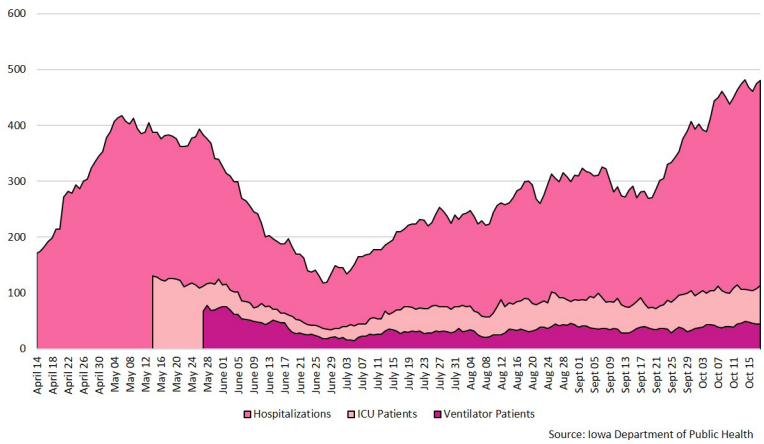
Indicators Program

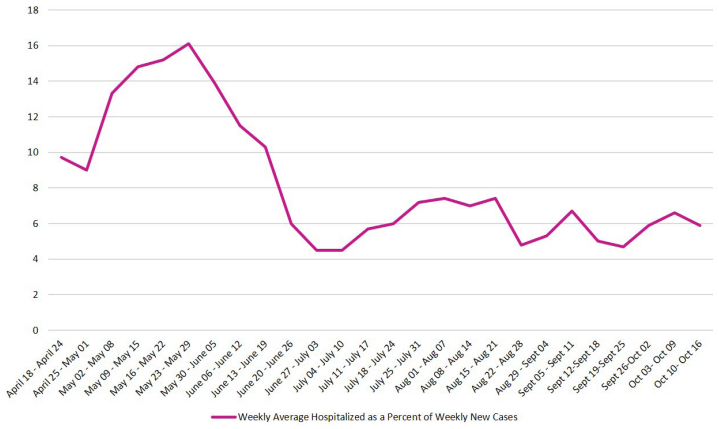
Covid-19 in Iowa: Hospitalizations, Age, and Deaths

Figure 1. Reported Daily Covid-19 Patients Hospitalized, in ICU, and on Ventilators, Iowa, 2020



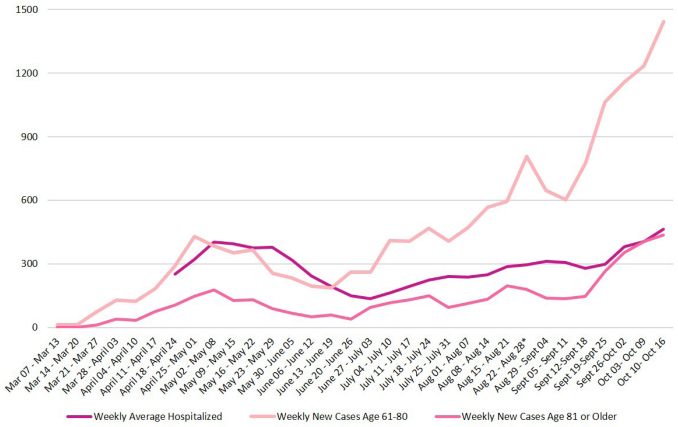
Source: Iowa Department of Public Health

Figure 2. Weekly Average Covid-19 Hospitalized Patients as a Percent of Weekly New Covid-19 Cases, Iowa, 2020



Source: Iowa Department of Public Health

Figure 3. Weekly Average Number of Hospitalized Covid-19 Patients and Weekly Additional Covid-19 Cases Age 61-80 and Age 81 or Older, Iowa, 2020



Source: Iowa Department of Public Health *Includes cases with antigen testing

During the week of October 10th,[1] Iowa recorded several Covid-19[2] case milestones. The state surpassed 100,000 Covid-19 cases and 1,500 Covid-19 deaths. In addition, weekly new total cases and the weekly new cases for older persons age 61 and over reached new highs as did the average weekly number of persons hospitalized (Figures 1 - 4; Table 1). This report reviews trends of hospitalizations, intensive care (ICU) patients, and those on ventilators along with cases of older Iowans and deaths. The source of the information reviewed here is the Iowa Department of Public Health (IDPH).[3]

Persons with Covid-19 can experience a variety of symptoms.[2] Although some may have few, if any, symptoms of the virus, for others the virus can cause serious health problems and can lead to death. Although Covid-19 is not fatal for most of Iowa's patients,[4] an indicator of the severity of the disease for some patients is that they have been hospitalized for treatment. IDPH has reported the number of Covid-19 patients that are hospitalized as well as those that are in an intensive care unit (ICU) or on a ventilator breathing machine, although there are different starting dates for which reporting of each type of patient began.

The average number of Covid-19 patients who were hospitalized weekly in Iowa exceeded 400 during the early weeks of May. Average weekly hospitalizations then decreased to 135 in late June as the number of weekly cases declined only to increase again when weekly cases increased. In October, the average weekly number hospitalized again surpassed 400 with a new weekly high of 462 during the week of October 10th (Figures 1, 4; Table 1).

Although hospitalized patients at any given time can be from cases reported in any previous week, it can be useful to compare the average weekly number of hospitalized patients with the new cases of that same week. During the peak weeks of hospitalizations in May, the weekly average number of hospitalizations, as a percent of new cases, ranged from 13% to 16% (Figure 2, Table 1). There are, however, important differences in the hospitalization trends in September and thus far in October when compared with those for May. Although the number of hospitalized patients is again at weekly high levels, the percentage of

cases that are hospitalized is staying at a much lower level than in May. For the last eight weeks reported here, the rates of hospitalizations have ranged around 4.7% to 6.7% of new cases (Figure 2, Table 1). This is in spite of these same weeks having had some of the highest weekly cases reported since Covid-19 began in Iowa in March (Table 1). Because of the large number of cases reported recently, if hospitalizations were at the rates experienced in May, Iowa should now be experiencing an estimated weekly average of 1,000 - 1,200 hospitalized patients. Fortunately, Iowa is not yet reporting these high levels. However, it may be premature to speculate how hospitalizations may be going forward

Figure 4. Covid-19 Weekly Deaths and Average Hospitalized, ICU, and Ventilator Patients, Iowa, 2020

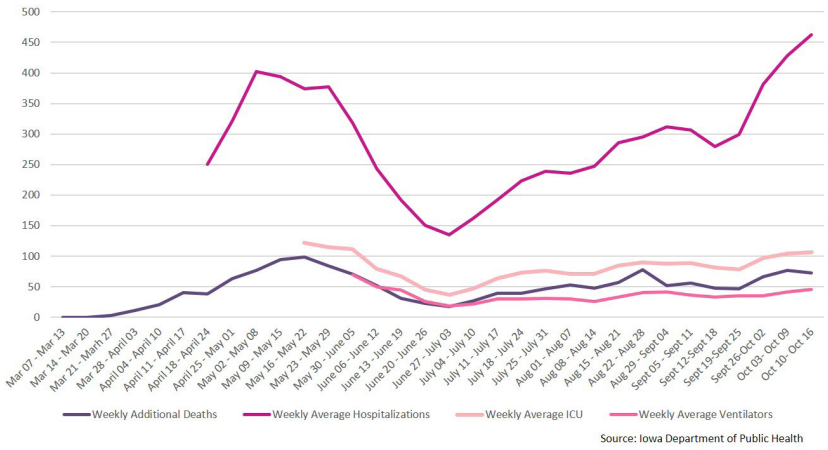
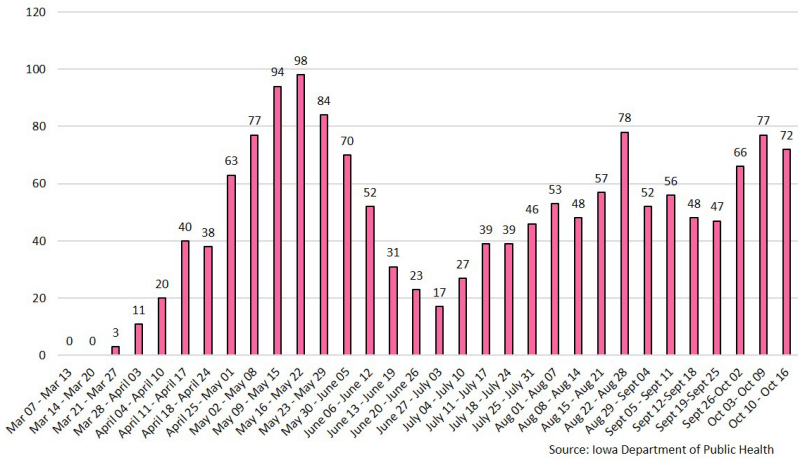


Table 1. Cumulative and Weekly Covid-19 Cases and Deaths, Cases by Age, and Average Weekly Number of Hospitalized, Intensive Care (ICU), and Ventilator Patients, Iowa, 2020.[1,2]

	Covid-19 Cumulative		Weekly Additional Covid-19 Cases			Weekly Additional Covid-19 Cases			Average Weekly Number of Hospitalized Covid-19 Patients[2]			Weekly Hospitalized[3] as a Percent of Weekly Cases		Percentages	
Week	Cases	Deaths	Total Cases	Cases Age 61 -80	Cases Age 81 or older	Cases Age 61 or Older	Percent Age 61 or older	Weekly Deaths	Hospitalized	ICU	Ventilator	Total Weekly Cases	Weekly Cases Age 61 or Older	% of Hospitalized in ICU	% of ICU on Ventilators
Mar 07 - Mar 13	15	0	15	12	0	12	80.0	0	*	*	*	*	*	*	*
Mar 14 - Mar 20	68	0	50	12	0	12	22.6	0	*	*	*	*	*	*	*
Mar 21 - Mar 27	298	3	230	74	10	84	36.5	3	*	*	*	*	*	*	*
Mar 28 - April 03	786	14	488	129	38	167	34.2	11	*	*	*	*	*	*	*
April 04 - April 10	1510	34	724	122	33	155	21.4	20	*	*	*	*	*	*	*
April 11 - April 17	2513	74	1003	183	75	258	25.7	40	*	*	*	*	*	*	*
April 18 - April 24	5092	112	2579	289	105	394	15.3	38	250	*	*	9.7	63.5	*	*
April 25 - May 01	8641	175	3549	428	146	574	16.2	63	321	*	*	9.0	55.9	*	*
May 02 - May 08	11671	252	3030	385	177	562	18.5	77	402	*	*	13.3	71.5	*	*
May 09 - May 15	14328	346	2657	351	127	478	18.0	94	394	*	*	14.8	82.5	*	*
May 16 - May 22	16795	444	2467	366	129	495	20.1	98	375	122	*	15.2	75.7	32.5	*
May 23 - May 29	19142	528	2347	255	88	343	14.6	84	377	115	*	16.1	109.9	30.5	*
May 30 - June 05	21438	598	2296	232	66	298	13.0	70	318	111	70	13.9	106.9	34.9	63.1
June 06 - June 12	23555	650	2117	194	50	244	11.5	52	243	80	49	11.5	99.6	32.9	61.3
June 13 - June 19	25424	681	1869	185	58	243	13.0	31	193	66	44	10.3	79.2	34.2	66.7
June 20 - June 26	27933	704	2509	260	38	298	11.9	23	150	45	25	6.0	50.4	30.0	55.6
June 27 - July 03	30923	721	2990	262	93	355	11.9	17	135	37	19	4.5	38.0	27.4	51.4
July 04 - July 10	34528	748	3605	409	116	525	14.6	27	162	47	21	4.5	30.9	29.0	44.7
July 11 - July 17	37904	787	3376	406	131	537	15.9	39	192	63	30	5.7	35.8	32.8	47.6
July 18 - July 24	41628	826	3724	467	149	616	16.5	39	223	73	30	6.0	36.3	32.7	41.1
July 25 - July 31	44936	872	3308	407	94	501	15.1	46	239	76	31	7.2	47.7	31.8	40.8
Aug 01 - Aug 07	48112	925	3176	470	112	582	18.3	53	236	71	30	7.4	40.5	30.1	42.3
Aug 08 - Aug 14	51640	973	3528	567	133	700	19.8	48	247	71	26	7.0	35.3	28.7	36.6
Aug 15 - Aug 21	55496	1030	3856	594	196	790	20.5	57	286	84	33	7.4	36.2	29.4	39.3
Aug 22 - Aug 28**	63112	1108	7616	806	180	986	10.7	78	295	90	40	4.8	35.8	30.5	44.4
Aug 29 - Sept 04	69006	1160	5894	647	137	784	13.3	52	312	88	41	5.3	39.8	28.2	46.6
Sept 05 - Sept 11	73547	1216	4541	602	136	738	16.3	56	306	89	36	6.7	41.5	29.1	40.4
Sept 12 - Sept 18	79128	1264	5581	775	145	920	16.5	48	279	81	33	5.0	30.3	29.0	40.7
Sept 19 - Sept 25	85425	1311	6297	1062	265	1327	21.1	47	299	78	35	4.7	22.5	26.1	44.9
Sept 26 - Oct 02	91861	1377	6436	1160	353	1513	23.5	66	381	97	35	5.9	25.2	25.5	36.1
Oct 03 - Oct 09	98356	1454	6495	1234	405	1639	25.2	77	428	104	41	6.6	26.1	24.3	39.4
Oct 10 - Oct 16	106147	1526	7791	1444	435	1879	24.1	72	462	106	45	5.9	24.6	22.9	42.5

[1]Source: Iowa Department of Public Health; [2]Hospitalized patients include non-Iowans; [3]Hospitalized patients at any given time may be from cases reported in any previous week; *not available; ** On August 27th, the Iowa Department of Public Health added the cumulative positive Covid-19 cases identified by antigen testing (1,377) to the state cumulative Covid-19 total cases identified by PCR (polymerase chain reaction) testing. Before August 27th, the reported state positive totals were based only on PCR testing. The data reported here for the week of August 22-August 28 reflect the totals *with* the added antigen cases even though those cases were from many previous weeks and months, not from just that week.

Figure 5. Weekly Reported Deaths from Covid-19, Iowa, 2020



Source: Iowa Department of Public Health

as there can be a lag period between a diagnosis of Covid-19 and the need for hospitalization.

Hospitalization is more likely to occur among patients who are older or have pre-existing conditions.[2] As larger numbers and proportions of older persons contract Covid-19, the percentage of hospitalizations should be higher than if most new cases are in younger people. We could expect then, that the age of patients would be a factor in the number needing hospitalization.

IDPH does not report hospitalizations by age, but weekly hospitalizations can be compared to weekly new cases of the two oldest reported age groups (61-80 and 81 or older). Although new cases in these two oldest age groups have gone up rather dramatically since September, hospitalizations, although increasing, have not yet followed the steep rise of cases in the oldest age groups (Figure 3, Table 1).[5] In recent weeks, hospitalizations as a percentage (22% - 26%) of new cases of persons age 61 or older have moderated in September and thus far in October compared with weeks in May (Table 1).[6] By a number of indicators, then, recent weeks have seen lower rates of patients needing hospitalization.

Some Covid-19 patients become quite ill and need additional care in an ICU when they are hospitalized. Some may have major breathing difficulties and need to be on a ventilator machine as well. During the earliest weeks that ICU and ventilator patients were reported, approximately one-third of those hospitalized were in ICU units. In recent weeks, the proportion of hospitalized who are in ICU units is lower now than in those early weeks, hovering around 26% or less. In addition, the proportion of ICU patients on ventilators is lower now than when the ventilator reporting began in June (Table 1). It remains to be seen if these moderated rates for ICU and ventilator patients continue.

Because patients in ICUs and especially those on ventilators are seriously ill, it is useful to compare hospitalization, ICU, and ventilator trends with numbers of deaths. Figure 4 shows the weekly average number of patients hospitalized, in an ICU, and on ventilators along with the number of weekly new deaths reported (Figure 4, Table 1). Again, keeping in mind that the number of deaths in any given week results from cases and hospitalizations from any previous week, deaths in Iowa thus far have tended to much more closely follow the numbers of patients for ICU and ventilators rather than the overall trend of hospitalizations. It is clear that patients needing the extra care of an ICU and a ventilator are very seriously ill.

Although total deaths reported from Covid-19 have now exceeded 1,500 in Iowa, as of this writing, weekly counts have not yet exceeded the levels above 90 reported in May (Figures 4-5, Table 1). A comparison of cumulative deaths with cumulative cases suggests an overall mortality rate of 1.44% during the weeks the virus has been active in Iowa (Table 1).[4] Some of the most significant factors in mortality from Covid-19 are the age and any pre-existing medical conditions of the patients.[2] IDPH reports that 89% of Covid-19 deaths in Iowa have been in patients age 61 or older even though persons of this age account for just 18% of Covid-19 cases. In addition, around 68% of decedents of those ages are reported to have had pre-existing medical conditions.[3]

Iowa is now at the highest levels of weekly new cases of Covid-19, both total and those of older age. It may be a hopeful sign that rates of hospitalization have been lower in the recent weeks reported here than in May. Perhaps the medical community is better able to treat Covid-19 patients now than in May, keeping more patients out of hospitals, out of ICUs, and off ventilators. Yet, rates may rise in the coming weeks and months and it may be premature to think that the recent trends of hospitalizations would continue. Once again, going forward, increased vigilance is needed to keep cases from rising further.

This report, others in the series, along with other information related to Covid-19 in Iowa and nationwide is available at: https://indicators.extension.iastate.edu/Indicators/COVID19/

Notes

[1]Although cases are reported on a daily basis, there are day-by-day variations in reporting that include weekends and holidays that make it useful to aggregate cases and reporting on a weekly basis to look at trends. The weeks reported here start with cases and tests reported for a Saturday and end with the reporting for the following Friday.

[2]Coronavirus disease 2019 (COVID-19) is defined as illness caused by a novel coronavirus now called severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2; formerly called 2019-nCoV) https://www.medscape.com/answers/2500114-197401/what-is-covid-19. For symptoms see: https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html For additional risks for older persons see: https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/older-adults.html

[3]The source for the Covid-19 data reviewed here is the Iowa Department of Public Health (IDPH). Through the months that Covid-19 cases have been reported in Iowa, the Iowa Department of Public Health has utilized several methods of reporting the cases and testing in Iowa. These include press reports, web sites, data tables and files, mapping, and graphing. The data in this report have been gathered from a number of these methods. Several web sites directly from or affiliated with the Iowa Department of Public Health have been used. These include: https://www.idph.iowa.gov/; https://idph.iowa.gov/Emerging-Health-Issues/Novel-Coronavirus; https://coronavirus.iowa.gov/; https://coronavirus.iowa.gov/pages/access; https://open-iowa.opendata.arcgis.com/datasets/iacovid19-demographics; and https://open-iowa.opendata.arcgis.com/datasets/ia-covid19-cases

[4]As of October 16th, Iowa had recorded 106,147 Covid-19 cases and 1,526 deaths. The overall mortality rate ((1526/106147) * 100) would be 1.44%.

[5]On August 27, 2020, IDPH revised the reported statewide Covid-19 cases by adding an estimated cumulative 1,377 previous cases that had not been reported as positive cases. These cases were from many previous weeks and months, not from that current week. These cases came from an additional method of diagnosis using rapid antigen technology instead of the usual PCR (polymerase chain reaction) technology. The data reported here and in Table 1 for the week of August 22-August 28 reflect the totals *with* the added antigen cases even though those cases were from many previous weeks and months, not from just that week. In order to get a more appropriate idea of what were the actual new cases just for that week only, the case totals can be adjusted downward by subtracting the number (1,377) of cumulative antigen cases added on August 27th (62,031 - 1,377 = 60,654). Even if a downward adjustment is made, August 27th would still be the day when cumulative cases exceeded 60,000.
See https://idph.iowa.gov/News/ArtMID/646/ArticleID/158374/IDPH-updates-COVID-19-antigen-test-results-following-increased-testing-volume-and-new-CDC-guidance.

[6]At any given time, the number of persons hospitalized results from cases reported from any previous days and week. In addition, hospitalizations can last for longer periods of time, from several days to several weeks or more. In May, weekly average hospitalizations as a percentage of new cases of persons 61 or older were quite high, exceeding 100% in some weeks due to the carryover of hospitalized patients from previous weeks, not just from the most immediate week or time period.

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