

## SYNOPSIS

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# COVID-19 – What We Know So Far About...Symptoms

## Introduction

“What We Know So Far” documents are intended to provide an overview of some of the published and unpublished reports related to emerging issues with respect to coronavirus disease 2019 (COVID-19). The reports are found through ongoing scanning of the published literature and scientific grey literature (e.g., [ProMed](#), [CIDRAP](#), [Johns Hopkins Situation Reports](#)), as well as media reports. It is recognized that there may be additional information not captured in this document. As this is a rapidly evolving outbreak, the information will only be current as of the date the document was written. This document summarizes the evidence regarding the symptoms of COVID-19.

## Key Points

There is considerable variability between studies in the symptom presentation of COVID-19 infected individuals.

- Fever: The proportion of patients with a fever was variable, ranging from 44% to 99%.
- Cough: The proportion of individuals with cough was also variable, ranging from 22% to 83%.
- Shortness of breath: The proportion of patients with shortness of breath varied widely depending on the severity of illness.
- Sore throat: Sore throat was generally present in less than 20% of patients, although three studies reported higher proportions (45%, 47% and 61%).
- Rhinorrhea and anosmia: Rhinorrhea was noted in less than 7% of patients, except in two studies where it was 26% and 34%. Anosmia was not reported in any of the published studies in this review.
- Gastrointestinal symptoms: Diarrhea was reported in less than 20% of patients, except in one study where it was 24%. Vomiting alone was reported in 6% or less of patients.
- Headache and other neurologic conditions: Reports of headache ranged from 57% to less than 15%. Dizziness was reported alone in three studies with a frequency of less than 10%. Confusion was only referred to in one study and was reported by 9% of patients admitted with pneumonia.

- Non-specific symptoms: Fatigue was common in some studies, being reported by up to **75%** of patients, with lower frequencies in other studies. Reports of weakness ranged from **9%** to **56%**, and myalgia ranged from **11%** to **35%**.

## Symptoms

See [Appendix A](#) for details on the studies referred to below, including how they were selected. Most of the studies describe symptoms at the time of presentation or onset. For information on asymptomatic infection, see [What We Know So Far About... Asymptomatic Infection and Asymptomatic Transmission](#). Other than fever, no clinical signs or laboratory tests were reviewed.

### Fever

Fever was a common sign in COVID-19 patients, but a substantial minority of patients did not have an elevated temperature on presentation in some studies.

- In a large study in China, Guan W et al. found that 43.8% (473/1,081) of hospitalized patients had a temperature of  $\geq 37.50^{\circ}\text{C}$  on admission, while 88.7% (975/1,099) eventually had a fever at some point during their hospital stay. A surveillance report from Australia found that 47% of the 2,257 cases with available information had a fever. Even in studies of hospitalized patients with pneumonia, the percentage of patients with fever varied; for example, Wang D et al. noted a fever at baseline in 98.6% (136/138) of patients, while Wang Y et al. reported that only 61% (55/90) of patients had a fever.

### Cough

Cough was the most commonly reported respiratory symptom.

- The April 4, 2020 surveillance report from the [Public Health Agency of Canada](#) stated that **77%** of 6,455 cases had a cough, while the March 29, 2020 surveillance report from [Australia](#) noted a cough in **70%** of 2,257 cases with available information. Some studies of hospitalized patients found relatively small proportions of cases had a cough (e.g., in [Chen J et al.](#) **36.5%** (91/249) of patients had a cough). Even in hospitalized patients required to have pneumonia for study inclusion, cough was not consistently reported (e.g., [Wang Y et al.](#) found that **22%** (20/90) of patients had a cough, and [Liu W et al.](#) noted a cough in **43.6%** (34/78) of patients). Other studies noted higher proportions of patients with a cough, with the highest proportions in [Chen N et al.](#) (**82%**, 81/99) and [Young BE et al.](#) (**83%**, 15/18).
- Fewer studies reported on sputum production, with the proportion of the total number of patients who reported sputum production ranging from **14%** (11/80, [Wu J et al.](#)) to **41.3%** (83/201, [Wu C et al.](#)).

### Shortness of Breath

- The proportion of patients with shortness of breath varied widely depending on the severity of illness. In general population studies it ranged from **6.5%** (2/31, [Spiteri G et al.](#)) to **35%** (6/17, [Pung R et al.](#)), and in hospitalized patients it ranged from **1.3%** (2/149, [Yang W et al.](#)) to **76.2%** (16/21 of critically ill patients, [Arentz M et al.](#))

## Sore Throat

- The proportion of patients with sore throat also varied widely. Although **generally less than 20%** of patients complained of a sore throat, a few studies found much higher proportions (i.e., **61%**, 11/18 in [Young BE et al.](#); **47%**, 8/17 in [Pung R et al.](#); **45%** in the surveillance report from [Australia](#)).

## Rhinorrhea and Anosmia

- Rhinorrhea was reported in **less than 7%** of cases except in two studies where it was **26%** (21/81, [Shi et al.](#)) and **34%** [Australian Government Department of Health](#). Anosmia (loss of sense of smell) and hyposmia (decrease in the sense of smell) have recently been reported by clinicians as a common symptom of COVID-19, sometimes without any other symptoms ([ENTUK letter by Hopkins C et al.](#)). Ageusia (loss of sense of taste) has also been reported. Anosmia, hyposmia, and ageusia were not reported in any of the published studies in this review.

## Gastrointestinal Symptoms

- Diarrhea occurred in **less than 20%** of cases in all studies except one, where it was reported in **24%** of cases (4/17, [Pung R et al.](#)). Vomiting alone was reported in **6% or less** of patients.

## Headache and Other Neurologic Symptoms

- Headache was reported in **57%** of cases in the [Canadian surveillance report](#), **49%** of cases in the surveillance report from [Australia](#) and **19.4%** (6/31) of cases in a [European study](#). It was reported in **less than 15%** in other studies. Dizziness was reported separately from headache in only three studies and occurred at a frequency of **less than 10%** ([Wang D et al.](#), [Shi H et al.](#), [Mo P et al.](#)) Only one study ([Chen N et al.](#)) reported on confusion, noting it in **9%** (9/99) patients admitted with pneumonia.

## Non-Specific Symptoms

- Fatigue was fairly frequently reported in some studies (e.g., **75%**, 90/120 in [Zhang JJ et al.](#); **69.6%**, 96/138 in [Wang D et al.](#)); however, [Xu T et al.](#) noted fatigue in only **3.9%** (2/51) of patients, with other studies reporting frequencies between these extremes. Weakness was noted in **56%** of cases reported by the [Public Health Agency of Canada](#), with lower frequencies in other studies (e.g., [Shi H et al.](#) only reported weakness in **9%** of patients (7/81)). Myalgia ranged from **11%** (3/27) of patients in [Yuan M et al.](#) to **34.8%** (48/138) in [Wang D et al.](#)

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## Appendix A:

### Included Studies in the What We Know So Far About...Symptoms

One hundred and sixty-three (163) selected published articles on COVID-19 that were available in Public Health Ontario’s database to March 25, 2020 were scanned for relevance by one of several reviewers. Articles that dealt exclusively with children, pregnant women or long-term care facilities were excluded, as were articles with less than 10 cases. Additional articles and/or surveillance reports were added based on awareness of these sources.

In total, 25 peer-reviewed articles and two surveillance reports were abstracted for this review. Four articles / surveillance reports were population based ([Australia](#), [Canada](#), [Europe](#) and [Singapore](#)) (see Table 1 of this Appendix). The two population-based surveillance reports from Australia and Canada were abstracted as of April 4, 2020; these data will continue to change over time. Twenty-three studies are based on hospitalized patients, of which 21 originated from China (see Table 2 of this Appendix). A few articles are referenced in the “What We Know So Far About...Symptoms” and are not abstracted in this Appendix.

**Table 1: Studies of symptoms in the general population with COVID-19**

	Description	Fever	Cough	Shortness of breath	Other respiratory (e.g., sore throat, rhinorrhea)	Gastrointestinal (e.g., diarrhea, vomiting, anorexia)	Other (e.g., rash, anosmia, conjunctivitis, fatigue, headache, neurologic)	Comments
<a href="#">Australian Government Department of Health</a>	<ul style="list-style-type: none"> <li>4,159 cases reported in Australia to March 29, 2020; Symptom information available for 2,257;</li> <li><b>Age:</b> median age of 48 years; range 0 to 94 years</li> </ul>	47%	70%	22%	<b>Sore throat:</b> 45% <b>Runny nose:</b> 34%	<b>Diarrhea:</b> 18% <b>Nausea or vomiting:</b> 15%	<b>Headache:</b> 49% <b>Muscle pain:</b> 32%	

	Description	Fever	Cough	Shortness of breath	Other respiratory (e.g., sore throat, rhinorrhea)	Gastrointestinal (e.g., diarrhea, vomiting, anorexia)	Other (e.g., rash, anosmia, conjunctivitis, fatigue, headache, neurologic)	Comments
<a href="#">Public Health Agency of Canada</a>	<ul style="list-style-type: none"> <li>6,455 cases in Canada as of April 4, 2020</li> <li><b>Age:</b> all ages; 31% 60 years of age or older</li> </ul>	N/A	77%	N/A	N/A	N/A	<b>Headache:</b> 57% <b>Weakness:</b> 56%	Based on case report forms submitted to the Public Health Agency of Canada
<a href="#">Pung R et al.</a>	<ul style="list-style-type: none"> <li>17 individuals who tested positive in Singapore; followed until February 14, 2020;</li> <li><b>Age:</b> adults: median age 40 years;</li> <li><b>Comorbidities:</b> 3/17 (18%)</li> </ul>	15/17 (88%)	14/17 (82%)	6/17 (35%)	<b>Sore throat:</b> 8/17 (47%) <b>Runny nose:</b> 1/17 (6%)	<b>Diarrhea:</b> 4/17 (24%) <b>Nausea or vomiting:</b> 1/17 (6%)	<b>Chest pain:</b> 3/17 (18%) <b>Myalgia:</b> 5/17 (29%)	<ul style="list-style-type: none"> <li>Symptoms at initial interview</li> <li>Cases part of three clusters</li> </ul>



	Description	Fever	Cough	Shortness of breath	Other respiratory (e.g., sore throat, rhinorrhea)	Gastrointestinal (e.g., diarrhea, vomiting, anorexia)	Other (e.g., rash, anosmia, conjunctivitis, fatigue, headache, neurologic)	Comments
<a href="#">Spiteri G et al.</a>	<ul style="list-style-type: none"> <li>38 cases in WHO European Region from January 24 to February 21 2020; 35 were hospitalized;</li> <li><b>Age:</b> median age 42 years; range 2 to 81 years;</li> <li><b>Comorbidities:</b> reported for 7 cases – 5 had none, 1 obesity, 1 cardiac disease</li> </ul>	<p>20/31 (64.5%)</p> <p>Sole symptom for 9 cases</p>	14/31 (45.2%)	2/31 (6.5%)	<p><b>Sore throat:</b> 2/31 (6.5%)</p> <p><b>Rhinorrhea:</b> 2/31 (6.5%)</p>	<p><b>Diarrhea:</b> 1/31 (3.2%)</p>	<p><b>Headache:</b> 6/31 (19.4%)</p> <p><b>Weakness:</b> 8/31 (25.8%)</p>	<ul style="list-style-type: none"> <li>Symptoms at diagnosis reported for 31/38 (82%) cases <ul style="list-style-type: none"> <li>2/38 (5%) cases were asymptomatic</li> <li>Although this is a population-based study, 35 cases were hospitalized, mostly for isolation purposes</li> </ul> </li> </ul>

N/A = not available

**Table 2: Studies of symptoms in hospitalized COVID-19 patients**

	Description	Fever	Cough	Shortness of breath	Other respiratory (e.g., sore throat, rhinorrhea)	Gastrointestinal (e.g., diarrhea, vomiting, anorexia)	Other (e.g., rash, anosmia, conjunctivitis, fatigue, headache, neurologic)	Comments
<a href="#">Arentz M et al.</a>	<ul style="list-style-type: none"> <li>21 critically ill patients admitted to ICU in the United States from February 20 to March 5, 2020; follow-up to March 17, 2020</li> <li><b>Age:</b> adults; mean age 70 years; range 43 to 92 years;</li> <li><b>Comorbidities:</b> 18/21 (85.7%)</li> </ul>	>38°C 11/21 (52.4%)	10/21* (47.6%)	16 /21 (76.2%)	N/A	N/A	N/A	<ul style="list-style-type: none"> <li>Symptoms are those that were initially reported</li> <li>All patients critically ill and admitted to the ICU</li> <li>*The original article cites that 11 patients presented with cough but provides a proportion of 47.6%, which would correspond to 10/21 cases with cough.</li> </ul>
<a href="#">Bernheim A et al.</a>	<ul style="list-style-type: none"> <li>121 symptomatic hospitalized patients who underwent a chest CT from January 18 to February 2, 2020 in China;</li> <li><b>Age:</b> adults; mean age 45.3 years; range 18 to 80 years</li> </ul>	74/121 (61%)	<b>Cough:</b> 58/121 (48%)  <b>Sputum Production:</b> 20/121 (17%)	N/A	N/A	N/A	N/A	<ul style="list-style-type: none"> <li>Symptoms are those at presentation</li> <li>Study characterizes patients as early, intermediate and late with respect to time from symptom onset to time of the chest CT; data shown here represent all study patients combined</li> </ul>

	Description	Fever	Cough	Shortness of breath	Other respiratory (e.g., sore throat, rhinorrhea)	Gastrointestinal (e.g., diarrhea, vomiting, anorexia)	Other (e.g., rash, anosmia, conjunctivitis, fatigue, headache, neurologic)	Comments
<a href="#">Cao B et al.</a>	<ul style="list-style-type: none"> <li>Randomized control trial of hospitalized patients with pneumonia and hypoxia in China from January 18 to February 3, 2020; reporting results for control group (100/199 patients were in the control group); follow-up was to day 28 after randomization</li> <li><b>Age:</b> adults; median age control group 58 years; range 49 to 68 years</li> </ul>	At baseline: 93/100 (93%)	N/A	N/A	N/A	<b>Diarrhea:</b> 0/99 (0%) – after randomization	<b>Rash:</b> 0/99 (0%) – after randomization	<ul style="list-style-type: none"> <li>To be eligible for inclusion had to be a non-pregnant adult (18 years of age or older) and had pneumonia by chest imaging and met criteria for hypoxia</li> </ul>

	Description	Fever	Cough	Shortness of breath	Other respiratory (e.g., sore throat, rhinorrhea)	Gastrointestinal (e.g., diarrhea, vomiting, anorexia)	Other (e.g., rash, anosmia, conjunctivitis, fatigue, headache, neurologic)	Comments
<a href="#">Chen J et al.</a>	<ul style="list-style-type: none"> <li>249 hospitalized patients in China from January 20 to February 6, 2020; followed-up to February 25, 2020;</li> <li><b>Age:</b> adults; median age 51 years</li> <li><b>Comorbidities:</b> 90/249 (36.1%)</li> </ul>	<p><b>On presentation:</b> 217/249 (87.1%)</p> <p><b>In total:</b> 235/249 (94.3%)</p>	91/249 (36.5%)	19/249 (7.6%)	<p><b>Sore throat:</b> 16/249 (6.4%)</p> <p><b>Rhinorrhea:</b> 17/249 (6.8%)</p>	<p><b>Diarrhea:</b> 8/249 (3.2%)</p> <p><b>Loss of appetite:</b> 8/249 (3.2%)</p>	<b>Dizziness and headache:</b> 28/249 (11.2%)	<ul style="list-style-type: none"> <li>Symptoms reported at illness onset</li> <li>Data obtained from patients' medical records</li> </ul>
<a href="#">Chen N et al.</a>	<ul style="list-style-type: none"> <li>99 hospitalized patients with pneumonia in China from January 1 to January 20, 2020; clinical outcomes followed until January 25, 2020;</li> <li><b>Age:</b> mean age of 55.5 years; range 21 to 82 years;</li> <li><b>Comorbidities:</b> 50/99 (51%)</li> </ul>	82/99 (83%)	81/99 (82%)	31/99 (31%)	<p><b>Sore throat:</b> 5/99 (5%)</p> <p><b>Rhinorrhea:</b> 4/99 (4%)</p> <p><b>Chest pain:</b> 2/99 (2%)</p>	<p><b>Diarrhea,</b> 2/99 (2%)</p> <p><b>Nauseas and vomiting:</b> 1/99 (1%)</p>	<p><b>Headache:</b> 8/99 (8%)</p> <p><b>Confusion:</b> 9/99 (9%)</p> <p><b>Muscle aches:</b> 11/99 (11%)</p>	Symptoms reported on admission

	Description	Fever	Cough	Shortness of breath	Other respiratory (e.g., sore throat, rhinorrhea)	Gastrointestinal (e.g., diarrhea, vomiting, anorexia)	Other (e.g., rash, anosmia, conjunctivitis, fatigue, headache, neurologic)	Comments
<a href="#">Guan W et al.</a>	<ul style="list-style-type: none"> <li>1,099 hospitalized patients in China from December 11, 2019 to January 29, 2020;</li> <li><b>Age:</b> adults and children; median age 47.0 years;</li> <li><b>Comorbidities:</b> 261/1,099 (23.7%)</li> </ul>	<p>≥37.5°C on admission: 473/1,081 (43.8%)</p> <p>≥37.5°C during hospitalization: 975/1,099 (88.7%)</p>	<p><b>Cough:</b> 745/1,099 (67.8%)</p> <p><b>Sputum production:</b> 370/1,099 (33.7%)</p> <p><b>Hemoptysis:</b> 10/1,099 (0.9%)</p>	205/1,099 (18.7%)	<p><b>Sore throat:</b> 153/1,099 (13.9%)</p> <p><b>Nasal congestion:</b> 53/1,099 (4.8%)</p>	<p><b>Diarrhea:</b> 42/1,099 (3.8%)</p> <p><b>Nausea or vomiting:</b> 55/1,099 (5.0%)</p>	<p><b>Headache:</b> 150/1,099 (13.6%)</p> <p><b>Rash:</b> 2/1,099 (0.2%)</p> <p><b>Fatigue:</b> 419/1,099 (38.1%)</p> <p><b>Myalgia or arthralgia:</b> 164/1,099 (14.9%)</p>	<ul style="list-style-type: none"> <li>Symptoms reported on admission</li> <li>Results are also stratified by those with severe disease (N=173) and those with non-severe disease (N=926) based on the American Thoracic Society guidelines for community-acquired pneumonia; data shown here represent all study patients combined</li> </ul>
<a href="#">Huang C et al.</a>	<ul style="list-style-type: none"> <li>41 hospitalized patients in China from December 16, 2019 to January 2, 2020;</li> <li><b>Age:</b> adults; median age 49.0 years;</li> <li><b>Comorbidities:</b> 13/41 (32%)</li> </ul>	<p>≥37.3°C on admission 40/41 (98%)</p> <p>38.1-&gt;39.0°C on admission 32/41 (78%)</p>	<p><b>Cough:</b> 31/41 (76%)</p> <p><b>Sputum production:</b> 11/39 (28%)</p> <p><b>Hemoptysis:</b> 2/39 (5%)</p>	22/40 (55%)	N/A	<p><b>Diarrhea:</b> 1/38 (3%)</p>	<p><b>Myalgia or fatigue:</b> 18/41 (44%)</p> <p><b>Headache:</b> 3/38 (8%)</p>	<ul style="list-style-type: none"> <li>Symptoms based on those present at onset</li> <li>Results analyzed by those in the ICU (n=13) and not in the ICU (n=28); data shown here represent all study patients combined</li> <li>Predominance of males: 30/41 (73%) male, 11/41 (27%) female</li> </ul>

	Description	Fever	Cough	Shortness of breath	Other respiratory (e.g., sore throat, rhinorrhea)	Gastrointestinal (e.g., diarrhea, vomiting, anorexia)	Other (e.g., rash, anosmia, conjunctivitis, fatigue, headache, neurologic)	Comments
<a href="#">Lui W et al.</a>	<ul style="list-style-type: none"> <li>78 hospitalized patients in China from December 30, 2019 to January 15, 2020 with pneumonia and hospitalization for more than two weeks, who had either died or been discharged;</li> <li><b>Age:</b> median age 38 years; appear to be all adults, but not specifically stated</li> </ul>	Sought treatment for fever: 57/78 (73.1%)	34/78 (43.6%)	N/A	N/A	N/A	N/A	<ul style="list-style-type: none"> <li>Initial symptoms reported</li> <li>Results are stratified by those with progression (n=11) and those with improvement/stabilization (n=67); data shown here represent all study patients combined</li> </ul>

	Description	Fever	Cough	Shortness of breath	Other respiratory (e.g., sore throat, rhinorrhea)	Gastrointestinal (e.g., diarrhea, vomiting, anorexia)	Other (e.g., rash, anosmia, conjunctivitis, fatigue, headache, neurologic)	Comments
<a href="#">Liu Y et al.</a>	<ul style="list-style-type: none"> <li>76 hospitalized patients in China from January 21 to February 4, 2020;</li> <li>Age: <ul style="list-style-type: none"> <li>Mild cases – mean age 43.6 years;</li> <li>Severe cases – mean age 55.6 years</li> </ul> </li> </ul>	63/76 (82.9%)	35/76 (46.1%)	9/76 (11.8%)	Sore Throat: 10/76 (13.2%)	Diarrhea: 2/76 (2.6%)  Vomiting: 2/76 (2.6%)	Headache/ Dizziness 10/76 (13.2%)  Fatigue: 13/76 (17.1%)	<ul style="list-style-type: none"> <li>Symptoms are at initial presentation <ul style="list-style-type: none"> <li>Results are stratified by mild (n=46) and severe (n=30) based on respiratory distress, oxygenation, or severe complications); data shown here represent all study patients combined</li> </ul> </li> </ul>
<a href="#">Mo P et al.</a>	<ul style="list-style-type: none"> <li>155 consecutive hospitalized patients with pneumonia in China from January 1 to February 5, 2020;</li> <li>Age: median age 54 years;</li> <li>Comorbidities: 71/155 (45.8%)</li> </ul>	126/155 (81.3%)	97/155 (62.6%)	Shortness of breath: 50/155 (32.2%)  Chest distress: 61/155 (39.4%)	N/A	Diarrhea: 7/155 (4.5%)  Vomiting: 3 (3.7%)*  Abdominal pain: 3/155 (1.9%)	Headache: 8 (9.8%)*  Fatigue: 60 (73.2%)*  Anorexia: 26 (31.7%)*  Dizziness: 2 (2.4%)*  Myalgia or arthralgia: 50 (61%)*	<ul style="list-style-type: none"> <li>Symptoms represent baseline characteristics</li> <li>Study characterizes general patients (n=70) versus refractory patients (n=85) (i.e., not improved by more than 10 days from admission); data shown here represent all study patients combined</li> <li>*Some of the numbers and percentages were not consistent with each other based on available information</li> </ul>

	Description	Fever	Cough	Shortness of breath	Other respiratory (e.g., sore throat, rhinorrhea)	Gastrointestinal (e.g., diarrhea, vomiting, anorexia)	Other (e.g., rash, anosmia, conjunctivitis, fatigue, headache, neurologic)	Comments
<a href="#">Shi H et al.</a>	<ul style="list-style-type: none"> <li>81 hospitalized patients in China with pneumonia based on a chest CT from December 20, 2019 to January 23, 2020;</li> <li><b>Age:</b> mean age 49.5 years; range 25 to 81 years;</li> <li>Comorbidities: 21/81 (26%)</li> </ul>	59/81 (73%)	<b>Cough:</b> 48/81 (59%)  <b>Sputum:</b> 15/81 (19%)	<b>Shortness of breath:</b> 34/81 (42%)  <b>Chest tightness:</b> 18/81 (22%)	<b>Rhinorrhea:</b> 21/81 (26%)	<b>Diarrhea:</b> 3/81 (4%)  <b>Vomiting:</b> 4/81 (5%)  <b>Anorexia:</b> 1/81 (1%)	<b>Headache:</b> 5/81 (6%)  <b>Dizziness:</b> 2/81 (2%)  <b>Weakness:</b> 7/81 (9%)	<ul style="list-style-type: none"> <li>Symptoms appear to be reported at onset</li> <li>Results are also stratified by groups based on timing of CT relative to onset of symptoms</li> </ul>
<a href="#">Wang D et al.</a>	<ul style="list-style-type: none"> <li>138 hospitalized patients with novel coronavirus pneumonia (NCP) in China from January 1 to January 28, 2020; follow-up to February 3, 2020</li> <li><b>Age:</b> median age 56 years; range 22 to 92 years;</li> <li>Comorbidities: 64/138 (46.4%)</li> </ul>	136/138 (98.6%)	<b>Dry cough:</b> 82/138 (59.4%)  <b>Expectoration:</b> 37/138 (26.8%)	43/138 (31.2%)	<b>Pharyngalgia:</b> 24/138 (17.4%)	<b>Diarrhea:</b> 14/138 (10.1%)  <b>Vomiting:</b> 5/138 (3.6%)  <b>Abdominal pain:</b> 3/138 (2.2%)  <b>Anorexia:</b> 55/139 (39.9%)	<b>Headache:</b> 9/138 (6.5%)  <b>Fatigue:</b> 96/138 (69.6%)  <b>Dizziness:</b> 13/138 (9.4%)  <b>Myalgia:</b> 48/138 (34.8%)	<ul style="list-style-type: none"> <li>Symptoms are reported at baseline</li> <li>Results are also analyzed by those with ICU admission (n=36) and non-ICU admission (n=102); data shown here represent all study patients combined</li> </ul>



	Description	Fever	Cough	Shortness of breath	Other respiratory (e.g., sore throat, rhinorrhea)	Gastrointestinal (e.g., diarrhea, vomiting, anorexia)	Other (e.g., rash, anosmia, conjunctivitis, fatigue, headache, neurologic)	Comments
<a href="#">Wang Y et al.</a>	<ul style="list-style-type: none"> <li>90 patients hospitalized with pneumonia in China from January 16 to February 17, 2020;</li> <li><b>Age:</b> mean age 45 years</li> </ul>	55/90 (61%)	20/90 (22%)	<b>Chest tightness:</b> 8/90 (9%)	<b>Sore Throat:</b> 7/90 (8%)	<b>Diarrhea:</b> 6/90 (7%)  <b>Anorexia:</b> 6/90 (7%)  <b>Abdominal pain:</b> 2/90 (2%)	<b>Headache:</b> 4/90 (4%)  <b>Weakness:</b> 22/90 (24%)  <b>Muscle pain:</b> 4/90 (4%)	Symptoms are reported at onset
<a href="#">Wang Z et al.</a>	<ul style="list-style-type: none"> <li>69 hospitalized patients in China from January 16 to January 29, 2020; follow-up was until February 4, 2020;</li> <li><b>Age:</b> adults; median age 42.0 years;</li> <li><b>Comorbidities:</b> 25/69 (36%)</li> </ul>	>37.3°C at onset: 60/69 (87%)	<b>Cough:</b> 38/69 (55%)  <b>Sputum production:</b> 20/69 (29%)	<b>Dyspnea:</b> 20/69 (29%)  <b>Oppression in chest:</b> 14/69 (20%)  <b>Chest pain:</b> 6/69 (9%)	<b>Pharyngalgia:</b> 6/69 (9%)	<b>Diarrhea:</b> 10/69 (14%)  <b>Vomiting:</b> 3/69 (4%)  <b>Anorexia:</b> 7/69 (10%)	<b>Headache:</b> 10/69 (14%)  <b>Fatigue:</b> 29/69 (42%)  <b>Myalgia:</b> 21/69 (30%)	<ul style="list-style-type: none"> <li>Symptoms are reported at onset</li> <li>Patients were stratified by SpO<sub>2</sub> ≥90% (n=55) and SpO<sub>2</sub>&lt;90% (n=14); data shown here represent all study patients combined</li> </ul>

	Description	Fever	Cough	Shortness of breath	Other respiratory (e.g., sore throat, rhinorrhea)	Gastrointestinal (e.g., diarrhea, vomiting, anorexia)	Other (e.g., rash, anosmia, conjunctivitis, fatigue, headache, neurologic)	Comments
<a href="#">Wu C et al.</a>	<ul style="list-style-type: none"> <li>201 hospitalized patients confirmed to have pneumonia in China from December 25, 2019 to January 26, 2020; follow-up was until February 13, 2020;</li> <li><b>Age:</b> median age 51 years; range 21 to 83 years;</li> <li><b>Comorbidities:</b> 66/201 (32.8%)</li> </ul>	188/201 (93.5%)	<b>Cough:</b> 163/201 (81.1%)  <b>Productive cough:</b> 83/201 (41.3%)	80/201 (39.8%)	N/A	N/A	<b>Fatigue or myalgia:</b> 65/201 (32.3%)	<ul style="list-style-type: none"> <li>Symptoms reported at onset</li> <li>Patients were stratified by those without acute respiratory distress syndrome (ARDS) (n=117) and those with ARDS (n=84); data shown here represent all study patients combined</li> </ul>
<a href="#">Wu J et al.</a>	<ul style="list-style-type: none"> <li>80 hospitalized patients in China from January to February 2020;</li> <li><b>Age:</b> adults and adolescents; mean age 44 years; range 15 to 79 years;</li> <li>Comorbidities: 15/80 (18%)</li> </ul>	≥37.3°C: 61/80 (76%)	<b>Cough:</b> 58/80 (73%)  <b>Expectoration:</b> 11/80 (14%)  <b>Blood in sputum:</b> 3/80 (4%)	<b>Dyspnea:</b> 7/80 (9%)  <b>Chest pain:</b> 5/80 (6%)	<b>Pharyngeal discomfort:</b> 9/80 (11%)	<b>Diarrhea/abdominal pain:</b> 7/80 (9%)	<b>Headache and dizziness:</b> 8/80 (10%)  <b>Muscle aches:</b> 13/80 (16%)	<ul style="list-style-type: none"> <li>Not clear when symptom were assessed</li> <li>Study excluded children and pregnant women</li> </ul>

	Description	Fever	Cough	Shortness of breath	Other respiratory (e.g., sore throat, rhinorrhea)	Gastrointestinal (e.g., diarrhea, vomiting, anorexia)	Other (e.g., rash, anosmia, conjunctivitis, fatigue, headache, neurologic)	Comments
<a href="#">Xu T et al.</a>	<ul style="list-style-type: none"> <li>51 hospitalized patients in China from January 23 to February 18, 2020; followed-up until February 27, 2020;</li> <li><b>Age:</b> adults; median ages 35 to 53.0 years;</li> <li><b>Comorbidities:</b> 12/51 (23.5%)</li> </ul>	34/51 (66.7%)	<b>Cough:</b> 23/51 (45.1%)  <b>Sputum production:</b> 13/51 (25.5%)	4/51 (7.8%)	<b>Pharyngalgia:</b> 3/51 (5.9%)	<b>Diarrhea:</b> 5/51 (9.8%)	<b>Fatigue:</b> 2/51 (3.9%)  <b>Myalgia:</b> 8/51 (15.7%)	<ul style="list-style-type: none"> <li>Symptoms appear to be at onset, but not totally clear</li> <li>Patients were stratified into three groups: <b>1.</b> Imported from Wuhan, <b>2.</b> Secondary: did not visit or come from Wuhan but closely contacts of the imported patients, <b>3.</b> Tertiary: cases did not visit Wuhan or contact the imported patients but acquired through contact with the secondary cases; data shown here represent all study patients combined</li> </ul>

	Description	Fever	Cough	Shortness of breath	Other respiratory (e.g., sore throat, rhinorrhea)	Gastrointestinal (e.g., diarrhea, vomiting, anorexia)	Other (e.g., rash, anosmia, conjunctivitis, fatigue, headache, neurologic)	Comments
<a href="#">Yang W et al.</a>	<ul style="list-style-type: none"> <li>149 hospitalized patients in China from January 17 to February 10, 2020; outcomes followed up until February 15, 2020;</li> <li><b>Age:</b> adults; mean age 45.1 years;</li> <li><b>Comorbidities:</b> 52/149 (34.9%)</li> </ul>	114/149 (76.5%)	<b>Cough:</b> 87/149 (58.4%)  <b>Expectoration:</b> 48/149 (32.2%)	<b>Dyspnea:</b> 2/149 (1.3%)  <b>Chest pain:</b> 5/149 (3.4%)  <b>Chest tightness:</b> 16/149 (10.7%)	<b>Sore throat:</b> 21/149 (14.1%)  <b>"Snotty":</b> 5/149 (3.4%)	<b>Diarrhea:</b> 11/149 (7.4%)  <b>Nausea and vomiting:</b> 2/149 (1.3%)	<b>Headache:</b> 13/149 (8.7%)  <b>Muscle pain:</b> 5/149 (3.4%)	Symptoms are reported on admission
<a href="#">Yang X et al.</a>	<ul style="list-style-type: none"> <li>52 critically ill, hospitalized patients with COVID-19 pneumonia in China from late December 2019 to January 26, 2020;</li> <li><b>Age:</b> adults; mean age 59.7 years;</li> <li><b>Comorbidities:</b> 21/57 (40%) had chronic illness</li> </ul>	51/52 (98%)	40/52 (77%)	<b>Dyspnea:</b> 33/52 (63.5%)  <b>Chest pain:</b> 1/52 (1%)	<b>Rhinorrhea:</b> 3/52 (6%)	<b>Vomiting:</b> 2/52 (4%)	<b>Headache:</b> 3/52 (6%)  <b>Myalgia:</b> 6/52 (11.5%)  <b>Malaise:</b> 18/52 (35%)	<ul style="list-style-type: none"> <li>Symptoms based on baseline characteristics</li> <li>Symptoms stratified by survivors (n=20) and non-survivors (n=32); data shown here represent all study patients combined</li> </ul>

	Description	Fever	Cough	Shortness of breath	Other respiratory (e.g., sore throat, rhinorrhea)	Gastrointestinal (e.g., diarrhea, vomiting, anorexia)	Other (e.g., rash, anosmia, conjunctivitis, fatigue, headache, neurologic)	Comments
<a href="#">Young BE et al.</a>	<ul style="list-style-type: none"> <li>18 patients hospitalized in Singapore from January 23 to February 3, 2020;</li> <li><b>Age:</b> median age 47 years; range 31 to 73 years;</li> <li>Comorbidities: 5/18 (28%)</li> </ul>	13/18 (72%)	15/18 (83%)	2/18 (11%)	<b>Sore Throat:</b> 11/18 (61%)  <b>Rhinorrhea:</b> 1/18 (6%)	<b>Diarrhea:</b> 3/18 (17%)	N/A	<ul style="list-style-type: none"> <li>Symptoms reported at presentation</li> <li>Symptoms stratified by those who required oxygen (n=6) and those who did not (n=12); data shown here represent all study patients combined</li> </ul>
<a href="#">Yuan M et al.</a>	<ul style="list-style-type: none"> <li>27 hospitalized patients with pneumonia in China from January 1 to January 25, 2020; followed to discharge or death;</li> <li><b>Age:</b> adults; median age 60 years;</li> <li>Comorbidities: 13/27 (48%)</li> </ul>	21/27 (78%)	16/27 (59%)	11/27 (41%)	N/A	N/A	<b>Myalgia:</b> 3/27 (11%)	<ul style="list-style-type: none"> <li>Symptoms reported at presentation</li> <li>Symptoms stratified by those who survived (n=17) and those who died (n=10); data shown here represent all study patients combined</li> </ul>

	Description	Fever	Cough	Shortness of breath	Other respiratory (e.g., sore throat, rhinorrhea)	Gastrointestinal (e.g., diarrhea, vomiting, anorexia)	Other (e.g., rash, anosmia, conjunctivitis, fatigue, headache, neurologic)	Comments
<a href="#">Zhang JJ et al.</a>	<ul style="list-style-type: none"> <li>140 hospitalized patients in China from January 16 to February 3, 2020;</li> <li><b>Age:</b> median age 57 years; range 25 to 87 years;</li> <li><b>Comorbidities:</b> 90/140 (64.3%)</li> </ul>	110/120 (91.7%)	90/120 (75%)	<b>Chest tightness/dyspnea:</b> 44/120 (36.7%)	N/A	<b>Diarrhea:</b> 18/139 (12.9%) <b>Emesis:</b> 7/139 (5.0%) <b>Abdominal pain:</b> 8/139 (5.8%) <b>Nausea:</b> 24/139 (17.3%) <b>Belching:</b> 7/139 (5.0%) <b>Anorexia:</b> 17/139 (12.2%)	<b>Fatigue:</b> 90/120 (75%)	<ul style="list-style-type: none"> <li>Symptoms were reported on admission</li> <li>Symptoms are stratified as severe or non-severe; data shown here represent all patients combined</li> </ul>
<a href="#">Zhou F et al.</a>	<ul style="list-style-type: none"> <li>191 hospitalized patients in China up to January 31, 2020 with a definitive outcome</li> <li><b>Age:</b> median 56 years; range 18 to 87 years;</li> <li><b>Comorbidities:</b> 91/191 (48%)</li> </ul>	≥37.3°C on admission 180/191 (94%)	<b>Cough:</b> 151/191 (79%) <b>Sputum production:</b> 44/191(23%)	N/A	N/A	<b>Diarrhea:</b> 9/191 (5%) <b>Nausea or vomiting:</b> 7/191 (4%)	<b>Myalgia:</b> 29/191 (15%) <b>Fatigue:</b> 44/191 (23%)	<ul style="list-style-type: none"> <li>Symptoms reported on admission</li> <li>Symptoms stratified by non-survivors (n=54) and survivors (n=137); data shown here represent all study patients combined</li> </ul>

N/A = not available

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