the whole clinical presentations. The majority of patients presented with fever (98%), fever with chills/rigors (87%), cough (83%), shortness of breath (72%), and dry cough (56%). The frequency of such symptoms, as well as, other symptoms are shown in (Table 1), noting that 21% of patients had diarrhea, and 21% suffered from vomiting [2].

There is no specific medication for disease caused by novel Coronavirus. However, many of the symptoms caused by this virus can be treated and therefore treatment should be based

on the symptoms of the patient. Moreover, supportive care for diseased persons can be highly effective.

But, according to USA Centers for Disease Control and Prevention (CDC) and WHO (World Health Organization), there are no specific treatments for patients infected with MERS-CoV infection.

The good news is scientists report that a combination of two authorized antiviral drugs (Ribavirin and Interferon) reduces virus replication and improves clinical outcomes of the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) infection [3].

2. The Objectives of the Research

The objectives of this study are classified into two groups; major objective and specific objectives:

2.1. General Objective

Assessment of awareness of medical workers 'in dealing with suspected cases of Coronavirus in AL-BAHA province.

2.2. The Specific Objectives

- 1) Identifying the knowledge of medical workers regarding the Coronavirus.
- 2) Identifying practice targets in dealing with suspected cases of Coronavirus.
- 3) Recognizing the preparedness of preventive measures existing in hospitals and health centers in Al-Baha district.

3. Methodology

This is a descriptive cross-sectional study; it was conducted in hospitals and health centers in Al-Baha District. Participants include doctors and nurses. The questionnaire was used to collect required data from medical workers AL-Baha during April 2014. The data was analyzed using the Statistical Package for Social Sciences (SPSS 17).

3.1. Study Population, Sampling, and Sample Size

The researcher used a descriptive analytical method for this study. A survey was administered to a selected sample from a specific population. The term 'survey' is commonly applied to a research methodology designed to collect data from a specific population, or a sample from that population, and typically utilizes a questionnaire as a survey instrument. The questionnaire was distributed by personal contact. The questionnaire was organized to solicit the opinions of the

sample about their awareness regarding how to deal with C. V. Sample surveys function as important tools for collecting and analyzing information from selected individuals, also they are widely accepted as key tools for conducting and applying basic social science research methodologies.

This survey was conducted among medical staff in AL-BAHA during APRIL 2014, whereby the sampled physicians occupied primary health care hospitals. The final questionnaire is composed of four parts. Part one collects data pertaining to participants' demographics and background characteristics which covers sex (gender), age in years, and years of experience. Part two assesses the knowledge of medical workers regarding the Coronavirus which includes 10 statements addressing general information. Part three evaluates how often participants deal with suspected cases of Coronavirus. Part four evaluates the preparedness of preventive measures existing in hospitals. Perception and attitude domains have response categories on Likert scale: 3=yes, not sure=2, no=1.

Participants and setting: The study took place in Emergency Departments of hospitals and health centres in Al-Baha district. Participants were selected from medical workers (doctors and nursing).

Data collection procedure: participant in the study is voluntary and medical workers will assure regarding the confidentiality of their data and questionnaires are self-completed. The questionnaire will take 10-15 minutes to complete.

Size of sample: To determine the size of the sample, the researcher used the Steven Thompson equation.

$$n = \frac{N \times p(1-p)}{\left[\left[N-1 \times (d^2 + z^2) \right] + p(1-p) \right]}$$

Study population of physicians is (N= 73), and Study population of nursing crews (N= 145).

By applying the previous equation on physicians, the sample size = 61, which makes up 83.6% of the total study population of physicians.

And by applying the same equation on the nursing staff, the sample size = 105 nurses at a rate of 72.4% of the total population of the study of the nursing staff.

Thus, a ratio of 83.6% of the physicians will be taken from each health center as a sample for the study, and a proportion of 72.4% will be taken of the nursing staff.

3.2. Statistical Analysis

The data analysis process was done using the Statistical Package for Social Sciences (SPSS 17.0), whereby frequency distributions of all variables were produced. All P values were based on 2-sided tests, and the cut-off value for statistical significance was set at .05. Chi-square analysis was used to test differences in proportions, and an independent test was used for the analysis of quantitative data. For testing differences between proportions, the sample size was calculated to estimate a difference of 0.03 between proportions with a 5% level of significance, and a power of 90% in a two-sided test.

4. Results

The sample population featured 38 years old doctors. Male participants comprised 58.6% of the sample, with an average period of experience that exceeded 9 years.

Table 1. Age, Experience and sex of respondent.

	Age	Experience	Sex
N	58	58	58
Mean	38.60	9.72	1.4138
Std. Deviation	7.69	5.18	0.49

The sample population comprised nurses of average age 34 years.

Table 2. Male participants comprised 58.6% of the sample, and female 41.4%.

	Age	Experience
N Valid	98	98
Mean	34.01	9.26
Std. Deviation	8.55	7.23

Table 3. Gender distribution for respondents.

	Frequency	Percent
Valid Male	35	35.0
Valid Female	63	63.0
Total	98	98.0

Table 4. Assessing the knowledge of medical workers regarding the Coronavirus.

Knowledge	Yes	%	Not Sure	%	No	%
1. Coronavirus comprises a large family of viruses that can cause a range of illnesses in humans, from the common cold to severe acute respiratory syndrome (SARS). TRUE	137	87.8	12	7.7	7	4.5
2. It is often believed that the incubation period of the virus Corona Middle East takes about 3 days. FALSE	56	35.9	34	21.8	66	42.3
3. Coronavirus can be transmitted from animals to humans. TRUE	83	53.2	28	21.8	66	42.8
4. The first appearance of the Coronavirus in the King Dom of Saudi Arabia. TRUE	57	36.5	45	28.8	54	34.6

Knowledge						
STATMENT	Yes	%	Not Sure	%	No	%
5. The virus that causes severe acute respiratory syndrome severe (SARS) is clearly different from the genetics of the new virus Corona. FALSE	73	46.8	45	28.8	38	24.4
6. Infection with (Corona) leads to a higher mortality rate than other viruses. TRUE	59	37.8	42	26.9	55	35.3
7. Scientists have been able to discover a lot of properties and methods regarding the transmission of this virus. FALSE	45	28.8	36	23.1	75	48.1
TRUE ANSWER	515					
% of TRUE ANSWER	47,17%					

Table 5. Statistics for Assessing the knowledge of medical workers regarding the Coronavirus question 1 to 7.

		Q1	Q2	Q3	Q4	Q5	Q6	Q7
N	Valid	156	156	156	156	156	156	156
	Missing	0	0	0	0	0	0	0
Mean		2.8333	1.9359	2.2436	2.0192	2.2244	2.0256	1.8077
Std. Deviation		.47970	.88485	.87526	.84602	.81576	.85722	.85847

By reviewing table 5; it becomes clear to us that the majority of health-care workers agree on the first passage which states "Coronavirus comprises a large family of viruses that can cause a range of illnesses in humans, from the common cold to severe acute respiratory syndrome (SARS)", with an average of 2.8, and according to Likert's Scale such percentage is closer to agreement, meaning that most doctors with a percentage of 87.8% agree on this passage, and the fact that it is indeed a correct answer.

Meanwhile, 64.1% of HCWs' reported their uncertainty regarding the second passage which states, " It is often believed that the incubation period of the virus Corona Middle East takes about 3 days", yet this statement is false. Also 64.8% of HCWs' reported their uncertainty regarding the third passage which states "Corona "virus

can be transmitted from animals to humans", yet this statement is true.

The cumulative percentage of Health Care Workers (HCWs') answers on the fourth statement revealed that more than three-quarters of the respondents are uncertain regarding the statement that states " The first appearance of the Coronavirus in the Kingdom of Saudi Arabia", yet this statement is true. Also, further cumulative percentage of HCWs' answers on the fifth statement revealed that 53.2% of respondents are uncertain regarding the statement that states " The virus that causes acute respiratory syndrome severe (SARS) is clearly different from the genetics of the new virus Corona. "Yet this statement is false.

The same result was founded in both the sixth and seventh statements, by accumulative percent of 62.2% and 71.2% respectively.

Table 6. Shows the practices of participants in dealing with suspended cases of Coronavirus.

Statement	Yes	%	Not Sure	%	No	%
8. There an inoculation /pollen available for the prevention of Coronavirus. FALSE	35	22.4%	47	30.1%	74	47.4%
9. There is an effective medication available to treat the virus Corona. FALSE	39	25%	42	26.9%	75	48.1%
10. There are laboratory tests available to reveal the Coronavirus. TRUE	70	44.9%	36	23.1%	50	32.1
11. The infection with Corona must be accompanied with the presence of diarrhea in the patient. FALSE	51	32.7%	40	25.6%	65	41.7%
12. I can find out the infected person just by looking. FALSE	40	25.6%	38	24.4%	78	50%
13. Patients are advised to use air conditioners or showers with hot water to reduce the severity of symptoms. TRUE	65	41.7%	30	19.2%	61	39.1%
19. Necessary measures should be taken to combat the infection while the patient is still under examination (suspected case). TRUE	95	60.9%	23	14.7%	38	24.4%
20. Ribavirin is an effective antibiotic for the treatment of virus Corona. TRUE	45	28.8%	77	49.4%	34	21.8%
21. Ombislsn is an effective antibiotic for the treatment of the Coronavirus. FALSE	18	11.5	90	57.7%	48	30.8%
22. Interferon is an effective antibiotic for the Treatment of the Coronavirus. TRUE	45	28.8%	88	56.4%	23	14.7%
23. Samples are taken from the lower respiratory tract of the patient. TRUE	71	45.5%	51	32.7%	34	21.8%
24. Normal examination is sufficient to confirm or deny the suspicion. False	29	18.6%	49	31.4%	78	50%
25. X-ray. FALSE	58	37.2%	62	39.7%	36	21%3.
26. An infected person with Severe Acute Respiratory syndrome can suffer from fever (over 38°C) and cough. TRUE	107	68.6%	26	16.7%	23	14.7%
27. An infected person can suffer from cough without overheating. FALSE	29	18.6%	31	19.9%	96	61.5%
28. An infected person suffers from cough, difficulty in breathing and stomach disorders (diarrhea). TRUE	77	49.4%	58	37.2%	21	13.5%
TRUE ANSWER	1030/ 2340					
% of TRUE ANSWER	44.02%					

Table 7. Shows the arithmetic average and the standard deviation of the participant's answers with regard to the practice targets in dealing with suspended cases of Coronavirus.

Statistics	Q8	Q9	Q10	Q11	Q12	Q13	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28
Mean	1.7500	1.7692	2.1282	1.9103	1.7564	2.0256	2.3654	2.0705	1.8077	2.1410	2.2372	1.6859	2.1410	2.5385	1.5705	2.3590
Std. Deviation	.80020	.82576	.87043	.86040	.83760	.90124	.85070	.71040	.62337	.64707	.78791	.76878	.76579	.73953	.78791	.70892

By reviewing table 7; it is revealed to us that most of the health-care workers (47.4%) reported their disagreement on the eighth statement, which is the correct answer. The average is 1.75 (Total score of 3), which indicates that the average degree of response to this question is not sure, meaning that participants were uncertain about this question.

In Q9, most of the health-care workers (48.1%) reported that they disagree on this statement, which is the correct answer. The average is 1.76 (Total score of 3), which indicates that the average degree of response to this question is not sure, meaning that participants were uncertain about this question.

In Q10, most of the health-care workers (44.9%) reported that they agree on this statement, which is the correct answer. The average is 2.1 (Total score of 3), which indicates that the average degree of response to this question is not sure, meaning that participants were uncertain about this question.

In Q11, most of the health-care workers (41.7%) reported that they disagree on this statement, which is the correct answer. The average is 1.9 (Total score of 3), which indicates that the average degree of response to this question is not sure, meaning that participants were uncertain about this question.

In Q12, most of the health-care workers (50%) reported that they disagree on this statement, which is the correct answer. The average mean is equals 1.9 (Total score of 3), which indicates that the average degree of response to this question is not sure, meaning that there was uncertainty by participants about this question.

In Q13, most health-care workers (41.7%) reported that they agree on this statement, which is the correct answer. The average is 2.02 (Total score of 3), which indicates that the average degree of response to this question is not sure, meaning that there were participants were uncertain about this question.

In Q19, 60.9% reported that necessary measures should be taken to combat the infection while the patient is still under examination.

In Q20, only (28.8%) of HCWs' answered this statement correctly, while the majority of HCWs' reported their uncertainty by 49.4%. Also, in Q21, only 30.8% of HCWs' answered this statement correctly, while the majority HCWs' reported their uncertainty by 57.7%. The same result was founded in Q22, as 28.8% of HCWs' answered this statement correctly, while the majority of HCWs' reported their uncertainty by 56.4%.

In Q23, the average is 2.32 (Total score of 3), which indicates that the average degree of response to this question is unsure; this means that participants were uncertain about this question. The same result was founded in each of Q24 and Q25 with an average of; 1.68 and 2.14 respectively.

In Q26, most of the health-care workers (61.65%) answered correctly. The average is 2.53 (Total score of 3), which indicates that the average degree of response to this question is agree, meaning that there was agreement from participants regarding this question.

The majority of HCWs' (68.6%) answered Q27 correctly; also, the majority of HCWs' (49.4%) answered Q28 correctly.

Part 4: Recognizing the preparedness of preventive measures existing in the hospitals:

Table 8. Recognizing the preparedness of preventive measures existing in the hospitals.

Preventive measures (Table 8)						
STATMENT	YES	%	NOT SURE	%	NO	%
14. The Infection can be transmitted from an infected person to a healthy person via touching or by shaking hands. TRUE	76	48.7%	29	18.6%	51	32.7%
15. The infection with Corona cannot be indirectly transmitted via touching surfaces and instruments contaminated with the virus. FALSE	46	29.5%	31	19.9%	79	50.6%
16. Irregularly was a hmy hand carefully with soap and water or use other disinfectants to be hammy hands for fear of infection transmission.	109	69.9%	13	8.3%	34	21.8%
17. I constantly wear masks so as to prevent the transmission of infection.	101	64.7%	15	9.6%	40	25.6%
18. The infection was never transmitted from any patient to health care workers. FALSE	38	24.4%	24	15.4%	94	60.3%

Table 9. Statistics for preventive measures.

		Q14	Q15	Q16	Q17	Q18	Q19
N	Valid	156	156	156	156	156	156
	Missing	0	0	0	0	0	0
Mean		2.1603	1.7885	2.4808	2.3910	1.6410	2.3654
Std. Deviation		.89079	.87259	.83063	.86936	.84966	.85070

In Q14, most of the health-care workers (48.7%) reported their agreement on its statement, which is the correct answer. The average is 2.16 (Total score of 3), which indicates that the average degree of response to this question is unsure, meaning that there were participants were uncertain about the Coronavirus transmission.

In Q15, most of the health-care workers (50.6%) reported the correct answer. The average is 1.78 (Total score of 3),

which indicates that the average degree of response to this question is not sure, meaning participants were uncertain about Coronavirus transmission.

In Q16, (69.9%) reported that they regularly wash their hands carefully with soap and water or use other disinfectants to wash their hands for fear infection transmission, meanwhile; 64.7% reported that they are constantly wear masks to prevent the transmission of infection.

Table 10. Shows the sources that contributed to the enrichment of the knowledge of health care worker regarding Coronavirus.

STATMENT	MANY	%	LITTLE	%	NOTHING	%
1. Leaflets and prints issued by the Ministry of Health	22	14.1%	58	37.2%	76	48.7%
2. Seminars held with the recommendations of the Ministry of Health.	18	11.5%	37	23.7%	101	64.7%
3. Television and radio	21	13.5%	68	43.6%	67	42.9%
4. Newspapers	23	14.7%	64	41.0%	69	44.2%

48.7% of the participants reported that Leaflets and prints issued by the Ministry of Health did not contribute to the enrichment of their knowledge regarding Coronavirus. 64.7% of the participants reported that Seminars held with the recommendation of the Ministry of Health did not contribute to the enrichment of their knowledge regarding Coronavirus. Finally, 43.6% of participants reported that television and radio have contributed a little.

5. Discussion

The results reported in this survey provide an initial insight to HCWs' knowledge, attitudes, and practices toward Coronavirus in Saudi Arabia. The response rate of physicians to the questionnaire is (93.97%) which is satisfactory compared to other studies, yet the characteristics of non-respondents remain unknown. Most physicians in this study were in their late thirties and were mainly practiced clinicians for an average period of experience that exceeded 9 years.

With regard to the results of the second part of the questionnaire, the results show health care workers' severe lack of public information regarding the Coronavirus, since the percentage of correct answers regarding this part is 47, 17% respectively.

The research findings reveal a general widespread of lack of knowledge regarding C. V modes of transmission ranging from 51.3% to 49.4%. Such low level of awareness is shocking given that HCWs' need to be aware of how they may transmit and acquire C. V during their working activities. The findings suggest the urgent need for

educational programs that can explicitly increase the level of knowledge among this group.

The current study also sheds light on practice targets in dealing with suspected cases of Coronavirus. The results also show the limited level of correct practice with suspected cases in relation to the subject of this paragraph, whereby the proportion of correct answers ranged from 68.6% to 28.8%. The results reveal the lack of knowledge of HCWs' regarding Coronavirus treatment as recommended by the World Health Organization (Interferon, Ribavirin), that is based on the fact that the percentage of correct answers ranges from 28.8% to 30.8%.

The study also shows that 64.65% of participants regularly wash their hands carefully with soap and water or use other disinfectants to wash their hands for fear infection transmission. Also 64.6% of participants are constantly wear masks to prevent the transmission of infection. This indicates the reasonable degree of the prepared preventive measures existing in the hospitals.

The survey's finding includes implications for the development of Coronavirus education, as well as, communication strategies for HCWs' that provide specific and detailed information suitable to the requirements of improving the level of knowledge about this issue.

Despite the widespread of the Coronavirus in Saudi Arabia; results of the study show the weakness of the Ministry of Health's efforts in raising awareness among HCWs' regarding the Coronavirus, since only 14.1% of the participants reported that Leaflets and prints issued by the Ministry of Health have significantly contributed to enrichment of their knowledge

regarding the Coronavirus. Also, only 11.5% of the participants reported that seminars held with the recommendations of the Ministry of Health have significantly contributed to the enrichment of their information about the Coronavirus. 13.5% of the participants reported that both television and radio have significantly contributed to the enrichment of their information about the Coronavirus. The case fatality ratio has been high, at about 60%. The cause has been identified as a Coronavirus, subsequently named Middle East respiratory syndrome Coronavirus (MERS-CoV).

In May 2013 the Kingdom of Saudi Arabia (KSA) requested WHO to organize a joint mission to improve understanding of the MERS-CoV situation in KSA and to provide guidance [11]. This paper aims to assess medical workers' awareness in dealing with suspected cases of Coronavirus in AL-BAHA province.

6. Recommendations

1) Intensifying health education activities through various

mass media.

- 2) Proposing the urgent need for educational programs that explicitly increase the level of knowledge among HCWs'.
- 3) Washing hands often with soap and water. When hands are not visibly dirty, a hand rub can be used.
- 4) Adopting healthy food safety practices, such as avoiding undercooked meat and unpasteurized milk (especially from camels), food prepared under unsanitary conditions, and washing fruits and vegetables properly before eating them.
- 5) Maintaining good personal hygiene and avoiding unnecessary contact with farm, domestic, and wild animals; especially camels and pats.
- 6) Taking the appropriate precautions when being in close contact with cases presenting with acute respiratory illness, diarrhea or other potentially infectious diseases.
- 7) Application of standard precautions while caring for all the patients in healthcare setting:

Table 11. Recommendations for health care workers.

Component	Recommendations
Hand hygiene	After touching blood, body fluids, secretions, excretions, contaminated items; immediately after removing gloves; and between patient contacts.
Gloves	During procedures and patient – care activities likely to generate splashes or sprays of blood, body fluids, secretions, and excretions.
Mask, eye protection, face shield	Handle in a manner that prevents the transfer of microorganism to others and to the environment; wear gloves if visibly contaminated; and perform hand hygiene.
Gown	During procedures of routine care, and whilst cleaning and disinfecting environmental surfaces; especially frequently touched surfaces in patient- care areas.
Soiled patient-care equipment	Handle in a manner that prevents transfer of microorganism to others and to the environment.
Needles and other sharps	Do not recap, bend, break, or hand manipulate used needles; use safety features when available; and place used sharps in puncture-resistant container.
Patient resuscitation	Use mouthpiece, resuscitation bag, and other ventilation devices to prevent mouth contact.
Patient placement	Priority for single patient room goes to patients who are at increased risk of transmission, are likely to contaminate the environment, do not maintain appropriate hygiene, or are at increased risk of acquiring infection or developing adverse outcomes following infection.
Respiratory hygiene/cough etiquette (source containment of infectious respiratory secretions in symptomatic patients, beginning at initial point of encounter)	Instruct symptomatic persons to cover mouth/nose when sneezing/coughing; use tissues and dispose in no-touch receptacle; observe hand hygiene after soiling of hands with respiratory secretions; wear surgical mask if tolerated, or maintain spatial separation, > 3 feet if possible.

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